

**EXH. GA-3
DOCKET UE-210795
PSE'S CEIP
WITNESS: GILBERT ARCHULETA**

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

In the Matter of

PUGET SOUND ENERGY

**Clean Energy Implementation Plan
Pursuant to WAC 480-100-640**

Docket UE-210795

**THIRD EXHIBIT
TO THE PREFILED REBUTTAL TESTIMONY OF**

GILBERT ARCHULETA

ON BEHALF OF PUGET SOUND ENERGY

DECEMBER 12, 2022



Weatherization Manual

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for

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for

United States Department of Energy (DOE)

United States Department of Health and Human Services (HHS-LIHEAP)

Bonneville Power Administration (BPA)

and

Washington State Weatherization Plus Health (State)

Prepared By:

Washington State Department of Commerce, Energy Division

2022 Edition

July 2022 Version



WEATHERIZATION WORKS



Policies and Procedures

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**Managing the Low-Income Weatherization Program
for
United States Department of Energy (DOE)
United States Department of Health and Human Services (HHS-LIHEAP)
Bonneville Power Administration (BPA)
and
Washington State Weatherization Plus Health (State)**

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Low-Income Weatherization Program

Introduction

The Weatherization (Wx) Program increases home energy efficiency for low-income families. Thereby the Wx Program lowers energy use, reduces utility bills, and decreases the need for assistance with utility costs. The Wx Program also preserves low-income housing.

Vision:

All Washington State low-income housing is energy efficient, safe and affordable.

Mission Statement:

The Weatherization Program makes cost-effective energy efficiency and related repair improvements to homes occupied by low-income people to reduce energy bills and increase home health, safety and durability.

Commerce administers the Weatherization Program. Across Washington state, Local Agencies (LA) and Tribes provide weatherization services to low-income families.

Funding Sources include:

- U.S. Department of Energy (DOE) Weatherization Assistance Program
- U.S. Department of Health and Human Services (HHS) – LIHEAP
- Bonneville Power Administration (BPA)
- Washington State Weatherization Plus Health (State)
- Electric and Natural Gas Utility Companies

July 2022

Low-Income Weatherization Program

Precedence

Weatherization (Wx) projects shall be weatherized in accordance with the State of Washington Weatherization Manual (Policies and Procedures, Specifications, and Exhibits) for the appropriate housing type (single-family, mobile, and multifamily). Policy defines allowable Wx Program work.

The Washington State Weatherization Specifications (Specs), also known as Wx Field Guides, define applicable work that meets the specifications, objectives, and desired outcomes outlined in the Standard Work Specifications for Home Energy Upgrades (SWS). The [NREL Standard Work Specifications](#) are reference for any work the WA Wx Specs do not address.

More specific requirements (e.g.: manufacturer's installation directions) take precedence over more general Field Guide or SWS rules. Where the referenced documents specify different requirements, materials, or methods of construction the most restrictive shall govern.

Policy Memos

Policy Memo revisions to this publication are posted on the Commerce Extranet Wx Site, Wx Manual page, in the [Published Wx Manuals](#) Library. Policy memos make "Emergent Policy Changes" to the Wx Manual. Emergent Policy Changes are effective as of the date on the corresponding Policy Memo, unless another date is specified within the Policy Memo. Revisions are applied to the current Wx Manual available online at both Commerce's website and Commerce's Extranet Wx Site. Policy memos take precedence over published Wx Manual. The policy memo changes are automatically submitted for review during the next Proposed Change and Review Process.

Questions and Answers (Q&A)

To ask Weatherization Questions, please email WxQuestions@commerce.wa.gov. Past general questions and answers are posted on the Commerce Extranet Wx Site, HIP Wx Team Site page, in the [Questions-Answers](#) List. These Q&As are intended to supplement, discuss, and explain Wx requirements. They do not supersede requirements within either the Wx Contracts or the Wx Manual.

Margin Markers and Dates

Margin markers signify where and when a change was made. Solid vertical lines in the Wx Manual right margins (margin markers - black or red) indicate a substantive change from the requirements in the previous version. Revisions from the last published Wx Manual version are indicated with a red date in Table of Contents ([TOC](#)) and red margin markers. Both TOC date and margin marker correspond with each policy's *Effective Date* (upper left header). The date of the previous version is also provided, *Replaces* (lower left header). For Policy dates prior to 2016 (policies without header box) see TOC date (or page header or footer). If the margin marker is on a blank line alone, this indicates a deletion. Margin markers are not used for typos, formatting changes, or moves.

Web Addresses:

Wx Extranet Site: <https://extranet.commerce.wa.gov/teams/teamasa/HIP-Weatherization/SitePages/Home.aspx>

National Renewable Energy Laboratory's (NREL) Standard Work Specifications Tool: <https://sws.nrel.gov/>

The Weatherization Manual (Wx Manual) is prepared by the Department of Commerce (Commerce). The Wx Manual and Answers to Frequently Asked Questions (FAQs) are subject to change. Neither Commerce, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately-owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by Commerce or any agency thereof.

Policies and Procedures Managing the Low-Income Weatherization Program Table of Contents 2020 Standard Work Specifications (SWS) Multifamily Weatherization Specification	See also Policies and Procedures – P Multifamily Policies – M Specifications – S Exhibits – E Definitions – D
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Chapter 6 Allowable Costs and Fiscal	Chapter 7 Quality Assurance	Chapter 8 Program Management, Admin. & Reporting	Chapter 9 Health & Safety	Exhibits

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Policy 2.1.8-MF	Phasing Multifamily Weatherization Projects	July 2018

Section 2.2 **Documenting Eligible Dwellings**

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Chapter 3 *[Policies moved. References to new locations](#)*

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July 2022

<p>Policies and Procedures - MF Managing the Low-Income Weatherization Program Multifamily Table of Contents</p> <p>2020 Standard Work Specifications (SWS) 2022 WA Multifamily Weatherization Field Guide</p>	See also
	<p><i>Policies and Procedures</i> – P</p> <p><i>Multifamily Policies</i> – M</p> <p><i>Specifications</i> – S</p> <p><i>Exhibits</i> – E</p> <p><i>Definitions</i> – D</p>

The following Policies are specific to Multifamily (5 units and more).

For information not included here, refer to the general Policies and Procedures, 2022 WA Multifamily Weatherization Field Guide, or the Standard Work Specifications for guidance.

		Last Modified
Policy 1.4.2	Owner Contributions	July 2022
Policy 2.1.2-MF	Qualifying Multi-Unit Residences (P1.5)	March 16, 2022
Policy 2.1.8-MF	Phasing Multifamily Weatherization Projects	July 2018
Policy 5.1.1-MF	General Multifamily Requirements	July 2022
Policy 5.2.1-MF	Multifamily Energy Audit	Sept 8, 2021
Policy 5.2.3-MF	Multifamily Diagnostic Testing	July 2018
Policy 5.2.6-MF	Multifamily Representative Sample	July 2018
Policy 5.3.1-MF	Multifamily Air Sealing – Attached Buildings	Sept 8, 2021
Policy 9.3-MF	Multifamily Indoor Air Quality – Mechanical Ventilation	July 2018

[2020 Standard Work Specifications \(SWS\)](#)
[Multifamily Weatherization Specification](#)

CHAPTER I

ELIGIBLE CLIENTS

See also
Policies and Procedures – [P](#)
Multifamily Policies – [M](#)
Specifications – [S](#)
Exhibits – [E](#)
Definitions – [D](#)

Effective Date: July 2016

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Weatherization Policy

Replaces: Policy 2.1 partial (PM 16-01– February 8, 2016)

See also:
[LIHEAP Intake](#)
[10 CFR 440.22\(b\)\(3\)\(iii\)](#) and (e)
[Policy 1.3.1, Documenting Eligibility](#)

POLICY 1.1.1 APPLYING INCOME ELIGIBILITY STANDARDS

1. **Using LIHEAP Income Eligibility Guidelines:** The Weatherization Program follows the Washington State Energy Assistance Program/Low-Income Home Energy Assistance Program (LIHEAP) income eligibility guidelines. See **LIHEAP Intake** link (above) for LIHEAP Policies:
 - a. **LIHEAP Policy 1.3.0, *Determining Income Eligibility***, and
 - b. **LIHEAP Policy 1.3.1, *Defining Types of Income, Exclusions and Deductions***.
2. **Considering Earned Income:** Local Agencies shall account for all pay periods in the period used to establish eligibility, when considering earned income.
3. **Calculating Average Gross Income:** Local Agencies shall consider average income reported by current members of the household. See **LIHEAP 1.3.0 (B), *Average Gross Income Will Be Calculated***.
4. **Establishing Average Monthly Income:** Local Agencies shall use any DSHS and SSA income documentation received by an applicant for the month prior to application to establish the average monthly income from the income source, unless the client indicates the income varied in amount over the period considered.
5. **Documenting Income Eligibility:** See **Policy 1.3.1, *Documenting Eligibility***.

Effective Date: October 1, 2021

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Weatherization Policy

See also:

[Weatherization Income Eligibility Guidelines](#)
[WPN 18-3, 2018 Poverty Income Guidelines and Definition of Income](#)
[LIHEAP Intake](#)

[Policy 1.1.1, Applying Income Eligibility Standards](#)
[Policy 1.2.1, Prioritizing Eligible Weatherization Clients](#)

[Policy 1.3.1, Documenting Income Eligibility](#)

[Policy 1.3.2, Setting Period of Eligibility](#)

[Exhibit 1.3.1D, Declaration of No Income](#)

[10 CFR 440.22\(a\)\(1\)\(2\)\(3\)](#)

[WPN 99-7, 1999](#)

Replaces: Policy 1.1.2 - July 2021

[63 FR 41662 - Verification of Eligibility for Public Benefits](#)

POLICY 1.1.2 DETERMINING INCOME ELIGIBLE CLIENTS

1. **Using LIHEAP Income Eligibility Guidelines:** Local Agencies shall follow the income eligibility guidelines for the Washington State Energy Assistance Program/Low-Income Home Energy Assistance Program (LIHEAP) to determine types of eligible income, how to document income, and other eligibility rules. For more information, see:
 - a. *Weatherization Income Eligibility Guidelines*,
 - b. **LIHEAP Intake** link (above),
 - c. **Policy 1.1.1, *Applying Income Eligibility Standards***, and
 - d. **Policy 1.3.1, *Documenting Income Eligibility***.
2. **Commerce Publishes Wx Income Eligibility Guidelines Annually:** Commerce uses federal poverty guidelines issued annually by the United States Department of Health and Human Services (HHS) to establish client eligibility for the Weatherization Program. See *Weatherization Income Eligibility Guidelines*
3. **Determining Eligibility:**
 - a. Local Agencies shall determine income eligibility of a [household](#) prior to providing weatherization services.
 - b. Each household member shall submit source income documentation for the time period set.

Exceptions:

- (1) Children nineteen years of age, or under.
- (2) Self-Certification. See **Exhibit 1.3.1D, *Declaration of No Income***.

4. **Applying Eligible Income Guidelines Threshold:** To income qualify a household, the income received by all household members shall not exceed 200 percent of federal poverty level (200% FPL) or 60 percent of state median income (60% SMI), whichever is greater, using only [eligible household members](#) to determine the household count. See **Policy 1.2.1, Prioritizing Eligible Weatherization Clients** for priority.

Exception:

- a. For projects using Washington State Weatherization Plus Health (State) funding only, Local Agencies may use the qualification option of 80 percent of area median income (80%AMI), whichever is greatest.
5. **Applying Income Exclusions:** See **LIHEAP Intake** link (above) for **LIHEAP Policy 1.3.1, Defining Types of Income, Exclusions and Deductions**.
- a. For 125% FPL, all current income exclusions apply.
- b. For 200% FPL, 60% SMI, and 80% AMI all income exclusions apply except:
- (1) 20 percent allowance for wage earner.
 - (2) 10 percent retirement deduction.
 - (3) 10 percent deduction for unemployment benefits.
6. **Determining Household Size and Citizenship Status:** Local Agencies shall determine the citizenship status of each household member in a single-family dwelling receiving Federal Public Benefit. Per 62 FR 61344-61416, an eligible household member shall be a U.S. citizen or [documented immigrant \(qualified alien\)](#). Each eligible household member's citizenship status shall be documented. See **Policy 1.3.1, Documenting Income Eligibility** for documentation requirements.

Exceptions:

- a. Children under the age of 1 are exempt from documented immigrant (qualified alien) status verification.
- b. Local Agencies that are nonprofit charitable organizations and have completed the eligibility criteria opt out process and have a contractual agreement with Commerce for Weatherization Services. These entities are not required to determine, verify, or otherwise require proof of an applicant's eligibility based on the applicant's status as a U.S. citizen, U.S. non-citizen national or documented immigrant (qualified alien). (62FR 61345 D). According to HHS guidance, if those exempt entities decide not to perform that eligibility determination then the State is responsible to perform it on their behalf.

- c. Local Agencies do not need to verify alienage or citizenship of any of the multifamily building residents, since federal funds for weatherization of a multi-unit building (more than one dwelling unit) are not considered a Federal Public Benefit.

7. **Setting Time Period to Document Household Income:** Local Agencies shall set a period of time used to document the household's income. They may use either three (3) or 12 months prior to the date of application.

Exception: At the Local Agencies' discretion for LIHEAP Program Year 2021-2022, Energy Assistance income qualified clients using only one (1) month of income are eligible for Weatherization Services.

- a. When three months of income are used, it will be converted to an estimated annual wage by multiplying the most recent three months of income by four.
- b. If the household is determined to be ineligible based on the average income for three months, the applicant shall be notified that 12 months of documentation may be provided to re-determine eligibility.

Effective Date: July 2016

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Weatherization Policy

Replaces: Section 1.4 – April 2009

See also:
[Chapter 1, Eligible Clients](#)
[Chapter 2, Eligible Dwellings](#)
[Policy 1.3.3, Using Property Owner/Agency Agreements](#)

POLICY 1.1.3 QUALIFYING APPLICANT ELIGIBILITY: OWNERS OR TENANTS

1. Qualifying Owners or Tenants:

Eligible applicants shall be owners or tenants of single or multifamily homes, apartments, mobile homes, shelters, or other group facilities that are qualified by Commerce and its funding agencies.

2. Qualifying Renters:

If the household is renting, a property owner/agency agreement shall be signed by the owner or authorized agent of the building and included in the applicant household file before weatherization work begins. This includes residences designated as existing Section 8 housing. See **Policy 1.3.3, Using Property Owner/Agency Agreements**, for agreement forms for single and multifamily residences.

3. Qualifying Clients and Dwelling:

Additional policies for qualifying clients and dwellings, income standards, verification and documentation are described in **Chapter 1, Eligible Clients** and **Chapter 2, Eligible Dwellings**.

Effective Date: July 2017

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Weatherization Policy

Replaces: Policy 1.2.1 - July 2016

See also:
[Chapter 1, Eligible Clients](#)
[Policy 1.2.2, Searching for Eligible Weatherization Clients](#)

POLICY 1.2.1 PRIORITIZING ELIGIBLE WEATHERIZATION CLIENTS

1. Providing Weatherization Services:

Local Agencies will provide weatherization program services to eligible households in their service area and ensure that those who want to apply have an opportunity to do so. Commerce recognizes the extensive variations in the availability of eligible clients and relies on the discretion of local agencies to judge local situations. See **Policy 1.2.2, *Searching for Eligible Weatherization Clients***.

2. Prioritizing Clients:

Local Agencies shall give priority for weatherization services to:

- a. Elderly (60 years of age or older).
- b. Persons with disabilities.
- c. Children nineteen years of age, or under.
- d. [High Residential Energy Users](#)
- e. [Households with High Energy Burden](#)
- f. Native American, with particular emphasis on households residing on reservations.

3. Giving Preference to Clients:

Local Agencies may give preference for weatherization services to households meeting two or more of the priority criteria listed (e.g. elderly + households with high energy burden).

Effective Date: July 2016

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Weatherization Policy

Replaces: Section 1.1 partial – July 2015

See also:
[10 CFR 440.1](#)

POLICY 1.2.2 SEARCHING FOR ELIGIBLE WEATHERIZATION CLIENTS

1. Finding Applicants:

Local Agencies shall identify eligible Weatherization households in their service area.

2. Submitting Applications:

Local Agencies shall ensure that every applicant who wants to submit an application has an equal opportunity to apply.

3. Performing Outreach:

Local Agencies shall advertise the Weatherization Program to find eligible households in their service area. Outreach methods, include, but are not limited to:

- a. Informing organizations or advocacy groups that have a special interest in, or regular contact with, persons listed in **Policy 1.2.1, *Prioritizing Eligible Weatherization Clients***.
- b. Arranging for applications to be taken by, or at the site of, those organizations or advocacy groups.
- c. Placing multi-lingual posters and materials describing the program in public areas and buildings.
- d. Placing TV and radio ads to reach people who cannot read and those with limited English skills.
- e. Providing interpreters for non-English speaking applicants or applicants with communication challenges.
- f. Working with energy vendors to provide customers with program information.

Effective Date: July 2018

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Weatherization Policy

Replaces: Section 1.1.1 – July 2016

See also:
[Exhibit 1.2.3A, Percent of NA Low-Income Households](#)
[Policy 1.2.2, Searching for Eligible Weatherization Clients](#)

POLICY 1.2.3 SERVING LOW-INCOME NATIVE AMERICANS

1. Prioritizing Native Americans for Weatherization Services

Local Agencies shall serve low-income Native Americans in their service area, with particular emphasis on households residing on reservations.

2. Serving Native Americans Proportionately

Local Agencies shall serve eligible low-income tribal members in proportion to the percentage of Native American population based on current census data for their service area.

3. Performing Native American Outreach:

Local Agencies shall develop a Native American Outreach Plan each year and submit as part of the Local Agency Annual Work Plan.

Local Agencies may use a variety of outreach methods to recruit Native American clients as noted in **Policy 1.2.2, *Searching for Eligible Weatherization Clients***. Special outreach efforts may be required to achieve desired service levels, such as speaking at tribal community events.

Effective Date: July 2021

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Weatherization Policy

See also:

[LIHEAP Intake](#)

[Policy 1.1.1, Applying Income Eligibility Standards](#)

[Exhibit 1.3.1A, Income and Residence Verification Checklist](#)

[Exhibit 1.3.1B, Household Information Form \(HIF\)](#)

[Exhibit 1.3.1C, Household Member & Income Information Form](#)

[Exhibit 1.3.1D, Declaration of No Income](#)

[Exhibit 1.3.1E, Sample Wx Program Utility Information Release Waiver](#)

[Exhibit 1.3.1F, Documented Immigrant \(Qualified Alien\) Documents](#)

Replaces: Policy 1.3.1 – Feb 14, 2019

POLICY 1.3.1 DOCUMENTING ELIGIBILITY

1. **Documenting Income Eligibility:** Client file (project file) shall contain income eligibility documentation. These documents can be stored electronically or retained in hard copy for each client.
 - a. Types of required documentation:
 - (1) **Source Documentation:** Clear copies of income documents.
 - (2) **Verification:** Signed and dated statement by local agencies that the document was seen. See **Exhibit 1.3.1A, Income and Residence Verification Checklist**. Local Agencies may use this exhibit or equivalent documentation to record the “I saw” verification of client status, income, and residence.
 - (3) **Availability of Supporting Documentation:** For purposes of review and audit, each client file (project file) shall contain:
 - (a) **Application:** The client application with the required demographics and income from the entire family living in the residence;
 - (b) **Eligibility Evidence:** Evidence the client is eligible to receive Wx Services, including but not limited to: a memorandum from a third party certification office stipulating the income levels of the family; or source documentation for each income source listed on the application.
 - (4) **Multifamily buildings:** Local Agencies may use their own certification form to verify income eligibility of residents in public/subsidized multifamily buildings. When centralized records are available, they may substitute for individual Household Information Forms.

- b. **Applying for EA and Wx:** For households applying to both the Energy Assistance and Weatherization programs, local agencies shall follow applicant file and verification procedures defined by the Washington State Energy Assistance Program/LIHEAP. See **LIHEAP Intake** link above. At a minimum, the documentation in Wx client file (project file) shall include all of the following:
- (1) **Application:** LIHEAP Exhibit 1.3.1B, *Household Information Form (HIF)*, or equivalent information
 - (2) **Eligibility Evidence:**
 - (a) **Eligibility Determined by Outside Agency/Program:** If income eligibility is determined by an outside agency or program, i.e. Low-Income Home Energy Assistance Program (LIHEAP) or the U.S. Department of Housing and Urban Development (HUD), any document used to determine eligibility, such as a copy of LIHEAP eligibility or a copy of the HUD building list, will suffice as evidence of client eligibility;
 - (b) **Source Documentation;** or
 - (c) **Verification:** The Local Agency Representative shall review and verify client's income eligibility information, determine the client is eligible for Wx Program, and document in the client file (project file). The local agency may use **Exhibit 1.3.1A, *Income and Residence Verification Checklist***, or equivalent documentation.
- c. **Applying for Wx only:** For households applying only for Weatherization, local agencies shall collect and document the information included in the client file (project file):
- (1) **Application:** LIHEAP Exhibit 1.3.1B, *Household Information Form (HIF)*, or equivalent information.
 - (2) **Income calculation:** LIHEAP Exhibit 1.1.1(B), *Household Income Information Form*, Exhibit 1.3.1C, *Household Member & Income Information Form*, or equivalent documentation.
 - (3) **Eligibility Evidence:**
 - (a) **Eligibility Determined by Weatherization Program:** If income eligibility is determined by the Weatherization program, any document used to determine eligibility shall be documented in the client file (project file) as evidence of client eligibility.

(b) **Source Documentation;**

(c) **Verification:** The Local Agency Representative shall review and verify client's income eligibility information, determine the client is eligible for Wx Program, and document in the client file (project file). The local agency may use **Exhibit 1.3.1A, *Income and Residence Verification Checklist***, or equivalent documentation; or

(d) **Self-Certification:** After all other avenues of documenting income eligibility are exhausted, self-certification is allowable. However, evidence of the various attempts at proving eligibility shall be contained in the client file (project file). This includes a notarized statement signed by the applicant indicating they have no other proof of income.

- i. Signed declaration of income statement shall be used when documentation is unavailable.
- ii. Clients claiming zero income shall sign a declaration of no income. See Weatherization Program **Exhibit 1.3.1D, *Declaration of No Income***. Local Agencies may use this exhibit or equivalent documentation.

2. **Maintaining Client Privacy:** Local Agencies will maintain the privacy of the client's personal information.

- a. Personal information collected, used, or acquired in connection with the Weatherization Program shall be used solely for the purpose of providing weatherization services. Local Agencies agree not to release, reveal, publish, transfer, sell, or otherwise make known to unauthorized persons a client's personal information without his or her express written consent or as provided by law. Written consent shall include what client information may be shared and to whom or which agencies/businesses.
- b. Local Agencies agree to implement physical, electronic, and managerial safeguards to prevent unauthorized access to personal information. Personal information includes information that would identify an individual's health, education, business, use or receipt of governmental services, name, address, age, telephone number, social security number, driver's license number, and finances including financial profiles, credit card numbers, or other identifying numbers.

- c. Commerce reserves the right to monitor, audit, and investigate the use of personal information collected, used, or acquired by local agencies. Not properly maintaining clients' private information could result in termination of a contract or subcontract.
 - d. Local Agencies agree to indemnify and hold harmless Commerce, the State and its officers, employees, and authorized agents for any damages related to local agencies' unauthorized use of personal information.
 - e. Local Agencies shall include this client privacy policy in all subcontracts. In addition, local agencies shall include in subcontracts a clause stating that subcontractors agree to indemnify and hold harmless local agencies, the State and its officers, employees and authorized agents for any damages related to subcontractors' unauthorized use of personal information. Local Agencies are responsible for monitoring the use of personal information collected by subcontractors.
3. **Acquiring Energy Records and Account Information Waivers:** Local Agencies shall acquire signed client waivers enabling Weatherization Program access to utility and other energy vendor billing records and account information, including account number, the name to which the account is billed and the billing address is accurately recorded for all clients. Account information shall be gathered for all energy vendors, both electric and the primary heating source, and shall include both consumption and expenditure data. See **Exhibit 1.3.1E, *Sample Wx Program Utility Information Release Waiver***.
4. **Citizenship Documentation:** For federally funded single-family residences, Local Agencies shall include citizen documentation for each eligible household member in the client file (project file). See **Policy 1.1.2, *Determining Income Eligible Clients*** for determination requirements. Citizen Documentation shall include one of the following:
- a. United States birth certificate;
 - b. A copy of the social security card;
 - c. A copy of other documentation or correspondence that shows both the name and social security number;
 - d. The local agency can place in the file a signed statement that documentation proving an applicant's social security number was witnessed; or,
 - e. See **Exhibit 1.3.1F, *Documented Immigrant (Qualified Alien) Documents*** for a list of acceptable documents.

Effective Date: July 2018

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Weatherization Policy

Replaces: Policy 1.3 – July 2016

See also:
[Policy 1.1.1, Applying Income Eligibility Standards](#)
[Policy 1.3.1, Documenting Income Eligibility](#)

POLICY 1.3.2 SETTING PERIOD OF ELIGIBILITY

1. Setting Verified Eligibility Period:

An applicant will remain eligible for weatherization services for 12 months from the date of verified eligibility. The date of verified eligibility is either the Energy Assistance certification date or the Local Agency Wx Program verification date of income eligibility.

2. Continuing Period of Eligibility:

- a. If weatherization work is expected to begin between 12 and 15 months from the date of verified eligibility, the household shall show continued eligibility.
- b. A signed declaration of income statement for the previous three months may be used to update application if necessary.

3. Expiring Eligibility:

If weatherization work has not begun after 15 months from the date of verified eligibility, the household shall reapply in full.

4. Beginning Weatherization Work:

Weatherization work begins on the date of energy audit.

Effective Date: September 8, 2021

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Weatherization Policy

See also:

[Exhibit 8.4.1A, Property Owner Release Form](#)
[Exhibit 1.3.3B, Wx Program Rental Property Owner/Agency Agreement](#)
[Policy 1.4.1, Accrual of Benefits](#)
[Policy 1.4.2, Owner Contributions](#)
[Policy 2.1.8-MF, Phasing Multifamily Weatherization Projects](#)
[Exhibit 1.3.3C, Owner-Agency Agreement InfoSheet](#)
[Exhibit 1.3.3D, Tenant Weatherization Rights InfoSheet](#)

Replaces: Policy 1.3.3 – July 2018

POLICY 1.3.3 USING OWNER/AGENCY AGREEMENTS

1. **Using Owner-Occupied Property Owner/Agency Agreement:** Local Agencies shall use a property owner-occupant/agency agreement for all owner occupied units. See example **Exhibit 8.4.1A, Property Owner Release Form**
2. **Using Rental Property Owner/Agency Agreement:** As a minimum, Local Agencies shall use the property owner/agency agreement provided by Commerce for all rental units. See **Exhibit 1.3.3B, Wx Program Rental Property Owner/Agency Agreement**.
 - a. **Adding Items:** Local Agencies may add additional items to the agreement list.
 - b. **Altering Items to Increase Requirement:** Local Agencies may alter items if the change increases the stringency of the requirement. For example, increasing the time period between Wx project completion and if owner sells property from the minimum twelve months to three years, for which the owner is then required to reimburse the Wx investment, increases the stringency.
 - c. **Altering Items to Decrease Requirement:** Local Agencies shall receive prior written Commerce approval to alter any item which results in decreased stringency.
3. **Contacting Property Owners:** Local Agencies shall contact property owner or authorized agent directly to discuss the Agreement, its conditions, and the benefits of weatherization to them and their rental tenants.
4. **Terms of Agreement:**
 - a. **Purpose and Benefits:** The purpose of the Weatherization Project is to benefit the tenant(s). See **Policy 1.4.1, Accrual of Benefits** for requirements.
 - b. **Owner Responsibilities and Maintenance:** Local Agencies shall provide manufacturer's requirements and written directions for care and maintenance for installed equipment and systems. In signing the Owner/Agency Agreement, the owner or agent is agreeing to care and maintain the installed equipment and systems as part of the legal RCW 59.18.060. The Weatherization Program will not supplant these owner responsibilities.

- c. **Owner Contributions:** Local Agencies shall attempt to secure owner contributions, wherever possible. See **Policy 1.4.2, *Owner Contributions***.
- d. **Phased Projects:** Local Agencies shall consider phasing Wx projects to optimize schedules, capacity, and funding to maximize potential energy savings. See **Policy 2.1.8-MF, *Phasing Multifamily Weatherization Projects***.
- e. **Release:** Owner or owner's agent holds Local Agency harmless from any liability in connection with the Weatherization work.
- f. **Other Numbered Agreements:**
 - (1) **Rent:** Weatherization improvements cannot be used to justify any rent increase.
 - (2) **Selling Property:** If owner sells property within twelve (12) months after weatherization work is complete, they shall either reimburse the Local Agency a prorated amount or sell to an owner willing to assume the owner's obligations under the agreement.
 - (3) **Conditions and Violations:** Addresses conditions of agreement and consequences if the agreement is violated. Also, gives the tenants as intended beneficiaries the right of enforcement.
- 5. **Client Education:** Local Agencies shall provide agreement marketing and tenant rights information to clients (owners and tenants) during the course of the weatherization work. See **Policy 5.1.4, *Client Education*** for requirements. See **Exhibit 1.3.3C, *Owner/Agency Agreement InfoSheet*** and **Exhibit 1.3.3D, *Tenant Wx Rights InfoSheet***.

Effective Date: July 2018

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Weatherization Policy

Replaces: Policy 1.4.1 – July 2017

See also:
[10 CFR 440.22\(b\)\(3\)\(i\)](#)
[Exhibit 1.4.1, *Accrual of Benefits*](#)
[Policy 5.1.2, *Weatherization Project Documentation*](#)

POLICY 1.4.1 ENSURING DIRECT BENEFITS

1. **Benefitting Low-Income Client:** Weatherization shall directly benefit the low-income client(s), including occupants and tenants.
2. **Identifying Direct Benefits:** With any rental property (single-family or multifamily) Local Agencies shall identify the direct benefits of the weatherization work and ensure they accrue primarily to the low-income client/tenant (10 CFR 440.22(b)(3)(i)). This is especially important for Wx projects in which the tenants do not directly pay for their own utilities. See **Exhibit 1.4.1, *Accrual of Benefits*** for list of potential qualifying benefits.
3. **Documentation:** The Local Agency shall document direct benefits accrue to low-income client(s). See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.

Effective Date: July 2022

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Weatherization Policy

Replaces: Policy 1.4.2 – Sept 8, 2021

See also:
[RCW 59.18.060, Landlord Duties](#)
[WAP Memorandum 035, Weatherization Leveraging](#)
[Policy 2.1.8-MF, Phasing Multifamily Weatherization Projects](#)

POLICY 1.4.2 OWNER CONTRIBUTIONS

1. **Supplementing, not supplanting, rental property owner responsibilities:** Local Agencies shall inform the owner of their legal responsibilities and liabilities under *RCW 59.18.060*.
 - a. **State law:** By state law, rental property owners are responsible to provide facilities adequate to supply heat, water, and hot water as reasonably required by the tenant.
 - b. **Capital improvements:** Since a new heating or air conditioning system is a capital improvement to the property, which is the owners' responsibility, the expectation is for a rental property owner contribution of at least 50 percent of the cost.
2. **Rental property owner contributions:** Contributions are required from rental property owner. The purpose of Weatherization (Wx) is to benefit the low-income client (tenant).
 - a. **Multifamily rental property owner contributions:** Wx project contributions from a multifamily rental property owner are required.
 - b. **Single-family rental property owner contributions:** Wx project contributions from a single-family rental property owner are not required, but allowed and encouraged. Non-participation, by single-family rental owners not willing to provide an owner contribution, shall not be reason for deferring a measure or project.

Exceptions (MF and SF):

- E1 **Low-income owners:** If the building owner (rental property or owner-occupied) meets the income eligibility and qualifies as low-income themselves, Local Agencies are prohibited from requiring any owner contribution. The low-income owner is allowed to voluntarily contribute *In-kind Contributions* or for *Upgrades to meet Client Preference* beyond Wx project scope of work (SOW). See examples (below).
- E2 **Low-income mission-based owners:** If the building owner/organization's mission is to preserve and provide long-term low-income housing, any additional owner contribution is encouraged, but the Local Agency may waive the contribution.
- E3 **If using DOE funds,** Local Agencies shall:
 - Ea Not solicit cash contributions from a single-family rental property owner.
 - Eb Not accept cash contributions from an owner occupied low-income client owner.

3. **Determining contributions and minimum required expectations:** To ensure the Weatherization (Wx) benefits accrue to the low-income client (tenant), the Local Agency shall:
 - a. Negotiate with the rental property owner for each Wx project. The type and amount of the owner contributions may vary based on market conditions, the owner, and the specific project.
 - b. Endeavor to create good partners and produce quality weatherization projects.

4. **Owner contributions** may include all or any combination of the following:

- a. **Cash Contribution:** A recommended minimum baseline buy-in is \$500 for the first unit, plus an additional \$125 for each additional unit or 10% of the total Weatherization Project Installed Measure Cost (IMC), whichever is greater.

Exceptions:

E1 **Owner Occupied:** Low-income clients are prohibited from providing cash contributions.

Ea **Upgrades to meet Client Preference:** If a client has a preference for a material upgrade, Local Agencies may allow an option for client to voluntarily pay cost difference from Local Agency identified materials to materials that meet the client preference, as long as the substitute material still meets Wx energy efficiency program goals (i.e. $SIR \geq 1$). A qualifying upgrade example is color choice. This expense is not considered an owner contribution.

- b. **Equipment Contributions:** The expectation for system replacement (e.g. space heating, space cooling, and water heating) rental property owner contribution is at least 50 percent of the cost.

Exception:

(1) **Set project minimum:** To set the minimum rental property owner contribution the Local Agency shall:

- (a) **Existing equipment needing repair or replacement:** Use the cost the rental property owner would need to pay to repair, replace, or install a system of their choice, without Wx Program assistance, assuming this amount is less than 50% of cost of the proposed weatherization-funded system.
- (b) **Existing equipment in working order:** Use the Savings-to-Investment (SIR) calculation as a basis. If the Local Agency intends to upgrade the heating system for the purpose of saving energy and the replacement system:
 - i. Achieves a $SIR \geq 1$, no rental property owner contribution in any amount is required, but a contribution is still encouraged.
 - ii. Cannot achieve a $SIR \geq 1$, then set the rental property owner contribution amount so as it might be used as leverage to cover the overage.

- c. **In-kind Contributions:** Including, but not limited to: labor, materials, repairs, and a commitment to maintain equipment and property.
 - d. **Rent Freeze:** Weatherization improvements cannot be used to justify any rent increase. A minimum of twelve (12) months' rent freeze is recommended.
 - e. **Preserve Low-income Housing:** Commitment assuring continued low-income tenant occupancy for a minimum of five (5) years.
 - f. **Contract Directly:** The owner may hire contractors to complete the construction work described in the Scope of Work (SOW) including repair and weatherization work, provided the Local Agency has oversight and performs inspections for quality control and Weatherization Program compliance.
 - g. **Any combination of the above.**
5. **Phasing Weatherization Projects:**
Refer to Policy 2.1.8-MF, *Phasing Multifamily Wx Projects* for more information.

Housing providers often work through large maintenance projects on their properties (such as re-roofing or re-siding) as their funding is available. Local Agencies are encouraged to time the weatherization of buildings with these opportunities in mind, and to install new measures as leveraged funds and schedules are made available.

Phasing Multifamily Wx Projects opportunities include, but are not limited to:

- a. Coordinate Weatherization measures to coincide with scheduled maintenance or planned capital improvements to maximize owner funding contributions.
- b. Deep energy savings which become available during the course of maintenance projects.
- c. Leveraged funding availability from owners.

[2020 Standard Work Specifications \(SWS\)](#)
[Multifamily Weatherization Specification](#)

CHAPTER 2

ELIGIBLE DWELLINGS

See also
[P](#)
Policies and Procedures – [P](#)
[M](#)
Multifamily Policies – [M](#)
[S](#)
Specifications – [S](#)
[E](#)
Exhibits – [E](#)
[D](#)
Definitions – [D](#)

Effective Date: July 2016

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Weatherization Policy

Replaces: NA

See also:
[Policy 1.2.1, *Prioritizing Eligible Weatherization Clients*](#)
[Policy 1.3.3, *Using Property Owner/Agency Agreements*](#)

POLICY 2.1.1 QUALIFYING SINGLE-FAMILY RESIDENCES

1. Local Agencies may weatherize single-family residences owned by low-income persons to increase the energy efficiency, reduce their total residential expenditures, and improve their health and safety. See **Policy 1.2.1, *Prioritizing Eligible Weatherization Clients***.
2. Local Agencies may weatherize single-family residences which are rental dwelling units occupied by eligible tenant households when:
 - a. The owner has signed a property owner/agency agreement authorizing the weatherization work, accepting conditions protecting the interests of tenants, and other provisions required by Commerce and the local agency. See **Policy 1.3.3, *Using Property Owner/Agency Agreements***.

Effective Date: March 16, 2022

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Weatherization Policy

See also:

[WPN 22-5 Expansion of Client Eligibility in the Weatherization Assistance Program \(WAP\)
Multifamily Potential Wx Candidate List
HUD PHA listing](#)
[Policy 1.1.1, Applying Income Eligibility Standards](#)
[Policy 1.3.1, Documenting Income Eligibility](#)
[Policy 1.3.3, Using Property Owner/Agency Agreements](#)
[Policy 2.1.5, Subsidized Housing Weatherization](#)

Replaces: Policy 2.1.2-MF – July 2021

POLICY 2.1.2-MF QUALIFYING MULTIFAMILY RESIDENCES

Local Agencies may weatherize multifamily properties. The following conditions apply:

1. **Property Owner/Agency Agreement:** The Local Agency shall:
Refer to Policy 1.3.3, *Using Property Owner/Agency Agreements*
 - a. Obtain owner signature on a rental property owner/agency agreement.
2. **Income Eligibility:** The Local Agency shall meet one of the following:
 - a. **LIHEAP Guidelines:** The Local Agency shall:
Refer to Policy 1.1.1, *Applying Income Eligibility Standards* for more information.
 - (1) Apply LIHEAP Income Eligibility Guidelines to each multifamily building tenant.
To qualify for Weatherization Services, tenant incomes shall meet one of the following:
 - (a) **Qualifying 66% or More:** Not less than 66 percent (50 percent for duplexes and four-plexes) of the resident households of the building are:
 - i. Currently eligible, or
 - ii. Will become eligible within 180 days.
 - (b) **Qualifying 50% to 66%:** Low-income occupancy falls between 50 and 66 percent and the weatherization work will create significant energy savings or additional funds are leveraged from property owners, utilities, or other sources.
 - b. **U.S Department of Housing and Urban Development (HUD) Qualified – Categorical Income Eligibility:** The Local Agency shall:
Refer to **WPN 22-5, Expansion of Client Eligibility in the WAP** for more information.
 - (1) Qualify Multifamily projects qualified through a HUD means-tested program, accepting households using percentages of Area Median Income (AMI) ranging from 0% AMI to 80% AMI as categorically income eligible for Weatherization Services.

(2) Certify applicants have met the income requirements of HUD means-tested programs through mechanisms including, but not limited to, applicant documentation, interagency lists of recipients, shared system databases, etc. Method of verification of eligibility shall be included in the project file.

(a) **DOE's published HUD Project List:** Once DOE publishes this HUD project list(s), if Local Agency uses this list to assist income qualifications they shall:

- i. **PHA Owned:** Consider all housing owned and operated by a Public Housing Authority (PHA) 100% income eligible
- ii. **Project-Based Assistance:** Determine percentage of income eligible units of privately owned MF buildings receiving project-based assistance; and confirm 66% (or 50%-66%) of resident households in the building qualify.
- iii. **Tenant-Based Assistance:** Determine the percentage of income eligible units of privately owned MF buildings that household residents are receiving tenant-based assistance (e.g. tenant-based rental assistance (TBRA), housing choice vouchers (HCV), energy assistance (EA), etc.); contact the building owner, manager, agency administering income based assistance, or individual residents to obtain records; and confirm 66% (or 50%-66%) of the resident households of the building qualify.

(b) **Multifamily Potential Wx Candidate List:** The Local Agency may use the *Multifamily Potential Wx Candidate List* as an 'interagency list of recipients' to identify potential Wx projects. To use this list to reduce intake burden through [Categorical Income Eligibility](#), Local Agencies shall confirm a listed project has qualified for a HUD's means-tested program project and document in the project file.

If a listed project has not qualified for a HUD's means-tested program, most occupants are still likely to meet income qualifications, but documentation confirming qualification is required. A certification process similar to the centralized records or rent rolls verification is allowable.

c. **Using Centralized Records and Rent Rolls:** The Local Agency may use their own certification form to verify income eligibility of residents in public/subsidized multifamily buildings. When centralized records ([Rent Rolls](#)) are available, they may substitute for individual Household Information Forms (HIF) when certification documentation include both:

(1) **Rent Roll Certification:** Property Management statement attesting to tenant income accuracy as of date of signature; and

(2) **Computation Certification:** Local Agency staff shall certify computation to determine a minimum of sixty-six percent (or fifty percent with leveraged funds) of actual residents (or by required occupancy formula) meet Weatherization income eligibility requirements.

3. **Demographic Information:** Local Agencies shall collect demographic information either from public/subsidized multifamily housing provider in aggregate or from individual tenants. See **Policy 1.3.1, Documenting Income Eligibility.**
4. **DOE Fund Restrictions:** The maximum amount of DOE funds that can be used will be the lesser of either one of the following:
 - a. The percentage of low-income eligible units multiplied by the total allowable weatherization costs (estimated in the initial audit).
 - b. The number of eligible units multiplied by the maximum average allowable cost per unit.

Effective Date: July 2021

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Weatherization Policy

Replaces: Policy 2.1.3 - July 2016

See also:
[Policy 2.1.4, Shelters, Group Homes, and Transitional Facilities](#)
[Policy 2.1.7, Reweathering](#)

POLICY 2.1.3 INELIGIBLE RESIDENCES AND EXCEPTIONS

1. **Owner Occupied:** No owner-occupied residence shall be weatherized if it is for sale.
2. **Rentals:** No renter-occupied residence shall be weatherized if it is for sale, unless both of the following apply:
 - a. It can be demonstrated that the residence will continue to be occupied by eligible tenants.
 - b. Weatherization work performed is not incorporated into the sale price.
3. **Institutional Buildings:** No institutional buildings (university, nursing home, hospital, motel, etc.) are to be weatherized, except as noted in **Policy 2.1.4, *Shelters, Group Homes, and Transitional Facilities***.

If a local agency wishes to weatherize an institutional building due to unusual circumstances (excluding exceptions described in **Policy 2.1.4**), the local agency shall have prior written approval from Commerce.

4. **Reweathering:** Reweathering is the lowest priority. Local Agencies are expected to weatherize new projects and not revisit homes previously weatherized. Justification for reweatherization shall be documented in the client file (project file) and WIDS notes. See **Policy 2.1.7, *Reweathering*** for requirements, fund restrictions, and exceptions.

Effective Date: July 2016

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Weatherization Policy

Replaces: Policy 1.7 – April 2009

See also: [Exhibit 2.1.4A, WAP Application for Shelters, Group Homes, & Transitional Facilities](#)

POLICY 2.1.4 SHELTERS, GROUP HOMES, AND TRANSITIONAL FACILITIES

1. A local agency may weatherize an emergency shelter, group home, or similar facility for long- or short-term residents, provided the owner or organization and residents of the dwelling units meet prescribed building and income eligibility requirements.
 - a. Local Agencies will document individual resident income verification unless there is such a high rate of turnover among residents that documentation of individual resident eligibility is impractical (see below, policy 1.b.).
 - b. When documentation of individual resident income eligibility is impractical, operators of eligible facilities shall complete **Exhibit 2.1.4A, WAP Application for Shelters, Group Homes, & Transitional Facilities**, with the following supporting documentation:
 - (1) A signed statement from the facility operator attesting that the individuals/households residing in the facility are income eligible.
 - (2) A copy of the organization's income guidelines or a copy of the organization's mission statement in lieu of individual resident income verification.
2. **DOE Fund Restrictions:** For the purpose of determining how many dwelling units exist in a shelter, local agencies may count one of the following as a dwelling unit:
 - a. Each 800 square feet
 - b. Each floor

Effective Date: July 2017

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Weatherization Policy

Replaces: Policy 2.1.5 - July 2016

See also:
[Housing and Urban Development \(HUD\)](#)
[United States Department of Agriculture \(USDA\) Rural Development](#)

POLICY 2.1.5 SUBSIDIZED HOUSING WEATHERIZATION

1. Non-subsidized housing and nonprofit subsidized housing have equal priority for weatherization.

This policy applies to the following types of Subsidized Housing:

- a. All conventional public housing.
 - b. Federally subsidized housing:
 - (1) Housing and Urban Development (HUD).
 - (2) United States Department of Agriculture (USDA) Rural Development.
 - (3) Section 8 Housing Choice Vouchers (HUD)
2. Commerce recognizes the extensive variations in public and private subsidies that exist for rental houses and tenants, and relies on the discretion of local agencies to judge local situations.
 - a. Non-subsidized housing and nonprofit subsidized housing with Housing Trust Fund investment will be given preference over public and privately-owned subsidized housing for weatherization.
 - b. Local Agencies will apply the following guidelines for subsidized housing, in order of priority:
 - (1) Non-profit housing when the organization can document its commitment to:
 - (a) Retaining the unit as low-income housing for at least ten years.
 - (b) Performing necessary maintenance to maximize the health, safety, and energy efficiency of the unit.
 - (c) Distributing consumer conservation education information on how to sustain a healthy, safe, and energy efficient home.

- (2) Public housing is defined as units owned by a public housing authority where tenants pay a percentage of income for rent and utilities.
- (3) Private federally subsidized housing is defined as units owned by a private developer who received financial benefits from the government to develop and/or maintain the project.
- (4) Other funding options for weatherization of subsidized housing:
 - (a) Owners/managers of public or private subsidized homes who have access to other funding sources for weatherization such as personal resources, flexible subsidy funds, or USDA Rural Development shall make every effort to use those funds before local agencies can consider weatherizing their units with funds from Commerce. Applicants shall document the lack of funds, which will be included in the client file (project file).
- (5) Subsidized tenants receiving rental or utility subsidies under Section 8 HUD Programs may qualify when local agencies can be assured all of the following conditions are met:
 - (a) The property owner does not have access to HUD or USDA Rural Development funds. Local Agencies may give preference to clients without subsidy on the waiting list.

Effective Date: July 2016

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Weatherization Policy

See also:

[36 CFR 800](#)

[Standards for Historic Preservation as required by law under 36 CFR 800](#)

[National Historic Preservation Act \(NHPA\) of 1966](#)

[Exhibit 2.1.6A, DOE-WA-State-Historic-Preservation-Programmatic-Agreement](#)

[Exhibit 2.1.6B, Historic Preservation Checklist](#)

[Department of Archaeology and Historical Preservation \(DAHP\)](#)

[DAHP Compliance Documents - Forms](#)

[National Park Service \(NPS\) Preservation Brief 3, Conserving Energy in Historic Buildings](#)

[NPS Preservation Brief 9, The Repair of Historic Wooden Windows](#)

[Secretary of the Interior's Standards for Rehabilitation](#)

Replaces: Policy 1.9 – July 2013

POLICY 2.1.6 PRESERVING HISTORIC PROPERTIES

1. **Weatherizing Historic Properties:** Local Agencies that undertake weatherization work with funding from Commerce shall ensure that properties listed on or eligible for the National Register of Historic Places abide by the Secretary of the Interior's Standards for Historic Preservation as required by law under 36 CFR 800 and the National Historic Preservation Act (NHPA) of 1966.

Washington State's Department of Archaeology and Historical Preservation (DAHP), our State Historic Preservation Office (SHPO) provides guidance for these standards.

2. **Using Federal Funds Requires Environmental Review:** The application for Federal funds necessitates an environmental review for Historic and Cultural Resources. This applies to all weatherization programs, including DOE, HHS, BPA, and the State Program.
3. **Noncompliance:** Failure to comply with this law will result in disallowed costs.
4. **Documenting Historic Weatherization Properties:** Local Agencies shall record in WIDS one of the following:
 - a. Use the Programmatic Agreement for exempt Wx projects. See **Exhibit 2.1.6A, DOE-WA State Historic Preservation Programmatic Agreement**,
 - b. Submit to SHPO and the property is determined Not Historic Site, or
 - c. Submit to SHPO and the property is determined Historic Site.

5. **Using Programmatic Agreement to Exempt Wx Project from Section 106 Review:**
Local Agencies are not required to submit to SHPO Wx projects that meet the Programmatic Agreement (Appendix A and Appendix B) listed exemptions, as they do not have the potential to cause effects on historic properties even when historic properties may be present. See **Exhibit 2.1.6A, DOE-WA State Historic Preservation Programmatic Agreement.**
6. **Submitting Historic Weatherization Properties to SHPO:** Local Agencies shall include a copy of **Exhibit 2.1.6B, Historic Preservation Checklist** and the following DAHP Compliance Documents in the client file (project file), if applicable.
 - a. **DAHP EZ-1, Project Review Sheet** for Historic and Cultural Resources Review, including DAHP's response.
 - b. **DAHP EZ-2 Determination of Eligibility** on-line Historic Property Inventory process, including DAHP's response.
 - c. **DAHP EZ-3 Building Rehabilitation Worksheet** for buildings listed or eligible to the National Register of Historic Places, including DAHP's response.
7. **Additional Information:**
 - a. See **National Park Service (NPS) Preservation Brief 3, Conserving Energy in Historic Buildings.** The brief contains information on energy conservation for historic buildings with specific recommendations for positive results in the weatherization of structures. Please share this material with staff, crew, and subcontractors. To access the brief, open the above link.
 - b. See **NPS Preservation Brief 9, The Repair of Historic Wooden Windows.** The brief contains information on weatherization and window replacement. Please share this material with staff, crew, and subcontractors. To access the brief, open the above link.
 - c. See **Secretary of the Interior's Standards for Rehabilitation.** These are the guidelines DAHP will follow for window treatments. Please share this material with staff, crew, and subcontractors. To access the standards, open the above link.

Effective Date: July 2021

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Weatherization Policy

Replaces: Policy 2.1.7 - July 2016

See also:
[10 CFR 440.19 \(f\)\(2\)](#)
[Policy 5.2.2, Energy Audit Pre-Assessment \(Pre-Audit\)](#)
[WAP Memorandum 075](#)

POLICY 2.1.7 REWEATHERIZING

1. Reweathering is the Lowest Priority:

Local Agencies are expected to weatherize new projects and not revisit homes previously weatherized. Justification for reweatherization shall be documented in the client file (project file) and WIDS notes.

2. Determining Previously Weatherized Units

Local Agencies shall determine if a dwelling unit was previously weatherized through the Commerce's Low-Income Weatherization Program.

If the Local Agency cannot verify previously weatherized units through their internal records or WIDS (i.e. when serving a new territory), the Local Agency shall complete all the following:

- a. Look for evidence of previous weatherization as part of the Energy Audit Pre-Assessment (See **Policy 5.2.2, Energy Audit Pre-Assessment (Pre-Audit)**), such as Insulation Certificate, Furnace Replacement, Wall Insulation, Attic Insulation, or Major Air Sealing, and
- b. Obtain a written confirmation from the client stating to the best of their knowledge the home has not received weatherization through the Commerce's Low-Income Weatherization Program.

3. Restricting Fund Sources

a. DOE LIHEAP, and BPA Restrictions:

- (1) No DOE, LIHEAP, or BPA funds shall be used to install or provide materials for a dwelling unit previously weatherized (reweatherization) unless:
 - (a) The dwelling unit has been damaged by fire, flood, or act of nature and repair of the damage to the weatherization materials is not paid for by insurance.
 - (b) The 'Completed Unit' date for the previous Weatherization is more than 15 years. This includes dwelling units partially weatherized.

(c) The service is to provide client education and eligible low-cost/no-cost weatherization materials.

(d) BPA funds may only be used on *electrically heated homes*.

b. Other Fund Sources

Taking into account any previous energy conservation improvements, regardless of when a home was weatherized or other fund sources used:

(1) Washington State Weatherization Plus Health (State) funding may be used to provide additional cost-effective weatherization.

Effective Date: July 2018

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Weatherization Policy

Replaces: NEW MF

See also:
[Exhibit 1.3.3B, Rental Property Owner/Agency Agreement](#)

POLICY 2.1.8-MF PHASING MULTIFAMILY WEATHERIZATION PROJECTS

Purpose: Commerce allows Local Agencies to weatherize Multifamily projects in multiple phases, over time. Multifamily projects represent a large investment, serving multiple units, installing a variety of measures, and benefitting many tenants. Phasing Weatherization projects allows 1.) coordinating with the owners' capital improvements, their operation and maintenance schedule, and limited staff time; 2.) Minimizing the disruption of the tenants, better coordination with the tenant's schedules, and tenant notification requirements; 3) Addressing the needs of the building, such as emergency repairs/replacements to space-heating equipment, domestic hot water equipment, roofs and other critical systems.

1. Planning Wx Phased Projects:

- a. **Building as a System Approach:** Local Agencies shall perform a full audit and determine a comprehensive Scope of Work with the "Building as a System" mindset.
- b. **Presenting Scope of Work to Owner:** Local Agencies shall present to the owner all measures the auditor deems appropriate for the building.
- c. **Establishing Relationships, Phases, and Project Timeline:** Local Agencies shall negotiate with the owner the package of measures to include in the current phase scope of work. Initial phases are an opportunity for LAs to establish a relationship with building owners to ensure the LA is a part of future energy efficiency and health and safety related capital improvements to the building. Measures not included in the current phase of the project shall be deferred and scheduled into future phases.

Examples:

- (1) A building needs an emergency boiler replacement. The owner is also planning on a major rehab in two years. Assuring compliance with the Wx Program requirements such as: Building as a System and not supplanting landlord responsibilities (RCW 59.18.060), the LA may fund the boiler replacement now and fund other measures that would best align with the rehab later, such as insulation, ventilation, and air sealing.
- (2) A building owner wants to upgrade the lighting in their building. The auditor identifies other potential measures in the building, but the owner does not have funds budgeted to cover the required owner contribution.

- d. **Owner Comittment:** The final Energy Audit Report, including a Scope of Work shall define the Wx Project phases and proposed timeline. Attached to the Owner/Agency Agreement, upon signature the owner or agent agrees to the Scope of Work and scheduled phases. See **Exhibit 1.3.3B, Rental Property Owner/Agency Agreement** for phased project proposals and preliminary schedules.
2. **Scheduling Phases:** Local Agencies shall use phasing projects to coordinate with:
 - a. **Building owners**
 - (1) **Capital improvments:** If available, the Local Agency shall review the building's Capital Needs Assessment or similar document and identify future capital projects to align with Auditor recommended Wx Measures.
 - (2) Operation and Maintenance schedule
 - (3) Limited staff time.
 - b. **Tenants**
 - (1) To minimize tenant disruption
 - (2) Tenants schedules
 - (3) Tenant notification
 - c. **Building's needs**, including but not limited to:
 - (1) Weatherization opportunities
 - (2) Health and Safety issues
 - (3) Repairs
 - (4) Emergency heating or domestic hot water systems replacement
 3. **Correlating Measures:** Measures related with safety standards, requirements, or other measures shall always be performed together within the same phase of the Wx project. The following is not an exhaustive list. Measure correlations, include but are not limited to:
 - a. **Envelope Measures:** Insulation and air sealing measures always trigger ASHRAE ventilation standards and BPI combustion safety standards.
 - b. **Health and Safety Measures:**
 - (1) **Combustion Safety:** Issues related to combustion safety shall be resolved upon discovery.
 - (2) **Hazardous Materials:** Rules and regulations dealing with lead-based paint, asbestos containing materials, and other hazards always apply when disturbing materials that contain or are presumed to contain hazardous materials.

Effective Date: July 2018

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Weatherization Policy

Replaces: Section 2.2.1 – July 2016

See also:
[LIHEAP Intake](#)
[Exhibit 1.3.1A, Income and Residence Verification Checklist](#)
[Policy 5.1.2, Wx Project Documentation](#)

POLICY 2.2.1 DOCUMENTING RESIDENCE

1. **Using LIHEAP Residence Verification Guidelines:** The Weatherization Program follows Washington State's Energy Assistance Program/Low-Income Home Energy Assistance Program (LIHEAP) guidelines for verification of residence. See **LIHEAP Intake** link (above) for **LIHEAP Policy 1.1.0, *Compiling an Applicant File***.
2. **Showing Evidence to Verify Residence:** Applicant shall show evidence that the reported address is correct. Client residence is verified based on seeing any of the following documents:
 - a. Deed/title
 - b. Lease/rental agreement or statement from landlord
 - c. Subsidized housing lease
 - d. Tax statement
 - e. Other, such as the following:
 - (1) Driver's license
 - (2) Fuel or other utility bill in the applicant's name
 - (3) Mortgage payment receipt
 - (4) Home repair bill
 - (5) Room and board receipts
 - (6) Letters addressed to the applicant with canceled postage
 - (7) Bank statement
3. **Documentation:** Local Agencies shall document in the client file (project file) verification of residence. See **Policy 5.1.2, *Wx Project Documentation*** for requirements.

	See also
	Policies and Procedures – P
	Multifamily Policies – M
	Specifications – S
	Exhibits – E
	Definitions – D
2020 Standard Work Specifications (SWS)	
Multifamily Weatherization Specification	
CHAPTER 3	
Policies moved	

The following are References to the new locations:

SECTION 3.1 Residence Verification is now in [Policy 2.2.1](#)

SECTION 3.2 Household Verification is now in [Policy 1.3.1](#) #4

SECTION 3.3 Multifamily Income Eligibility Verification is now in [Policy 1.3.1](#) #1a(4)

[2020 Standard Work Specifications \(SWS\)](#)
[Multifamily Weatherization Specification](#)

CHAPTER 4

COMPLAINTS AND DISPUTE RESOLUTION

See also
[Policies and Procedures](#) – [P](#)
[Multifamily Policies](#) – [M](#)
[Specifications](#) – [S](#)
[Exhibits](#) – [E](#)
[Definitions](#) – [D](#)

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Weatherization Policy

See also:

[Exhibit 4A, *Sample Dispute Resolution Flow Chart*](#)

[Exhibit 4B, *Client Complaint Form*](#)

[Exhibit 4C, *Service Review Request*](#)

[Exhibit 4D, *Dispute Resolution Fact Sheet*](#)

[Exhibit 4E, *Dispute Resolution Resources*](#)

Replaces: Chapter 4 – April 2009

POLICY 4.1 RESOLVING COMPLAINTS AND DISPUTES

1. **Resolving Client Complaints:** Local Agencies have the responsibility to resolve all client complaints, including applicant denials, project deferrals, and work quality issues.
2. **Establishing Dispute Resolution Process:** Local Agencies shall establish a clear, objective, and prompt dispute resolution process. It shall include mediation and arbitration should internal procedures fail to remedy a complaint. See **Exhibit 4A, *Sample Dispute Resolution Flow Chart***. This model is an example of a process that meets Commerce's requirements. The model can be modified to meet an agency's structure and approach. Remember to carefully consider on a case-by-case basis client grievances that cannot be easily or quickly resolved.
 - a. A grievance shall be filed in writing for a local agency to take action, except when a client complaint can be resolved quickly. See **Exhibit 4B, *Client Complaint Form*** and **Exhibit 4C, *Service Review Request***. These exhibits are examples of a process that meets Commerce's requirements.
 - b. Local Agencies' process shall include the following client rights:
 - (1) Have a representative speak on behalf of the client – including an interpreter if needed.
 - (2) Review and obtain copies of the client's file.
 - (3) Present oral and written statements.
 - (4) Call witnesses and to question or cross-examine witnesses.
 - c. The client will be informed of a decision to the resolution process within 10 working days of complaint receipt.
3. **Informing Clients:** Local Agencies will inform all clients at time of application of their right to file a grievance. Local Agencies will also be responsive to requests for information regarding the dispute resolution process.

4. **Withdrawing Grievance:** Clients may withdraw a grievance at any time with the understanding that they may re-enter the process at the point they withdrew if a complaint is not resolved.
5. Local Agencies shall:
 - a. Document each step of a grievance proceeding, including communication with the client.
 - b. Inform Commerce if a grievance is slated for mediation or arbitration.
 - c. Inform Commerce of final resolution due to mediation or arbitration.
 - d. Make all compliant and grievance documentation, including all resolutions, formal and informal, available to Commerce for review upon request.
6. Commerce role and responsibilities:
 - a. Review local agency's dispute resolution process.
 - b. Monitor local agency's use of approved process.
 - c. Be available for technical assistance and consultation.
 - d. Redirect local agency to approved dispute resolution process if necessary.
 - e. Subject to need, assist the Building Performance Center (BPC), as the State's designated Peer Circuit Rider, in assigning a local agency representative with appropriate technical expertise to aid local agencies with outside review.
 - f. Review complaints that Commerce receives and determine if client has gone through all steps of approved dispute resolution process. In not, refer client back to local agency to complete approved process.
7. **Submitting Dispute Resolution Process:** Local Agencies shall submit annually their Dispute Resolution Process to handle complaints for Commerce review during the monitoring process.
8. **Recommending Dispute Resolution Centers and Professional Arbitration Services:** Commerce recommends coordinating with the local dispute resolution center and professional arbitration services when crafting a dispute resolution process. See **Exhibit 4D, *Dispute Resolution Fact Sheet*** and **Exhibit 4E, *Dispute Resolution Resources***.

[2020 Standard Work Specifications \(SWS\)](#)
[Multifamily Weatherization Specification](#)

See also
[P](#)olicies and Procedures – [P](#)
[M](#)ultifamily Policies – [M](#)
[S](#)pecifications – [S](#)
[E](#)xhibits – [E](#)
[D](#)efinitions – [D](#)

CHAPTER 5

PROVIDING WEATHERIZATION SERVICES

Effective Date: July 2022

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Weatherization Policy

See also:

[Washington State Weatherization Specifications](#)

[Standard Work Specifications](#)

[Chapter 9, Health and Safety](#)

[Policy 5.1.2, Weatherization Project Documentation](#)

[Policy 5.1.3, Deferral Standards](#)

[Policy 1.4.1, Ensuring Direct Benefit](#)

[Exhibit 5.S10, Standards for Weatherization Material Specifications](#)

Replaces: Policy 5.1.1 February 21, 2020

POLICY 5.1.1 GENERAL REQUIREMENTS

Weatherization projects shall be weatherized in accordance with the *State of Washington Weatherization Manual*. The more specific requirements take precedence over the general requirements.

The *Washington State Weatherization Specifications* (Specs) define applicable work that meets the specifications, objectives, and desired outcomes outlined in the Standard Work Specifications for Home Energy Upgrades (SWS). The SWS are reference for any work the Specs do not address.

1. **House-as-a-System:** Commerce provides weatherization services based upon the House-as-a-System approach integrating advanced weatherization technologies into service delivery. This approach includes data collection, testing, assessments, and education for all eligible clients.
2. **Minimum Requirements:** Each Weatherization (Wx) project shall include the following Weatherization Services at a minimum:
 - Energy audit,
 - A complete visual Needs-Assessment - Wx, Health and Safety, and Repair measures,
 - Assessment of electric baseload measures:
 - water heaters,
 - refrigerators,
 - compact fluorescent light bulbs (CFL) or light-emitting diode lamps (LED),
 - lighting fixtures, and
 - space-heaters,
 - Diagnostic tests, energy-related health and safety assessment,
 - Implementation of a minimum of one Major Measure, to qualify as a Wx project,
 - Client education,
 - Appropriate low-cost measures,
 - Applicable weatherization-related repairs, and
 - A thorough consideration of the client and residence.

3. **Compliance:** The Local Agency shall meet program requirements for insurance, licensing, labor standards, warranties and guarantees, applicable permit compliance, applicable code and regulation compliance, applicable staff certifications, and site clean-up and salvage.
4. **Non-Compliance:** In an instance when a requirement cannot be met, Local Agencies shall document in the client file (project file) why and what actions were taken.
5. **Workmanship:** All work shall be performed in a professional manner following standard residential construction practices.
6. **Health and Safety:** Prior to providing weatherization services, energy-related health and safety hazards necessary to install weatherization materials, shall be eliminated. Any hazards created as a result of installing weatherization materials shall be eliminated. Energy-related health and safety measures and repairs are intended to protect building occupants and workers. See **Chapter 9, Health and Safety**, for additional information.
7. **Deferral:** Deferral may be necessary if there are any problems beyond the scope of the Weatherization Assistance Program. See **Policy 5.1.3, Deferral Standards**. Local Agencies shall inform clients of any health and safety hazards that may be beyond the scope of the weatherization program.
8. **Benefitting Low-Income Client:** Weatherization shall directly benefit the low-income client including occupants and tenants. See **Policy 1.4.1, Ensuring Direct Benefits** for requirements.
9. **Single-Family Clients:** Single-Family clients include but are not limited to: owner occupants and single-family rental tenants.
10. **Warranties:** The Local Agency and all Subcontractors shall provide warranties. Refer to Policy 8.4.1, *Warranties & Owner Release*, for requirements.
11. **Code compliance:** The Local Agency shall
Refer to Specification 1, *General Requirements*
12. **Permits:** The Local Agency shall
Refer to Specification 1, *General Requirements*
13. **Materials:** The Local Agency shall
Refer to Specification 1, *General Requirements*
14. **Manufacturer's requirements:** The Local Agency shall
Refer to Specification 1, *General Requirements*

15. **Documentation:** The Local Agency shall document all requirements.
Refer to See Policy 5.1.2, *Weatherization Project Documentation* for requirements.

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Weatherization Policy

See also:

[Multifamily Weatherization Specification](#)

[Standard Work Specifications](#)

[Chapter 9, Health and Safety](#)

[Policy 5.1.2, Weatherization Project Documentation](#)

[Policy 5.1.3, Deferral Standards](#)

[Policy 1.4.1, Ensuring Direct Benefit](#)

[Exhibit 5.S10, Standards for Weatherization Material Specifications](#)

Replaces: Policy 5.1.1 February 21, 2020

POLICY 5.1.1-MF GENERAL MULTIFAMILY REQUIREMENTS

Multifamily (MF) Weatherization projects shall be weatherized in accordance with the State of Washington Weatherization Manual (Wx Manual). The more specific requirements take precedence over the general requirements.

The Multifamily (MF) policies of the Wx Manual are meant to be used in conjunction with the single-family (SF) policies of the Wx Manual. Unless differentiated in the multifamily policies, Local Agencies shall adhere to all applicable single-family policies and procedures. The more specific MF policies take precedence over the more general SF policies.

The *Washington State Multifamily Weatherization Field Guide* (MF Wx Field Guide) defines applicable work that meets the specifications, objectives, and desired outcomes outlined in the Standard Work Specifications for Home Energy Upgrades (SWS). The ***Guidelines for Home Energy Professionals Standard Work Specifications*** (Multifamily SWS) shall be referenced for any work the WA Wx Manual-MF or MF Wx Field Guide do not address.

1. **Building-as-a-System:** Commerce provides weatherization services based upon the building-as-a-system approach integrating advanced weatherization technologies into service delivery. This approach includes data collection, testing, assessments, and education for all eligible clients.
2. **Minimum Requirements:** Each multifamily weatherization project shall include the following Weatherization Services at a minimum:
 - Energy audit,
 - A complete visual Needs-Assessment - Wx, Health and Safety, and Repair measures,
 - Assessment of electric baseload measures:
 - water heaters,
 - refrigerators,
 - compact fluorescent light bulbs (CFL) or light-emitting diode lamps (LED),
 - lighting fixtures, and
 - space-heaters,

- Diagnostic tests, energy-related health and safety assessment,
 - Complete TREAT energy model,
 - Implementation of a minimum of one Major Measure, to qualify as a Wx project,
 - Client education,
 - Appropriate low-cost measures,
 - Applicable weatherization-related repairs, and
 - A thorough consideration of the building owner and residence.
3. **Compliance:** The Local Agency shall meet program requirements for insurance, licensing, labor standards, warranties and guarantees, applicable permit compliance, applicable code and regulation compliance, applicable staff certifications, and site clean-up and salvage.
 4. **Non-Compliance:** In an instance when a requirement cannot be met, document in the project file why and what actions were taken.
 5. **Workmanship:** All work shall be performed in a professional manner following standard residential construction practices.
 6. **Health and Safety:** Prior to providing weatherization services, energy-related health and safety hazards necessary to install weatherization materials, shall be eliminated. Any hazards created as a result of installing weatherization materials shall be eliminated. Energy-related health and safety measures and repairs are intended to protect building occupants and workers. See **Chapter 9, Health and Safety**, for additional information.
 7. **Deferral:** Deferral may be necessary if there are any problems beyond the scope of the Weatherization Assistance Program. See **Policy 5.1.3, Deferral Standards**. Local Agencies shall inform clients of any health and safety hazards that may be beyond the scope of the weatherization program.
 8. **Benefitting Low-Income Clients:** Weatherization shall directly benefit the low-income clients including occupants and tenants. Multifamily buildings, including rental housing, offer opportunities for energy efficiency upgrades that are a cost-effective approach to lowering operating expenses, maintaining affordability, and creating healthier, more comfortable living environments for low-income families. See **Policy 1.4.1, Ensuring Direct Benefits** for requirements.
 9. **Multifamily Client Education:** Multifamily clients for Client Education include but are not limited to: occupants, tenants, owners, building managers, facilities personnel, and maintenance staff. The level of education provided is dependent on client's role.

10. **Warranties:** The Local Agency and all Subcontractors shall provide warranties in writing against any defect in the material, manufacture, design or installation of all materials, equipment, or products that is found within one (1) year from the date of completion of installation. Any defects found within the warranty period shall be remedied without charge and within a reasonable period of time. The warranty information shall be given to the occupant and a copy placed in the project file.
11. **Code compliance:** The Local Agency shall require all Local Agency crews and Subcontractors installing all materials, equipment, or products to comply with all applicable federal, state, and local laws and code regulations.
12. **Permits:** A copy of ALL permits obtained for a job, whether by the Local Agency or by a Subcontractor, shall be included in the client or project file.
Exception: If a physical permit is not available, evidence of permit (i.e. documentation of the online record) shall be in the client file (project file).
13. **Materials:** All materials used shall meet the specifications found in **Exhibit 5.S10, Standards for Weatherization Material Specifications**.
Exception: The Local Agency shall get written approval to use alternate materials from the Commerce prior to the use of such materials.
14. **Manufacturer's requirements:** The Local Agency and Subcontractors shall conform to all manufacturers' requirements regarding installation, use and maintenance of all materials, equipment, or products installed or supplied through the weatherization program.
15. **Surface Preparation:** Surface preparation where weatherization measures are being installed (e.g., cleaning mold off window trim in order to apply caulk) shall be charged as part of the Weatherization Measure (WxM), not to the Health and Safety (H&S) budget category.
16. **Documentation:** The Local Agency shall document all requirements.
Refer to See Policy 5.1.2, *Weatherization Project Documentation* for requirements.

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Weatherization Policy

See also:

[10 CFR 440.18, Allowable expenditures](#)
[Appendix A - 10 CFR 440, Standards for Weatherization Materials](#)
[DOE Program Guidance](#)

[EPA booklet, A Brief Guide to Mold, Moisture and Your Home](#)

[EPA booklet: The Lead-Safe Certified Guide to Renovate Right](#)

[EPA Website, Protect your Family from Exposures to Asbestos](#)

[EPA's booklet: A Citizen's Guide to Radon](#)

[Policies and Procedures - Table of Contents](#)

Replaces: Policy 5.1.2 - February 21, 2020

POLICY 5.1.2 WEATHERIZATION PROJECT DOCUMENTATION

1. **Documenting Weatherization Projects:** Local Agency shall document Weatherization (Wx) Projects in the Single-family client file (project file) and Multifamily project file. The file tells a story. Documentation includes, but is not limited to client eligibility; client education provided; informed consent signatures; potential hazards; measures installed: Weatherization Measures (WxM), Weatherization-Related Repair Measures (WRR), and Health and Safety Measures (H&S); measures not chosen; justification for installed measures and measures not performed; project costs; worker trainer and certifications; photographs pre- and post- the Wx Project.
2. **Documenting Non-Compliance:** When the Local Agency is not able to comply with requirements, the reason, justification, action steps taken to attempt completion, and final results shall be documented in the client or project file.
3. **Documentation Format:** Written documentation may be in printed or electronic format.
4. **Reviewing Documentation:** Local Agency shall make documentation records available for monitor review and verification.
5. **Deferral:** The Local Agency shall document all deferral requirements. See **Policy 5.1.3, Deferral Standards** for more information. Deferral documentation shall include **Exhibit 5.5A, Weatherization Deferral Form** or equivalent form. If the project is deferred, the Local Agency shall use a deferral form to:
 - a. Inform clients of deferral in writing. If the property is a rental, property owners shall also receive a copy.
 - b. Document observed conditions requiring deferral of the Weatherization project.
 - c. Define actions and results required, before Weatherization can commence.
 - d. Local Agency shall inform client to contact Local Agency, once actions are complete, results are realized, and conditions are resolved so site visit can be scheduled to determine if the weatherization project can commence.

6. **Eligibility:** Client file (project file) shall include the following documentation, as applicable:
 - a. Eligible Clients
 - (1) Income Eligibility – See **Policy 1.3.1, Documenting Income Eligibility**
 - (2) Client Identification
 - (3) Citizenship/Documented Immigrant (Qualified Alien) – See **Policy 1.3.1, Documenting Income Eligibility**
 - b. Eligible Dwellings
 - (1) Residence Verification – See **Policy 2.2.1, Documenting Residence**
Include a copy of **Exhibit 1.3.1A, Income and Residence Verification Checklist**, or an equivalent form that collects required residence documentation.
 - (2) Unit Photographs – See **Policy 5.2.1, Energy Audit**
 - (3) Pre-Wx Billing data and signed client waivers to access utility and other energy vendor billing records and account information – See **Policy 1.3.1, Documenting Income Eligibility**
 - c. Pre-work Owner/Client Authorization
 - (1) Ownership status
 - (2) Owner/Agency agreement: Signed client and property owner authorization to start work includes, but is not limited to:
 - (a) Owner/Agency Agreement – rental
 - (b) Owner/Agency Agreement – non-rental
 - (c) Property Owner Release Form
 - (d) Signed Contract authorizing work to start
 - (e) Signed Scope of Work
 - (3) Owner contribution
 - (4) Wall blow authorization
7. **Direct Benefits:** With any rental property (single-family or multifamily) Local Agencies shall document in the client file (project file) that the direct benefits of the weatherization work accrues primarily to the low-income client/tenant (10 CFR 440.22(b)(3)(i)). This is especially important for Wx projects in which the tenants do not directly pay for their own utilities. See **Exhibit 1.4.1, Accrual of Benefits for list of potential qualifying benefits**.
8. **Historic Preservation Status** – See **Policy 2.1.6, Preserving Historic Properties**

9. **Reweathering:** Previous weatherization, including date(s) work performed and installed weatherization measures. See **Policy 2.1.7, *Reweathering***.
10. **Documenting Phasing:** In Multifamily projects when phasing is used, Local Agencies shall document in the project file, the Scope of Work and Project Timeline. See **Policy 2.1.8-MF, *Phasing Multifamily Wx Projects***.
11. **Client Education:** Local Agency shall document the delivery of Client Education (consumer conservation education), individual or classroom. See **Policy 5.1.4, *Client Education*** for requirements. From **Exhibit 5.1.4A, *Client Health and Safety Packet***, Local Agencies shall retain a signed copy of *Client Informed Consent* form, the *Client Health and Safety Observed Conditions* form, and the *Pollution Source Survey* in the client file. In part, the *Client Health and Safety Packet* shall provide required documentation as follows:
 - a. Written Client Education provided,
 - b. Verbal Client Education, *as noted by Auditor, Client Educator, Inspector,*
 - c. *Part (1)-Client Informed Consent* form, with client signatures prior to the Wx project,
 - d. *Part (2)-Client Health and Safety Observed Conditions* form, with links to required booklets. Since Local Agencies are required to provide client with a copy of this form, the clients will receive required booklet links.
 - e. *Part (3)-Pollution Source Survey*, and
 - f. Documentation of written and verbal client education delivered, with Local Agency's signatures prior and after Wx project.

Exception: For Multifamily projects, at a minimum the Client Education requirement for tenants may be met by door hanger or packets on each unit.
12. **Energy Audit Assessment:** See **Policy 5.2.2, *Energy Audit Pre-Assessment (Pre Audit)***. Energy audit assessment information includes, but is not limited to:
 - a. Conditioned floor area
 - b. Type of dwelling
 - c. Existing levels of insulation
 - d. Heating/Air-Conditioning System, type and condition
 - e. Water Heater System, type and condition
 - f. Existing Hazards List: List of health and safety hazards identified prior to the installation of weatherization materials.
 - g. Other necessary information to support any measures installed using TREAT or the Deemed Measures Priority List.

13. **Energy Audit:** See **Policy 5.2.1-SF, *Energy Audit*** and **Policy 5.2.1-MF, *Multifamily Energy Audit*** for requirements. The Local Agency shall document all Energy Audit requirements, including audit inputs verification and measure justification. The client file (project file) shall include the following documentation, as applicable:
- a. **Photographic Record:** Photographs can provide sufficient documentation for pre-Wx data collection and justification for measures. See *Section 15 Photographic Documentation* (below) for requirements.
 - b. **Energy Audit Report and Scope of Work:** A comprehensive energy audit report including a description of the dwelling(s) at the time of audit and weatherization-specific scope of work.
 - (1) **Weatherization Measures (WxM) list:** List of weatherization (conservation) measures identified.
 - (2) **Health and Safety (H&S) Measures list:** List of health and safety hazards identified prior to the installation of weatherization materials.
 - (3) **Weatherization-Related Repairs (WRR) Measures list:** List of repairs needed to protect weatherization materials or their function.
 - c. **Installed Measure Justification:** All necessary measure-specific justification
 - (1) **WxM:** Local Agency shall verify WxM have an SIR of 1.0 or greater as determined by TREAT or as deemed in the Deemed Measures Priority List.
 - (2) **H&S:** Local Agencies shall document justification for installation of a particular health or safety measure.
 - (3) **WRR:** Local Agency shall verify with WRR the Wx Project (package) has an SIR of 1.0 or greater as determined by TREAT or does not exceed the calculated WRR Allowance for use with the Deemed Measures Priority List (DMPL). See **Policy 5.2.7, *Deemed Measures Priority List (DMPL)***, Section 4. *Determining Repair Allowance*.
 - (4) **Measures Not Installed:** If typical measures, normally installed as part of a Wx Project are not installed, the Local Agency shall document the reason why the measure was not installed, justification, action steps taken to attempt completion, and final results.
 - (5) **Funders:** Justification for installing any measure shall meet funder requirements.
 - (a) **Blended Measures:** LAs shall justify measures in accordance with Commerce contracts and policy.
 - (b) **Utility Measures:** LAs shall justify measures in accordance with Utility contracts and requirements.

- d. **TREAT Wx Projects:** Local Agencies shall document each TREAT Wx project in the project file with the TREAT computer file (*.tpg).
 - (1) Electronic TREAT computer files shall be retained, and at a minimum include:
 - (a) The existing conditions TREAT model,
 - (b) An improvement package considering all required Wx Measures listed in **Policy 5.2.5, TREAT, Section 8b Improvement Package(s)**, and
 - (c) If the improvement package above in (b) does not result in the Wx project Scope of Work, an additional improvement package with the proposed Scope of Work showing both individual measures and package $SIR \geq 1$, is required.
 - (2) All documentation supporting Local Agency TREAT inputs shall be required.
 - (3) For Multifamily projects (five units or more), import or enter the most recent energy bill data (minimum 12 months) to calibrate (true up) the TREAT model.
- e. **Deemed Measures Priority List Wx Projects:** Local Agencies shall document each Deemed Measures Priority List Wx project in the project file. Local Agencies may use the Deemed Measures Priority List to identify the measures installed. If a measure is not installed, especially if it is a Major Measure Local Agencies shall include the justification for skipping measure. For more information see **Policy 5.1.2, Wx Project Documentation, Section 13c(4), Measures Not Installed** (above).
- f. **Other Applicable Information:** Other applicable information as collected by the Local Agency, for example: pre-weatherization billing data, energy intensity, and client lifestyle assessment.
- g. **Wx Project Costs:**
 - (1) Receipts or Paid invoices for materials, measures, repairs, or modifications.
 - (2) Receipts or paid invoices for any corrective work.
 - (3) Paid invoices submitted by contractors and subcontractors including, but not limited to: heating technician, HVAC contractors, licensed electricians, plumbers lead assessor, AHERA inspectors, and asbestos contractors.
 - (4) Paid invoices submitted by design professionals including, but not limited to: architects and engineers.
- h. **Documenting Representative Sample:** In Multifamily projects when a representative sample is used, Local Agencies shall document in the project file, the representative sample methodology, when and where it was applied, and the specific sample units used within the Representative Sample. See **Policy 5.2.6-MF, Multifamily Representative Sample**.
- i. **Diagnostic Testing:** See **Policy 5.2.3-SF, Diagnostic Testing** and **Policy 5.2.3-MF, Multifamily Diagnostic Testing**.
 - (1) In Single-Family, an **Exhibit 5.S3A, Diagnostic Test Report** shall be filled out and be present in the client file (project file).

- (2) In Multifamily, when air leakage testing is performed, the auditor shall document testing methodology such that testing and findings can be verified by a third party when necessary including:
 - (a) Building "set-up"
 - (b) Site
 - (c) Weather conditions
 - (d) Testing results
 - (e) Representative Sample
 - (3) In Multifamily, when duct leakage evaluation is performed, the auditor shall document the method of duct leakage evaluation in the project file.
- j. **Combustion Testing:** See **Policy 9.4, *Combustion Safety Testing***.
- (1) An **Exhibit 9.4A, *Combustion Safety Test Forms*** shall be filled out for each combustion appliance and be present in the client file (project file).
 - (2) Include In-Progress CAZ Testing: An **Exhibit 9.4A(2), *Daily In-Progress Combustion Safety Test Report***
 - (3) If Local Agency is unable to meet CAZ Depressurization Limits or standards, the reasonable efforts attempted, the actions taken, and the education provided to the client shall be documented in the client file (project file).
- k. **Confined Space** – See **Policy 9.1.4, *Confined Space***
- l. **Work and Worker Related Documents:**
- (1) Copies of Applicable Permits
 - (2) Knob-and-Tube Inspection
 - (3) Invoices for Material and Labor
 - (4) Change Orders
14. **Installed Measures:** Local Agency shall retain in the client file (project file) the following documentation for measures installed, as applicable:
- a. **Air Sealing:** See **Policy 5.3.1-SF, *Air Sealing – Stand-Alone Buildings*** and **Policy 5.3.1-MF, *Multifamily Air Sealing***.
 - (1) Location(s) of Air Sealing performed
 - (2) Method(s) of Air Sealing:
 - (a) Priority Air Sealing
 - (b) Blower Door Assisted Air Sealing: Cost-effective guidelines.
 - (3) Test Results of Air Sealing
 - (a) Pre- and post-blower door test results (CFM50)
 - (4) Materials used in Air Sealing

- b. **Insulation Certificate:** See **Policy 5.1.2.1, *Certification of Insulation***
- c. **Windows and Doors:** See **Policy 5.4.5, *Windows and Doors***
 - (1) **Photo documentation:** Both a dated electronic or printed "before" photo and written justification that clearly identifies the physical reason the window or door needs replacement shall be retained. The photo documentation or a reference to its condition and location shall be kept in the client file (project file).
 - (2) **Measure justification:**
 - (a) SIR of 1.0 or greater if repair or replacement is based on energy efficiency.
 - (b) Written justification if repair or replacement is for health and safety, security, and/or durability.
 - (c) Proof of leveraging of at least 75 percent of material and labor costs from other funds, when leveraged funds are the reason for window replacement.
 - (d) A statement from the client if window is replaced for client comfort.
 - (e) If a jalousie window replacement, blower door test results documenting the effect of replacement after air sealing.
- d. **Heating and Cooling:** See **Policy 5.5.1, *Air Conditioning and Heating Systems***.
 - (1) **Existing Equipment:** The information and condition of heating (cooling) system prior to weatherization.
 - (2) **Hazards:** Any hazards identified
 - (3) **Sizing:** System sizing calculations
 - (4) **Space-Heater:** Smoke detector installation as applicable
 - (5) **Permits:** Copies of mechanical permits where required and results of inspections
- e. **Refrigerator Replacement** – See **Policy 5.7.3 *Refrigerator Replacement***
- f. **Mechanical Ventilation:** See **Policy 9.3, *Indoor Air Quality – Mechanical Ventilation***.
 - (1) **Ventilation Strategy**
 - (2) **Dwelling Unit Ventilation Calculations:** including an **Exhibit 9.3, *Mechanical Ventilation Worksheet (MVW), Residential Energy Dynamics (RED) Calc Tool***, use of Table 4.1a (I-P) Ventilation Air Requirements, cfm, or use of the ASHRAE 62.2-2016 formula
 - (3) **Ventilation System Performance Testing results**
 - (4) **Client Education delivered**

- g. **Smoke and CO Detectors:** See **Policy 9.5, *Smoke Detectors, Carbon Monoxide (CO) Detectors, and Fire Extinguishers.***
- (1) Smoke and Carbon monoxide detector installation.
 - (2) Detector location(s).
 - (3) Detector model type(s).
 - (4) Delivery of consumer conservation education.
 - (5) Local Agencies shall keep a copy of smoke and carbon monoxide detector model specifications for all models installed in agency files.
- h. **Mold & Moisture:** See **Policy 9.6, *Biologicals and Unsanitary Conditions, including Mold and Moisture.*** Local Agencies shall document Mold Pre-work Client Notification provided and Informed Consent. It shall include the occupant and owner (if applicable) signed statement acknowledging receipt of the information. A signed statement and the pre-weatherization mold report shall be retained in the client file (project file). See **Exhibit 5.1.4A, *Client Health and Safety Packet – Client Informed Consent Form- Mold Assessment and Release Section:***
- (1) **Mold Scope of Work and Schedule:** Written description provided to the owner and occupant(s) of the dwelling unit of the proposed work to be performed and schedule, which includes notification that the work to be performed is expected to alleviate the mold and moisture creating conditions.
 - (2) **Mold condition(s):** Mold conditions found prior to weatherization. Documentation shall include the location and an estimate of the area in square feet as well as photographs and a narrative description of all observed mold conditions found on surfaces in the unit.
 - (3) **Mold Client Education received:** Verification client education was received by the owner and occupant(s) including a signed statement from occupant(s) and the owner, if applicable that they received the **EPA booklet, *A Brief Guide to Mold, Moisture, and Your Home.***
- i. **Pollutants Awareness:** See **Policy 9.6, *Biologicals and Unsanitary Conditions, Including Mold and Moisture.*** Local Agency shall document they provided biologicals, chemicals, pollutants, and unsanitary conditions information to all clients:
- (1) **Pollution Source Survey:** Written observed conditions, observed hazardous conditions, and associated risks. See **Exhibit 5.1.4A, *Client Health and Safety Packet - Pollution Source Survey and Client Health and Safety Observed Conditions.***
 - (2) **Plus Health:** Confirmation Local Agency provided information on how to maintain a sanitary home. See **Policy 9.2.1, *Weatherization Plus Health*** for more information.

- (3) **Safety and Disposal:** Confirmation Local Agency provided written materials on safety issues and proper disposal of household pollutants.
- j. **Disposing Hazardous Materials** (Refrigerant, Asbestos, Lead, Mercury, including CFLs/Fluorescents):
 - (1) Confirmation Local Agency informed client in writing of hazards associated with hazardous waste materials being generated/handled in the home.
 - (2) Confirmation Local Agency provided clients with proper disposal site information for household pollutants requiring removal.
 - (a) **Proper Disposal of CFLs (Mercury):** See **Policy 5.7.4, *Energy Efficient Lighting*** for more information.
 - (b) **Proper Disposal of Thermostats (Mercury):** See **Policy 5.5.8, *Thermostats*** for more information.
- k. **Electrical:** See **Policy 9.7, *Electrical***.
 - (1) Knob-and-Tube inspection report performed by a licensed electrician.
 - (2) Minor electrical repair justification.
 - (3) Paid invoices for all work done by a licensed electrician.
- l. **Lead-Based Paint** – See **Policy 9.8, *Lead-Based Paint***
 - (1) **Lead Documentation:** Local Agency shall document in the client file (project file) all of the following that apply:
 - (a) **Presumed Lead: Exhibit 9.8B, *Test Kit Documentation Form*** is required when lead-based paint is presumed to exist in the dwelling unit.
 - (b) **Testing Lead: Exhibit 9.8B, *Test Kit Documentation Form*** or XRF testing documentation is required for any lead testing. Documentation shall include: the test results performed to identify lead-based paint hazards, location, who performed the test, name of renovator.
 - (c) **RRP Work Performed: Exhibit 9.8C, *Renovation Recordkeeping Checklist*** is required when any work disturbing painted surfaces is performed on a dwelling unit which presumed or test positive for lead. Documentation shall include the information listed on the Checklist, at a minimum.
 - (d) **Photos:** Photo documentation that RRP was properly implemented (e.g. photos of the site, lead-safe containment set-up, etc.) Photos are required if presumed or test positive for lead. (See WPN 22-7).

(2) **Lead Awareness:** Confirmation Local Agency provided prior to the Weatherization Project start, lead information to all clients. See **Exhibit 5.1.4A, Client Health and Safety Packet – Client Informed Consent Form – Lead Pre-Renovation Section**. Pre-work Client Notification and Informed Consent shall include:

- (a) **Lead Scope of Work and Schedule:** Confirmation Local Agency provided written notification of the scope, location, and expected starting and completion dates of proposed work shall be provided to owners and tenants of homes and multifamily housing built prior to 1978.
 - i. **No-Lead Determination:** If a determination is made in accordance with applicable EPA rules that lead-based paint is not present in the areas affected by the proposed work, a copy of the determination shall be included with the notice and documented in the client file (project file).
 - ii. **Notification:** Local Agencies shall secure written acknowledgement that the owner and occupants have received notification.
- (b) **Lead Conditions:** Local Agencies shall document observed lead conditions in **Exhibit 5.1.4A, Client Health and Safety Packet – Pollution Source Survey and Client Health and Safety Observed Conditions**.
- (c) **EPA booklet: *The Lead-Safe Certified Guide to Renovate Right*** or link: Written confirmation information was received is required.

Exception: If Local Agencies are unable to secure written acknowledgement from an adult occupant and if applicable the owner, the Local Agencies shall comply with one of the following:

- (a) Certify in writing that notification has been delivered to the dwelling and that the Local Agency has been unsuccessful in obtaining a written acknowledgment.
 - (b) Obtain a certificate of mailing at least seven (7) days prior to the renovation.
- m. **Asbestos:** See **Policy 9.9, Asbestos**. Confirmation Local Agency prior to the Weatherization Project start, Local Agency shall provide asbestos safety information to all clients. See **Exhibit 5.1.4A, Client Health and Safety Packet – Client Informed Consent Form- Asbestos Section**.
- (1) **Instructions to Clients:** Confirmation Local Agency instructed clients in writing not to disturb suspected Asbestos Containing Materials (ACM).

- (2) **ACMs Present:** Confirmation Local Agency informed client in writing that suspected ACMs are present and what precautions will be taken to ensure the occupants' and workers' safety during Wx.
 - (3) **Asbestos Testing:** If a Local Agency tests for ACM, confirmation test results were provided to the client in formal written client notification.
 - (4) **EPA Information:** Confirmation Local Agency provided Environmental Protection Agency Asbestos information available at the EPA website, *Asbestos*.
 - (5) **Asbestos Costs:** Paid invoices for all contractor billing including tests done by an AHERA inspector
- n. **Radon:** Confirmation prior to the Weatherization Project start, Local Agency provided radon information to all clients. See **Policy 9.10, Radon** and see **Exhibit 5.1.4A, Client Health and Safety Packet – Client Informed Consent Form- Radon Section**. Pre-work Client Notification and Informed Consent shall include:
- (1) **Indoor Air Quality:** Confirmation Local Agency provided owner and occupants the information from the results of the IAQ study that there is a small risk of increasing radon levels when building tightness is improved.
 - (2) **Weatherization Precautionary Measures:** Confirmation Local Agency provided owner and occupants the information that Wx installs precautionary measures based on EPA Healthy Indoor Environment Protocols, including but not limited to mechanical ventilation.
 - (3) **Weatherization Benefits:** Confirmation Local Agency provided owner and occupants the information that Wx benefits include energy savings, energy cost savings, improved home comfort, and increased safety.
 - (4) **EPA booklet: *A Citizen's Guide to Radon*** or link to inform clients of radon related risks. Written confirmation information was received and radon related risks were discussed is required.
- o. **Pests:** The Local Agency shall document all pest related requirements, including the observed pest conditions and associated risks given to the client in writing. See **Policy 9.11, Pests**.
15. **Photographic Documentation:** Weatherization Project Documentation shall verify audit inputs and document measure justification. Photographs can provide sufficient documentation for pre-Wx data collection and justification for measures, as well as post-Wx measure resolutions and status of measures at time of inspection. All photographs shall be dated and retained. All photos, or their location, shall be documented in the client file (project file). Photograph documentation shall include, but not be limited to the following, as appropriate:

- a. **Condition and Essence of the Dwelling:** Local Agency shall record the condition of the building by taking a minimum of two (2) electronic or printed photographs of the dwelling's exterior elevation that capture the essence of the dwelling.
- b. **Appliance data plates**
- c. **Attics**
- d. **Crawlspaces** (subspaces)
- e. **Insulation levels**
- f. **Health and Safety concerns**
- g. **Weatherization-Related Repairs**
- h. **Diagnostic testing and measurements**
- i. **Quality Control Inspections (QCI)**, both in-progress and final inspection
- j. **Windows/Doors:** See above *Section 14c Windows and Doors* and **Policy 5.4.5, Windows and Doors** for more information.
- k. **Mold & Moisture:** See above *Section 14h(2) Mold & Moisture* and **Policy 9.6, Biologicals and Unsanitary Conditions, including Mold and Moisture** for more information.
- l. **Lead-Based Paint:** See above *Section 14l(1)(d) Lead-Based Paint* and **Policy 9.8, Lead-Based Paint** for more information.

Effective Date: July 2022

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Weatherization Policy

Replaces: Policy 5.1.2.1 – July 2015

See also:
[Exhibit 5.1.8A, Certificate of insulation](#)
[Specification 6, General Insulation](#)

POLICY 5.1.2.1 CERTIFICATION OF INSULATION

1. **Certificate of insulation:** The Local Agency shall:
Refer to Specification 6, *General Insulation*
Refer to Exhibit 5.1.8A, *Certificate of Insulation*
 - a. Complete a certificate of insulation form for each dwelling unit that receives ceiling, wall, floor, perimeter, or duct insulation.

Effective Date: July 2018

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Weatherization Policy

Replaces: Policy 5.1.2.2 – July 2017

See also:

POLICY 5.1.2.2 WEATHERIZATION INFORMATION DATA SYSTEM (WIDS)

1. **Documenting Data in WIDS:** Local Agencies shall enter or upload data for all Weatherization Projects into the Weatherization Information Data System (WIDS) to document and report Weatherization work.
2. **Entering or Uploading Data Monthly:** Local Agencies shall enter or upload all Weatherization data into WIDS every month. The data is due and shall be entered or uploaded by the 15th of each month for the previous month's activities.
3. **Reporting Milestones in WIDS:** Local Agencies shall enter or upload all Milestone dates and all the required associated data, no later than the 15th of the month following the date the Milestone occurred. The following are required Milestone dates:
 - a. **Audit Completed date:** Enter the date the Energy Audit is completed. For multifamily projects with multiple buildings, this is the date when the first building in the project received an energy audit. This moves the building to "Active" status.
 - b. **Notice to Proceed date:** Enter the date Local Agency assigns Weatherization work by either signing contract with contractor or assigning work to crew.
 - c. **Final Inspection Passed date:** Enter the date the building received and passed a final inspection for all installed measures. This moves the building to "Completed" status.
 - d. **Closed date:** Enter the date when all building/project costs have been invoiced and paid by your agency's financial department. This moves the building to "Closed" status.
4. **Counting Production - Closed Status:** The Closed date establishes the time period Commerce counts and reports the Wx Project in the production numbers.
5. **Reporting Project Costs Funding in WIDS:** Local Agencies shall enter or upload the Installed Measure Costs (IMC) funding into WIDS, on the "Costs" tab. Also include funding for Client Education, General Heat Waste Reduction items, Low-Cost/No-Cost items, and the cost to deliver these Weatherization activities.

- a. **Commerce Administered Funding:** Denote Commerce administered funds on the WIDS “Costs” tab under each applicable federal or state Funding Source (row) and categorize funding amounts by the type of Measure (column).
- b. **Leveraged Funding:** Denote leveraged funds (including all utility funds) on the WIDS “Costs” tab under other funder (or under the specific utility). For [*Utility-Funded Projects*](#), this information will enable Commerce to demonstrate all the leveraged funding in addition to the [*Blended Projects*](#).

Effective Date: July 2018

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Weatherization Policy

Replaces: Policy 5.1.3 – April 2009

See also:
[Exhibit 5.5A, Weatherization Deferral Form](#)
[Policy 5.1.2, Weatherization Project Documentation](#)

POLICY 5.1.3 DEFERRAL STANDARDS

1. **Deferring Weatherization:** Local Agencies may defer weatherization work if they encounter problems that are beyond the scope of the Weatherization Assistance Program.
 - a. If the project is deferred, the Local Agency shall use a deferral form to:
 - (1) Inform clients of deferral in writing. If the property is a rental, property owners shall also receive a copy.
 - (2) Document observed conditions requiring deferral of the Weatherization project.
 - (3) Define actions and results required, before Weatherization can commence.
 - (4) Local Agency shall inform client to contact Local Agency, once actions are complete, results are realized, and conditions are resolved so site visit can be scheduled to determine if the weatherization project can commence.
2. **Postponing Weatherization Work:** Deferring weatherization work does not mean assistance will never be available, but that any work shall be postponed until problems can be resolved and alternative sources of help are found.
3. **Developing Deferral Guidelines:** Local Agencies shall develop guidelines and a standardized form. See **Exhibit 5.5A, Weatherization Deferral Form**, for an example of a standardized form.
4. **Justifying Deferrals:** Deferral guidelines may include the following:
 - a. The client has known health conditions that prohibit the installation of insulation and other weatherization materials.
 - b. The building structure or its mechanical systems, including electrical and plumbing, are in such a state of disrepair that failure is imminent and the conditions cannot be resolved in a cost-effective manner.
 - c. The house has sewage or other sanitary problems that would further endanger the client and the weatherization installers if weatherization work were performed.

- d. The house has been condemned or electrical, heating, plumbing, or other equipment has been "red-tagged" by a local or state building official or utility.
 - e. Moisture problems are so severe they cannot be resolved under existing health and safety measures and minor repairs.
 - f. Dangerous conditions exist due to high carbon monoxide levels in combustion appliances and cannot be resolved under existing health and safety measures.
 - g. The client is uncooperative, abusive, or threatening to crew, auditors, inspectors, contractors, or others who shall work on or visit the house.
 - h. The extent and condition of lead-based paint in the house would potentially create further health and safety hazards. See *Deferral Policy Related to Lead-Based Paint* in the *WAP Health and Safety Plan*.
 - i. Discovery of Asbestos Containing Materials (ACM). Local Agencies may defer specific measure(s) or the entire weatherization project due to ACM. When deferral is necessary due to asbestos, occupant shall provide documentation that a certified professional performed the remediation before work continues.
 - j. In the judgment of the energy auditor, conditions exist which may endanger the health and safety of the work crew or contractor. Work should not proceed until the condition is corrected.
5. **Searching for Alternatives:** Local Agencies shall actively pursue all alternative options on behalf of the client, including referrals, and use good judgment in dealing with difficult situations.
 6. **Client Education:** Local Agency shall provide clients with deferral documentation. If the property is a rental, property owners shall also receive a copy. See **Policy 5.1.4, Client Education** for requirements.
 7. **Documentation:** The Local Agency shall document all deferral information. See **Policy 5.1.2, Weatherization Project Documentation** for requirements.

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Weatherization Policy

See also:

[Weatherization Program Notice \(WPN\) 22-7 Weatherization Health and Safety Guidance](#)

[Wx Manual Table of Contents](#)

[Exhibit 5.1.4A, Client Health and Safety Packet](#)

[Exhibit 5.1.4B, Client Education Guide](#)

www.epa.gov

EPA booklet: [A Brief Guide to Mold, Moisture, and Your Home](#)

EPA booklet: [The Lead-Safe Certified Guide to Renovate Right](#)

EPA Asbestos Information Website: [Protect Your Family](#)

EPA booklet: [A Citizen's Guide to Radon](#)

Replaces: Policy 5.1.4 – April 1, 2019

POLICY 5.1.4 CLIENT EDUCATION

1. **Client Education:** Local Agency shall provide client(s) structured and consistent information on services provided: consumer conservation, repairs, and health and safety.
 - a. As outlined below, information provided as client education includes, but is not limited to:
 - (1) Energy efficiency;
 - (2) Function, use, maintenance, and warranties of equipment, systems, and components installed in their dwelling;
 - (3) Health and Safety (H&S) matters such as potential hazards and prevention;
 - (4) Information to enable client to make informed decisions and provide Local Agency with their Informed Consent. **Exhibit 5.1.4A, Client Health and Safety Packet – Part (1) Client Informed Consent** form is intended to meet the requirement.
 - b. Department of Energy defines the level of required written and verbal client education the Local Agency shall provide to clients. **Exhibit 5.1.4A, Client Health and Safety Packet – Part (2) Health and Safety Observed Conditions** form, including a link to the **Exhibit 5.1.4B, Client Education Guide**, is intended to meet the written client education requirements. See *Weatherization Program Notice (WPN) 22-7* for more information.
2. **Informing Clients of Deferral:** See **Policy 5.1.3, Deferral Standards** for more information. If the project is deferred, the Local Agency shall use a deferral form to:
 - a. Inform clients of deferral in writing. If the property is a rental, property owners shall also receive a copy.
 - b. Document observed conditions requiring deferral of the Weatherization project.

- c. Define actions and results required, before Weatherization can commence.
- d. Local Agency shall inform client to contact Local Agency, once actions are complete, results are realized, and conditions are resolved so site visit can be scheduled to determine if the weatherization project can commence.

3. Timing of Client Education:

a. Prior to Weatherization Project:

- (1) **Client Interview:** Local Agency shall conduct interviews with occupants and owners (owner's agent) to help assess the property.
- (2) **Scope of Work:** Local Agency shall review scope of work with the client, including Proposed Measures and Work Schedule. See **Policy 5.2.1, Energy Audits** for more information.

Exception: Multifamily dwellings five (5) units and greater, the owner (owner's agent) may take responsibility to notify the tenants regarding Scope of Work.

- (3) **Informed Consent Signatures:** Local Agency shall secure client signature (occupant), or in multifamily dwellings five (5) units and greater, the owner signature (owner's agent) as applicable to confirm Informed Consent. See **Exhibit 5.1.4A, Client Health and Safety Packet – Part (1) Client Informed Consent** form. Also see **Policy 5.1.2, Weatherization Project Documentation** for more information on documentation requirements.

The informed consent signatures are required prior to the Weatherization (Wx) project start on the *Client Informed Consent* form. This includes the Local Agency Representative (Auditor or Client Educator provider) signature confirmation. The *Client Informed Consent* form addresses the following topics:

- (a) Mold
- (b) Asbestos
- (c) Lead
- (d) Radon

b. After Weatherization Project is Completed:

- (1) Review of Work Completed, including but not limited to:
 - (a) Insulation type and levels installed.
 - (b) Operation and Maintenance (O&M) of installed equipment.
 - (c) Recommended fan operation for adequate ventilation and moisture control.

- (2) General Post Wx Project information, including but not limited to:
 - (a) Importance of keeping dryer filter and termination clear of lint.
 - (b) Importance of cleaning grease buildup from kitchen range exhaust filter.
 - (c) Importance of cleaning heating and cooling system filter.
 - (3) Signatures:
 - (a) Client signature confirming Wx project completion and receipt of information
 - (b) Local Agency (Quality Control Inspector) signature confirmation
4. **Presenting Wx Information in Useable Format:** Local Agency shall provide client education verbally and in writing, as appropriate. The Environmental Protection Agency (EPA) has made non-English versions of their pamphlets available. If a pamphlet in the client's native language is not available, the English version shall be presented. The **Exhibit 5.1.4A, Client Health and Safety Packet – Part (2) Client Health and Safety Observed Conditions** form provides links to online information and the official booklets to meet the requirement to provide clients information in writing.

Exception: Local Agency shall provide physical written booklets, in addition to the links, to any client:

 - a. Without a computer,
 - b. For which the internet is not readily accessible, or
 - c. At the client's request, as indicated on the *Client Informed Consent* form.
5. **Recipients of Client Education:**
 - a. **Single-Family Owner-Occupied Properties:** Local Agency shall provide client education to the Low-income Clients: Owners/Occupants.
 - b. **Single-Family Rentals:** Local Agency shall provide client education to the property owners and tenants.
 - c. **Multifamily Properties:** Local Agency shall provide client education to the following people including, but not limited to the: Low-income Clients: Tenants and Occupants; Owners; Owner-Agents; Building Managers; Facilities Personnel; Maintenance Staff; and Maintenance Designee.

6. **Rental Property Owner/Agency Agreement Information:** In single-family rentals and multifamily properties, Local Agency shall provide Wx agreement marketing information to owners (owner's agent) and Wx tenant's rights information to clients (tenants) during the course of the weatherization work. See **Policy 1.3.3, *Using Owner/Agency Agreements*** for more information.
 - a. Local Agency shall provide Wx information to property owners to help market the agreements: See example: **Exhibit 1.3.3C, *Owner-Agency Agreement InfoSheet***.
 - b. Local Agency shall provide Wx information to tenants to inform them of their rights following weatherization of their dwelling units. See example: **Exhibit 1.3.3D, *Tenant Wx Rights InfoSheet***.

7. **Providing Client Education:** Local Agencies shall provide clients with a copy of **Exhibit 5.1.4A, *Client Health and Safety Packet – Part (2) Client Health and Safety Observed Conditions*** form. Upon request, Local Agencies will also provide clients with **Part (1) Client Informed Consent** form. **Exhibit 5.1.4B, *Client Education Guide*** is also available to help meet general client education information requirements. Local Agencies shall provide clients with the following Wx related information:
 - a. **Warranties:** The Local Agency and all Subcontractors shall provide warranties in writing against any defect in the material, manufacture, design or installation of all materials, equipment, or products that is found within one (1) year from the date of completion of installation. Any defects found within the warranty period shall be remedied without charge and within a reasonable period of time. The warranty information shall be given to the occupant and a copy placed in the client file (project file). See **Policy 5.1.1, *General Requirements*** for more information.
 - b. **Air Conditioning and Heating Systems:** Local Agency shall provide air conditioning and heating system information, appropriate use, maintenance of units and the importance of regular maintenance to all clients. Provide all paperwork and manuals for any installed equipment. See **Policy 5.5.1, *Air Conditioning and Heating Systems*** for more information.
 - (1) **Forced air Systems:** Inform clients with forced air systems of the importance of replacing or cleaning air filters monthly during the heating or cooling season.
 - (2) **DHPs:** Inform clients with ductless heat pumps of the importance of equipment maintenance.
 - (3) **Space-Heaters:** Inform clients with space-heaters of dangers of unvented space-heaters. CO, moisture, and NO₂, can be dangerous even if CO alarm does not sound. Also, provide client education on safety hazards and the proper operation of equipment, including the operation, testing, and battery replacement of smoke and CO detectors.
 - c. **Lighting Information:** See **Policy 5.7.4, *Energy Efficient Lighting*** for more information. Local Agency shall provide residents with information on the following:

Wx Policy 5.1.4 Client Education

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- (1) LED and CFL features
 - (2) Potential savings
 - (3) Proper use and care
 - (4) Use and replacement limitations
 - (5) Where to purchase replacement bulbs
- d. **Indoor Air Quality:** Local Agency shall provide client with information on function, use, and maintenance (including location of service switch and cleaning instructions) of ventilation system and components. Provide client with equipment manuals for installed equipment. Include disclaimer that **ASHRAE Standard 62.2** (and **Standard 62.1**, when applicable) does not account for high polluting sources or guarantee indoor air quality. See **Policy 9.3, Indoor Air Quality – Mechanical Ventilation** for more information.
- e. **Combustion Safety:** Local Agency shall provide client with combustion safety and hazards information. See **Policy 9.4, Combustion Safety Testing** for more information. If Local Agency is unable to meet CAZ Depressurization Limits or standards, they shall provide client education for safe operation.
- f. **Smoke Detector:** See **Policy 9.5, Smoke Detectors, Carbon Monoxide (CO) Detectors, and Fire Extinguishers** for more information. Local Agency shall provide the occupant(s) of the dwelling unit with verbal and written information on use of devices installed, including:
- (1) The operation of the smoke detector(s), testing, and battery replacement.
 - (2) Manufacturer's instructions: The manufacturer's instructions including the owner's manual, warranty, and the expected lifetime of the unit information shall be left with the occupant of the dwelling unit.
- g. **CO Detector:** See **Policy 9.5, Smoke Detectors, Carbon Monoxide (CO) Detectors, and Fire Extinguishers** for more information. Local Agency shall provide the occupant(s) of the dwelling unit with verbal and written information on use of devices installed, including:
- (1) Dangers of CO.
 - (2) How to operate and reset the CO detector.
 - (3) How to read the CO detector.
 - (4) How to respond to CO levels above 10 ppm.
 - (5) How to change the batteries.
 - (6) **Manufacturer's instructions:** The manufacturer's instructions including the owner's manual, warranty, and the expected lifetime of the unit information shall be left with the occupant of the dwelling unit.

- h. **Mold & Moisture:** Prior to the Weatherization Project start, Local Agency shall provide client (owner, tenant, or both, as applicable) written notification and disclaimer on mold and moisture awareness. See **Policy 9.6 Biologicals and Unsanitary Conditions, Including Mold and Moisture** for more information. Pre-work Client Notification and Informed Consent shall include:
- (1) **Mold Scope of Work and Schedule:** Local Agency shall provide to the owner and occupant(s) of the dwelling unit written description of the proposed work to be performed and schedule, which includes notification that the work to be performed is expected to alleviate the mold and moisture creating conditions.
 - (2) **Mold Conditions:** A copy of the mold assessment documenting the mold conditions. See **Exhibit 5.1.4A, Client Health and Safety Packet – Part (1) Client Informed Consent Form- Mold Assessment and Release Section** for more information.
 - (3) **EPA booklet, A Brief Guide to Mold, Moisture, and Your Home:** The Local Agency shall give the dwelling's occupant(s) a copy of the EPA booklet or link: <https://www.epa.gov/sites/production/files/2016-10/documents/moldguide12.pdf> before the start of any work. Written confirmation the client received information is required.
 - (4) **Drainage Systems:** The importance of cleaning and maintaining drainage systems.
 - (5) **Landscape:** The proper landscape design and how this impacts site drainage and moisture control.
- i. **Pollutants Awareness:** Local Agency shall provide biologicals, chemicals, pollutants, and unsanitary conditions information to all clients. See **Policy 9.6, Biologicals and Unsanitary Conditions, Including Mold and Moisture** for more information.
- (1) **Pollution Source Survey:** Inform client in writing of observed conditions, observed hazardous conditions, and associated risks. See **Exhibit 5.1.4A, Client Health and Safety Packet – Part (2) Client Health and Safety Observed Conditions and Part (3) Pollution Source Survey.**
 - (2) **Plus Health:** Provide information on how to maintain a sanitary home. See **Policy 9.2.1, Weatherization Plus Health** for more information.
 - (3) **Safety and Disposal:** Provide client written materials on safety issues and proper disposal of household pollutants.

- j. **Disposing Hazardous Materials** (Refrigerant, Asbestos, Lead, Mercury, including CFLs/Fluorescents):
- (1) Local Agency shall inform client in writing of hazards associated with hazardous waste materials being generated/handled in the home.
 - (2) Local Agency shall provide clients with proper disposal site information for household pollutants requiring removal.
 - (a) **Proper Disposal of CFLs (Mercury):** If the client has existing CFLs or if the Local Agency provides CFLs, the Local Agency shall give to the occupant(s) information on the proper disposal of CFLs in their area.

CFLs contain about 4 milligrams of mercury sealed in the glass tubing of the bulb. They shall be disposed of as Household Hazardous Waste (HHW) at an approved site. See **Policy 5.7.4, Energy Efficient Lighting** for more information.
 - (b) **Proper Disposal of Thermostats (Mercury):** Local Agency shall give to the occupant(s) information on the proper disposal of mercury in their area. See **Policy 5.5.8, Thermostats** for more information.
- k. **Lead Awareness:** Prior to the Weatherization Project start, Local Agency shall provide lead information to all clients. See **Policy 9.8, Lead-Based Paint** for more information. See **Exhibit 5.1.4A, Client Health and Safety Packet – Part (1) Client Informed Consent Form – Lead Pre-Renovation Section**. Pre-work Client Notification and Informed Consent shall include:
- (1) **Lead Scope of Work and Schedule:** Local Agency shall provide written notification of the scope, location, and expected starting and completion dates of proposed work shall be provided to owners and tenants of homes and multifamily housing built prior to 1978.
 - (a) **No-Lead Determination:** If a determination is made in accordance with applicable EPA rules that lead-based paint is not present in the areas affected by the proposed work, a copy of the determination shall be included with the notice.
 - (b) **Notification:** Notification by certified mail shall be provided no more than 60 days and no fewer than seven (7) days before renovation activities begin. The notification requirement applies even if only common areas, and not individual dwelling units, will have worked performed.
 - (2) **Lead Conditions:** Local Agencies shall document observed lead conditions in **Exhibit 5.1.4A, Client Health and Safety Packet – Part (2) Client Health and Safety Observed Conditions** and **Part (3) Pollution Source Survey**.
 - (3) **EPA booklet: *The Lead-Safe Certified Guide to Renovate Right*** or link: https://www.epa.gov/sites/production/files/documents/rr_english_color_book.pdf. Written confirmation the client received information is required.

1. **Asbestos:** See **Policy 9.9, Asbestos** for more information. Prior to the Weatherization Project start, Local Agency shall provide asbestos safety information to all clients. See **Exhibit 5.1.4A, Client Health and Safety Packet – Part (1) Client Informed Consent Form - Asbestos Section**.
 - (1) **Instructions to Clients:** Instruct clients in writing not to disturb suspected Asbestos Containing Materials (ACM).
 - (2) **ACMs Present:** Inform client in writing that suspected ACMs are present and what precautions will be taken to ensure the occupants' and workers' safety during Wx.
 - (3) **Asbestos Testing:** If a Local Agency tests for ACM, test results shall be provided to the client in formal written client notification.
 - (4) **EPA Information:** Environmental Protection Agency has more Asbestos information available at <https://www.epa.gov/asbestos/protect-your-family>.
- m. **Radon:** Prior to the Weatherization Project start, Local Agency shall provide radon information to all clients. See **Policy 9.10, Radon** and see **Exhibit 5.1.4A, Client Health and Safety Packet – Part (1) Client Informed Consent Form - Radon Section** for more information. Pre-work Client Notification and Informed Consent shall include:
 - (1) **Indoor Air Quality:** Information from the results of the IAQ study that there is a small risk of increasing radon levels when building tightness is improved.
 - (2) **Weatherization Precautionary Measures:** Wx installs precautionary measures based on EPA Healthy Indoor Environment Protocols, including but not limited to mechanical ventilation.
 - (3) **Weatherization Benefits:** Wx benefits include energy savings, energy cost savings, improved home comfort, and increased safety.
 - (4) **EPA's booklet: *A Citizen's Guide to Radon*** or link to inform clients of radon related risks https://www.epa.gov/sites/production/files/2016-12/documents/2016_a_citizens_guide_to_radon.pdf. Written confirmation the client received information and radon related risks were discussed is required.
- n. **Pests:** Local Agency shall inform the client in writing of observed pest conditions and associated risks. See **Policy 9.11, Pests** for more information.

Effective Date: February 21, 2020

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Weatherization Policy

Replaces: Policy 5.1.5 – July 2015

See also:
[Exhibit 5.1.4B, Client Education Guide](#)
[Policy 5.7.1, Water Heaters](#)

POLICY 5.1.5 LOW-COST/NO-COST AND GENERAL HEAT WASTE REDUCTION

1. **Low-cost/No-Cost (LC/NC):** The purchase of Low-cost/No-cost energy conservation measures to give to clients is allowable.
2. **General Heat Waste Reduction (GHWR):** The purchase and installation of General Heat Waste Reduction measures is allowable.

Exception: No DOE funds may be used to install LC/NC or GHWR materials.

3. **Allowed-Prior, During, or in Deferred Wx Projects:** During the Needs-Assessment or Audit, as part of the Consumer Conservation Education, or for a Deferred Wx project the following are allowed and considered LC/NC measures if given to the client and GHWR measures if installed:
 - a. **Water Heater pipe insulation:**
 - (1) on first six feet of hot water pipe exiting water heater
 - b. **Water flow restrictors:**
 - (1) Low-flow Showerheads
 - (2) Low-flow Faucet Aerators
 - c. **Limited Infiltration Reduction:** Items primarily directed at reducing infiltration, such as weather-stripping, caulking, and glass repairs.
 - d. **Filters:** Furnace or cooling filters, up to one-year supply.
 - e. **Water Heater Temperature adjustment.** See **Policy 5.7.1, Water Heaters**
 - f. **Lighting:** Light-Emitting Diode (LED) light bulbs.
 - g. **Thermostat:**
 - h. **Walk off Mats (4):** Local Agencies may provide up to four (4) walk off mats for front and back doors, interior and exterior.

- i. **Hygrometer:** For homes with excess moisture issues, Local Agencies may provide a hygrometer, if there is a continuing need for the client to monitor the moisture level.
 - j. **Client Education:** Brochures, *Client Education Guide*, and other written information concerning the potential energy savings and Health and Safety information, including a Green Cleaning Kit.
4. **If Classified as Wx Measures:** As LC/NC or GHWR items, these measures are not classified as Wx Measures (WxM) and may be skipped for any documented reason (including declined by client).

However, if a Local Agency includes any of the above measures in the project scope of work as WxM the Local Agency shall install those measures and if using TREAT the Local Agency shall:

- a. Include them in the improvement package for measure interaction, and
- b. Treat the prioritized measure as other prioritized measures and skipping is not allowed.

5. **LC/NC and GHWR Weatherization Activities**

- a. LC/NC and GHWR services may be provided to an eligible household even when other measures are not provided.
 - (1) Up to ten percent of a local agency's allocation may be used for LC/NC or GHWR items in eligible dwelling units.
- b. Units that receive only LC/NC or GHWR services shall not be counted as completed units in the Weatherization Information Data System (WIDS).
- c. DOE-Specific Limits and Exclusions
 - (1) Under DOE, the purchase of low-cost/no-cost materials is limited to \$50 per dwelling unit. There is no per dwelling unit limit for HHS, BPA and State.
 - (2) No DOE funds may be used to install low-cost/no-cost materials.
 - (3) Low-cost/no-cost weatherization measures are excluded from the following requirements:
 - (a) One DOE weatherization activity per dwelling unit restriction.
 - (b) DOE average cost per unit expenditure.
 - (c) DOE average cost per unit expenditure.

Effective Date: July 2017

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Weatherization Policy

Replaces: Section 5.1.6 – July 2015

See also:
[Policy 5.1.2, Weatherization Project Documentation](#)
[Policy 5.1.2.2, Weatherization Information Data System \(WIDS\)](#)

POLICY 5.1.6 COORDINATION WITH UTILITIES AND RELATED PROGRAMS

1. **Identifying Related Conservation Projects:** Local Agencies shall identify and coordinate with related energy conservation projects within their service area. Such projects include those offered through other federal programs, state agencies, energy vendors, and local or privately funded programs.

All coordinated efforts shall meet or exceed Commerce standards.

2. **Coordinating in Local Efforts:** Local Agencies are expected to participate in local efforts to enhance coordination and cooperation.
3. **Reporting Leveraged Funding in WIDS:** Denote leveraged funds (including all utility funds) on the WIDS “Costs” tab. See *Policy 5.1.2.2, Weatherization Information Data System (WIDS)*.
4. **Documenting Justification:** All necessary measure-specific justification. Justification for installing any measure shall meet funder’s requirements
 - (1) For Blended Measures, LAs shall justify measures in accordance with Commerce contracts and policy.
 - (2) For Utility Measures, LAs shall justify measures in accordance with Utility contracts and requirements.
5. **Sharing Responsibility to Provide Wx Services:** Local Agencies may share the responsibility of providing weatherization services using a variety of coordination methods, including:
 - (1) Energy audits
 - (2) Specific weatherization measures (such as water heater blankets, heating source repair or modification, replacement of lighting fixtures and bulbs)
 - (3) Outreach
 - (4) Program publicity
 - (5) Other

Effective Date: July 2021

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Weatherization Policy

Replaces: Policy 5.2.1 – February 21, 2020

See also:
[Policy – Policies and Procedures Table of Contents](#)
[Specifications – Specifications Table of Contents](#)
[Exhibits – Supporting Documents Table of Contents](#)

POLICY 5.2.1 ENERGY AUDITS

1. Energy Audits

All single-family dwellings shall receive a comprehensive, on-site, energy audit prior to receiving weatherization services.

2. Scope of Energy Audit

The Local Agency shall evaluate the dwelling for the following:

- a. Cost-effective energy efficiency improvements.
- b. Health and safety issues that may negatively affect occupants.
- c. Building durability issues that may negatively affect or prohibit installation of energy efficiency measures.
- d. Comfort issues that may cause increased energy use.

3. Energy Auditor

A trained and qualified auditor, someone other than the Quality Control Inspector (QCI) conducting final inspections, shall conduct energy audits and develop the Scope of Work (SOW).

Exception: Local Agencies that are unable to meet this requirement shall notify Commerce in writing with their alternative inspection plan and receive Commerce written approval. See **Policy 7.1, Local Agency Inspection of Weatherization Work** for more information on requesting an Auditor/Inspector Separation Waiver.

- a. Shall be certified as a Building Analyst (BA), an Energy Auditor (EA), or a Quality Control Inspector (QCI) by the Building Performance Institute (BPI).
- b. Training and testing will be provided by the Peer Circuit Rider/Building Performance Center.
- c. Newly hired auditors shall have work reviewed including on-site review by a certified BA, EA, or QCI until such time that they become certified.

4. **Energy Audit Requirements:** All energy audits will include:
- a. **Energy Audit Tool:** Local Agencies shall choose one energy audit tool for each Wx project. Do not combine tools or use more than one tool, on a single Wx project.
 - (1) TREAT. See **Policy 5.2.5, Targeted Residential Energy Analysis Tool (TREAT)**
 - (2) Deemed Measures Priority List. See **Policy 5.2.7, Deemed Measures Priority List (DMPL)**
 - b. **Diagnostic testing:** See **Policy 5.2.3 Diagnostic Testing**
 - c. **Combustion Safety Testing:** Combustion safety testing is required when combustion appliances are present. See **Policy 9.4 Combustion Safety Testing**
 - d. **Indoor Air Quality – Mechanical Ventilation:** See **Policy 9.3 Indoor Air Quality – Mechanical Ventilation**
 - e. **Mold Assessment:** See **Policy 9.6, Biologicals and Unsanitary Conditions, including Mold and Moisture** and **Exhibit 5.1.4A, Client Health and Safety Packet – Part 1: Informed Consent Form.**
 - f. **Pollution Source Survey:** Local Agencies shall document justification for installation of a particular health or safety measure in a project with a note in the Scope of Work.

Example: Condition #3 – Plumbing Leak inside the home or in the crawl space, with a Rating 3 = Current Major Leak is noted in Plumbing Repairs measure.

See **Exhibit 5.1.4A, Client Health and Safety Packet – Part 3: Pollution Source Survey** and **Part 4: Resource Guide to Pollution Source Survey Home Rating Scale.**
 - g. **Pre-Assessment:** See **Policy 5.2.2, Pre-Assessment (Pre-Audit)**
 - h. **Analysis of Baseload Costs:** The Local Agency shall analyze baseload costs for each dwelling unit when fuel histories are available. Baseload cost data shall be used to determine cost-effective energy conservation and energy education opportunities.
5. **Review of Energy Audit Report and Scope of Work:** The Local Agency shall review the findings of the energy audit and anticipated scope of work with the occupants of the dwelling. In Single-family rentals, Local Agency shall also review the findings of the energy audit and anticipated scope of work with the owner. Documentation of the audit findings and anticipated scope of work shall be retained in the client file (project file).
- Exception:** Low-cost/No-cost measures may be installed before audit findings are reviewed with the occupants and landlord.

6. Historical preservation considerations

All energy audits shall note any historical preservation requirements and shall consider these requirements when determining the scope of work that will be used to complete weatherization work on the dwelling unit.

7. Client authorization

The Local Agency shall obtain a signature from the client (occupant of the dwelling unit), and the landlord (for a rental) authorizing installation of the measures to be performed on the eligible dwelling prior to work commencing. A copy of the signed authorization shall be retained in the client file (project file). See **Policy 5.1.2, *Wx Project Documentation***, for requirements

8. Deferral: Deferral may be necessary if there are any problems beyond the scope of the Weatherization Assistance Program. See **Policy 5.1.3, *Deferral Standards***.

9. Client Education: Local Agency shall provide Weatherization information to all clients. See **Policy 5.1.4, *Client Education*** for requirements.

10. Documentation: See **Policy 5.1.2, *Wx Project Documentation*** for requirements. The Local Agency shall document all Energy Audit requirements, including audit inputs verification and measure justification. This documentation includes, but is not limited to:

a. **Existing Condition:** Local Agency shall record a description of the condition of the home at the time of the energy audit and justification for the measures as outlined in the scope of work.

Exception: A complete energy audit is not required, if during the energy audit assessment, it is determined the best course of action is to defer weatherization service per **Policy 5.1.3, *Deferral Standards***.

b. **Photographic record:** Photographs can provide sufficient documentation for pre-Wx data collection and justification for measures. See **Policy 5.1.2, *Weatherization Project Documentation***, *Section 15 Photographic Documentation* for requirements.

Effective Date: September 8, 2021

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Weatherization Policy

See also:

[Policy 5.2.5, Targeted Residential Energy Analysis Tool \(TREAT\)](#)
[Policy 5.2.3-MF, Diagnostic Testing](#)
[Policy 9.3-MF, Indoor Air Quality – Mechanical Ventilation](#)
[Policy 9.6, Biologicals and Unsanitary Conditions, including Mold and Moisture](#)
[Exhibit 5.1.4A, Client Health and Safety Packet](#)
[Multifamily Table of Contents](#)
[Multifamily Weatherization Specification](#)

Replaces: Policy 5.2.1-MF – July 2021

POLICY 5.2.1-MF MULTIFAMILY ENERGY AUDITS

The energy audit is typically considered a “process” in which an energy auditor identifies and recommends a final package of recommended efficiency opportunities to clients. In doing so, the energy auditor works with the building owner and other stakeholders to work to meet the needs of all parties involved.

1. Multifamily Energy Audits

- a. All Multifamily dwellings shall receive an, on-site, energy audit prior to receiving weatherization services.

Exception: The Local Agency Auditor may use a representative sample of dwelling units for the energy audit to meet “each dwelling unit” requirements. See **Policy 5.2.6-MF, Multifamily Representative Sample** for requirements. For each Wx project the auditor shall define and document within Wx Project file what representative sample they use.

2. Scope of Energy Audit

The Local Agency shall evaluate the dwelling for the following:

- a. Cost-effective energy efficiency improvements.
- b. Health and safety issues that may negatively affect occupants.
- c. Building durability issues that may negatively affect or prohibit installation of energy efficiency measures.
- d. Comfort issues that may cause increased energy use.
- e. **Phased Projects:** See **Policy 2.1.8-MF, Phasing Multifamily Weatherization Projects** for requirements.

3. **Multifamily Energy Auditor**

A trained and qualified auditor, someone other than the Quality Control Inspector (QCI) conducting final inspections, shall conduct energy audits and develop the Scope of Work (SOW).

Exception: Local Agencies that are unable to meet this requirement shall notify Commerce in writing with their alternative inspection plan and receive Commerce written approval.

- a. Shall be certified as a Building Analyst (BA), an Energy Analyst (EA) or a Quality Control Inspector (QCI) by the Building Performance Institute (BPI). In addition to the Home Energy Professional certification, Multifamily auditors shall also receive the supplemental Multifamily training and pass the test.
- b. Training and testing is available from the Peer Circuit Rider/Building Performance Center.
- c. Newly hired auditors shall have work reviewed including on-site review by a certified BA or QCI until such time that they become certified.

4. **Multifamily Energy Audit Requirements:** All multifamily energy audits will include:

- a. **Schedule:** Local Agency shall identify owner's capital improvements schedule, if available. If possible, Local Agency shall align the Wx project and owner's improvement schedules to maximize leveraged funds. See **Policy 2.1.8-MF, Phasing Multifamily Weatherization Projects.**
- b. **Visual Assessment:**
 - (1) Air leakage control
 - (2) Insulation
 - (3) Doors and Windows
 - (4) Space-Heating and Cooling Systems
 - (5) Water Heating Systems
 - (6) Ventilation Systems
 - (7) Distribution Systems
 - (8) Controls/Scheduling
 - (9) Lighting Measures
 - (10) Appliances
 - (11) Fuel/Power and Renewable Energy

- c. **Energy Audit Tool:** Local Agency shall create an energy model in TREAT for each unique building in a Multifamily Wx project. See **Policy 5.2.6-MF, Multifamily Representative Sample** for requirements. Within the model, the auditor shall import or enter at least 12 months of recent energy bill data to calibrate (true up) the TREAT model. See **Policy 5.2.5, Targeted Residential Energy Analysis Tool (TREAT)**.
- d. **Diagnostic Testing:** See **Policy 5.2.3-MF, Diagnostic Testing**
- e. **Combustion Safety:** Local Agency shall determine the combustion safety strategy. During the audit, Local Agency shall either confirm CO detectors are existing within dwelling units or if installing CO detectors shall be included in the scope of work. DOE requires that ALL units with a combustion appliance present shall receive pre- and post- health and safety diagnostics testing.

Exceptions:

- (1) Remove combustion appliances.
 - (2) Isolate combustion appliance zone.
 - (3) Install sealed-combustion appliances.
- f. **Indoor Air Quality – Mechanical Ventilation:** Local Agencies shall assure compliance with ASHRAE **Standard 62.2 - 2016** for all dwelling units. Compliance with ASHRAE 62.1 - 2016 for all common space and corridors, is recommended. See **Policy 9.3-MF, Indoor Air Quality – Mechanical Ventilation**
 - g. **Mold Assessment and Pollution Source Survey:** During the audit, Local Agencies shall perform a Mold Assessment and Pollution Source Survey for each dwelling unit and document occurrences, but separate forms for each unit are not required. By the end of the Wx Project, Local Agencies shall account for ALL units. Interview the maintenance staff to confirm that conditions observed in the representative sample of units actually represents the whole building and assure there are no reported Mold or Pollution Source issues.
 - (1) **Mold Assessment:** See **Policy 9.6, Biologicals and Unsanitary Conditions, including Mold and Moisture.**
 - (2) **Pollution Source Survey:** Local Agencies shall document justification for installation of a particular health or safety measure in a project with a note in the Scope of Work. See **Exhibit 5.1.4A, Client Health and Safety Packet –Part 3: Pollution Source Survey** and **Part 4: Resource Guide to Pollution Source Survey Home Rating Scale.**

Example: Condition #3 – Plumbing Leak inside the home or in the crawl space, with a **Rating 3 = Current Major Leak** is noted in Plumbing Repairs measure.

- h. **Energy Consumption:** Through the energy model, the Local Agency shall use utility billing and energy consumption to true up the computer model in the energy audit tool.
 - (1) **Acquire Residential Energy Use (billing information) data:** Request utility billing from building owner, utility, or each tenant.
 - (a) **Building Energy Use:** Request utility billing from building owner or from utility with release from building owner for the entire building energy use. *Recommended: EPA Portfolio Manager may be a useful tool.*
 - (b) **Dwelling Unit Energy Use:** Collect all billing data from each tenant or use building compilation from owner.
 - (2) *Recommended: Building Energy Use Comparison (Benchmarking)
Published document from NEEA: Residential Building Stock Assessment: MF characteristics and end use Dec 2013. To assist in prioritizing projects, rather than to HREU/B – if a building is a high energy user, the comparison will help determine it. To help convince owners to do work.*
- i. **Lighting audit:** Local Agencies shall determine the lighting strategy for dwelling units, common areas interior, and exterior. Model lighting energy use in TREAT. Use Energy Star or equivalent energy use lighting fixtures and lamps.
- j. **Cost Estimate** – *Recommend using RS Means to compare to contractor bids.*
- k. **Subcontract:** As necessary for design new systems and assessment of current systems, subcontract with engineers (design professionals), licensed contractors, or specialty technicians.

5. **Review of Energy Audit Report and Scope of Work**

The Local Agency shall provide an Energy Audit report to the owner (owner's agent). Local Agency shall review the energy audit findings of the energy audit and the anticipated scope of work with the building owner or representative.. Documentation of the audit findings and anticipated scope of work shall be retained in the project file. Local Agency shall coordinate with the dwelling owner to ensure tenants are properly notified of the anticipated scope of work.

Exception: Low-cost/No-cost measures may be installed before audit findings are reviewed with the occupants and landlord.

6. **Historical preservation considerations**

All energy audits shall note any historical preservation requirements and shall consider these requirements when determining the scope of work that will be used to complete weatherization work on the dwelling unit.

7. Owner Authorization

For all work the Local Agency conducts, the Local Agency shall obtain the building owner's (or owner's agent) signature authorizing installation of the measures to be performed on the eligible dwelling prior to work commencing. A copy of the signed authorization shall be retained in the client file (project file). The Local Agency shall coordinate with the dwelling owner to ensure tenants are properly notified to allow access for installation of measures and necessary inspections.

- a. Owner/Agency Agreement – Signed approval: See **Policy 1.3.3, Using Owner/Agency Agreements** and **Exhibit 1.3.3B, Wx Program Rental Property Owner/Agency Agreement**.
- b. Owner Contribution: See **Policy 1.4.2, Owner Contributions**.
- c. Owner Maintenance Schedule: See **Policy 2.1.8-MF, Phasing Multifamily Weatherization Projects**.

8. **Deferral:** Deferral may be necessary if there are any problems beyond the scope of the Weatherization Assistance Program. See **Policy 5.1.3, Deferral Standards**.

9. **Client Education:** Local Agency shall provide Weatherization information to all clients. See **Policy 5.1.4, Client Education** for requirements.

10. **Documentation:** See **Policy 5.1.2, Wx Project Documentation** for requirements. The Local Agency shall document all Energy Audit requirements, including audit inputs verification and measure justification. This documentation includes, but is not limited to:

- a. **Existing Condition:** Local Agency shall record a description of the condition of the home at the time of the energy audit and justification for the measures as outlined in the scope of work.

Exception: A complete energy audit is not required, if during the energy audit assessment it is determined the best course of action is to defer Wx service per Commerce policy **Policy 5.1.3, Deferral Standards**.

- b. **Photographic record:** Photographs can provide sufficient documentation for pre-Wx data collection and justification for measures. See **Policy 5.1.2, Weatherization Project Documentation, Section 15 Photographic Documentation** for requirements.

c. **Energy Audit Report**

d. **Scope of Work**

e. **Representative Sample:** Description and explanation of Representative Sample technique compliance, and

f. **Wx Project strategies:** Any other applicable Wx Project strategies.

POLICY 5.2.2 ENERGY AUDIT PRE-ASSESSMENT (PRE-AUDIT)

A. Policy

1. Local Agencies shall perform an Energy Audit Pre-Assessment for eligible clients.
2. Local Agencies may choose to do the pre-assessment as a Pre-Audit prior to the Energy Audit with a pre-assessor or as part of the Energy Audit.
3. Pre-assessors do not require BPI certification.
4. Pre-Assessments may include Low-cost/No-cost measures, Consumer Conservation Education, and Smoke and CO detectors.
5. Energy Audit Pre-Assessment (visual inspection), shall include inspecting all accessible areas and systems as follows:
 - a. Attics
 - b. Crawlspace
 - c. Building envelope
 - d. Air sealing opportunities
 - e. Roofs
 - f. Insulation levels
 - g. Heating systems
 - h. Ventilation systems
 - i. Interior surfaces
 - j. Appliances
 - k. Lighting (including common areas of multifamily dwellings)
 - l. Home energy bills
 - m. Stairs, ramps, landings, handrails
 - n. Other structural elements
 - o. Plumbing and electrical where insulation may be installed
 - p. Plumbing and electrical in areas where humans may come into contact
 - q. Smoke alarms and CO detectors

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Weatherization Policy

See also:

[Specification 4 Diagnostic Testing](#)

[Exhibit 5.S3, Diagnostic Test Report](#)

[Policy 5.6.1, Heating and Cooling Ducts](#)

[Policy 9.3 Indoor Air Quality – Mechanical Ventilation](#)

[Policy 5.6.2, Mechanical Ventilation Ducts](#)

Replaces: Policy 5.2.3 - July 2016

POLICY 5.2.3-SF DIAGNOSTIC TESTING

1. **Diagnostic Testing:** The Local Agency shall:
Refer to Specification 4, *Diagnostic Testing* for requirements
 - a. Perform diagnostic testing on all dwelling units prior to installation of weatherization measures and upon completion of each project.
 - b. Document pre and post diagnostic testing in project file or recorded as applicable in the ECOS program. An Exhibit 5.S3, *Diagnostic Test Report* is allowable

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Replaces: NEW

See also:
[Policy 5.2.6-MF, Multifamily Representative Sample](#)
[Policy 5.1.2, Weatherization Project Documentation](#)

POLICY 5.2.3–MF MULTIFAMILY DIAGNOSTIC TESTING

1. **Testing Prior to Weatherization:** Local Agency shall perform or contract to perform diagnostic testing on dwelling units prior to installation of weatherization measures and upon completion of each project. All results from testing shall be documented in the project file. See **Policy 5.2.6-MF, Multifamily Representative Sample** for the allowed sampling technique.
2. **Air Leakage Evaluation:** All projects shall include at a minimum, shall include a visual observation for air leakage. A blower door test is not required in multifamily construction. If blower door testing is completed either a qualitative or a quantitative observation should be documented.
 - a. **Qualitative Evaluation:** Qualitative observations include visual inspections, the use of zonal pressure readings (manometer), air current testers (smoke), infrared thermography, etc. to evaluate envelope leakage and enclosure performance.
 - b. **Quantitative Testing:** Quantitative testing includes calibrated, induced-pressure tests to evaluate envelope leakage and enclosure performance.
3. **Blower Door Testing:** Blower door testing is optional and left to the discretion and expertise of the auditor. When completing blower door testing on multifamily buildings see **Policy 5.2.6-MF, Multifamily Representative Sample** for the allowed representative sampling technique.
 - a. **Whole Building Blower Door Testing:** When whole building blower door testing is performed, a depressurization test shall be performed in accordance with **ASTM E779-10: Standard Test Method for Determining Air Leakage Rate by Fan Pressurization**.
 - (1) Multiple Blower Doors on multiple units
 - (2) All doors open with a large Blower Door on main entrance door

b. Localized Unit Testing:

(1) **Guarded Test:** When localized dwelling unit blower door tests are performed, take steps to quantify or nullify measured leakage between dwelling units vs. leakage to outside if test results will be used to estimate energy savings from air sealing measures. To run a guarded test, set up blower doors in all of the surrounding units to maintain equal pressure.

(2) **Unguarded Test:** Localized dwelling unit blower door tests, without efforts to nullify leakage between dwelling units can be performed when the results are used to assess the compartmentalization of the dwelling unit. When unguarded blower door testing is performed agencies shall follow manufacturer's recommendations.

4. **Air Sealing Defaults (without Blower Door Testing):** Since blower door testing is optional, default air leakage values may be used. However, without blower door testing the amount of air sealing work you can justify may be limited because the default numbers for prescriptive air sealing work are conservative.

a. Defaults for Prescriptive Air Sealing:

(1) Air exchange default for existing building remain 0.6 ACH, reducing not more than 50%. The auditor is allowed to adjust this default if they need to change it to true up the model.

(2) Attic and crawlspace only, prescriptive air sealing (no blower door testing) default for improvement is a conservative 0.05 reduction or 0.55 ACH for calculating the SIR of infiltration reduction measure.

(3) Attic, crawlspace, band joist and dense pack wall insulation plus prescriptive air sealing default infiltration reduction of 35% (0.4 ACH*). **Based on PSE pilot.*

Exception: For mid- and high-rise buildings auditor will use their judgement to estimate air sealing reductions.

5. **Duct Systems Testing:** Evaluation of duct system is mandatory when ductwork extends through unconditioned spaces.

Exception: Ducted rooftop equipment that has short runs of ductwork outside the envelope should be visually inspected for leaks and any leaks found should be sealed but are otherwise exempt from these requirements.

a. Duck leakage sites will be identified using industry approved approaches. Example include; visual inspections, borescopes, remote cameras, infrared thermography, smoke, and/or pressure tests.

- b. Pressure pan testing shall be completed when applicable. When the Local Agency is not able to complete pressure pan test, the reason shall be documented in project file.
6. **Zonal Pressure Testing:** Zonal pressure testing is optional and left to the discretion and expertise of the auditor.
- a. Airflow migration that affects odor migration and energy load transfer in a building is quite complicated and cannot typically be modeled, as the required modeling is so complex. Sometimes pressure differential readings between areas of a building can assist in analyzing likely airflow migration paths, but such airflow diagnostics may also be complicated. Airflow and air migration diagnostics are part art and part science, as migration flow paths often are complicated.
 - b. Zonal pressure diagnostics are typically applied in single-family dwellings, but in multifamily, building size, often limited access to dwellings, and potentially complex flow paths make it difficult to know when a stopping point is reached.
7. **Documenting Testing Methodology:** Local Agencies shall document the testing methodology in the project file. See **Policy 5.1.2, *Wx Project Documentation*** for requirements

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See also:

[WPN 19-4, Attachment 8 - Measure Skipping Clarification](#)
[WPN 19-4, Attachment 9 - Maximum Lifetimes of Weatherization Materials](#)
[Exhibit 5.2.5A, WxM Maximum Lifetimes](#)
[Policy 5.2.7A, Deemed Measures Priority List \(DMPL\)](#)
[Exhibit 5.1B, WxM Ancillary Items, WRR, and H&S](#)

Replaces: Policy 5.2.5 – January 1, 2021

POLICY 5.2.5 TARGETED RETROFIT ENERGY ANALYSIS TOOL (TREAT)

1. Commerce Adopted TREAT as the Authorized Wx Energy Analysis Tool:

TREAT (Targeted Retrofit Energy Analysis Tool) is the DOE authorized Weatherization (Wx) Program energy analysis tool. TREAT is required for all Weatherization projects with DOE funded Installed Measures Costs (IMC).

Wx Projects with Weatherization Measures (WxM) not included in the Deemed Measures Priority List (DMPL) or specifically permitted by policy, also require use of TREAT to justify the investment by the weatherization program. Failure to use TREAT to justify a Wx project that includes measures not included in the DMPL, or by other policy, will result in disallowed costs. See **Policy 5.2.7, Deemed Measures Priority List (DMPL)**.

2. Using TREAT Software

- a. **Maintaining TREAT:** Local Agencies shall maintain and use the most current version of TREAT software.
- b. **Ensuring TREAT Proficiency:** Local Agencies are responsible for ensuring that all staff performing computerized energy analyses acquire and maintain proficiency using TREAT.
 - (1) Personnel completing TREAT energy modeling shall participate in a TREAT Modeling course developed and delivered by The Building Performance Center.
 - (2) Energy Modeler shall complete TREAT models in alignment with the instructions provide by software developer, Performance Systems Development (PSD).
 - (3) Energy Modeler shall review the TREAT model inspector on the improvement tab. Energy Modeler shall address all applicable warnings from the model inspector.
 - (4) Energy Modeler shall review measure SIR result >6 (when there are no leveraged funds used) and verify the inputs relating to such measure are correct.
 - (5) Energy Modeler shall review the annual MMbtu usage and MMbtu savings. In cases where the MMbtu savings projection is greater than the MMbtu usage, Energy Modeler shall review the inputs and adjust the inputs for such measure in order to bring savings to a realistic outcome.

(6) Failure to complete these requirements may result in disallowed cost.

3. **Developing Scope of Work:** Local Agencies shall use TREAT to develop scope of work.

Exception: For other than DOE funding, also see **Policy 5.2.7, Deemed Measures Priority List**

4. **Implementing WxM in SIR Cost-Effectiveness Order:**

Local Agencies shall implement the most cost-effective measures as determined by Savings-to Investment Ratio (SIR) in TREAT in descending order of cost-effectiveness, subject to funding availability.

Exception: Air sealing may be installed without an individual $SIR \geq 1.0$, if the cumulative SIR of the improvement package of all measures installed is $SIR \geq 1.0$.

5. **Calculating the Savings-to-Investment Ratio (SIR):**

- a. Local Agencies shall install individual conservation measures (Weatherization Measures (WxM)) with a SIR of 1.0 or greater ($SIR \geq 1.0$).

Exceptions: See **Policy 5.2.5, TREAT - Section 9, Measure Skipping** below.

- b. Within TREAT, on the “Package Wizard” screen, the individual Wx Measures and the total package of measures shall each have a $SIR \geq 1.0$.
- c. Local Agencies shall include the cost of Weatherization-Related Repairs (incidental repairs) in the cost of the package of measures installed in a dwelling.
- d. Health and Safety Measures are NOT included in the SIR calculation.

6. **Costs:**

Local Agencies shall calculate and maintain annually their [*Installed Measure Costs*](#) (IMC) and their fuel costs, for use in the TREAT analysis process.

- a. **Weatherization Measure Costs:** Weatherization Measures (WxM) include ancillary items and their costs. See **Exhibit 5.1B, WxM Ancillary Items, WRR, and H&S**
- b. **Weatherization-Related Repairs Measure Costs:** Weatherization-Related Repairs (WRR) do not require an individual $SIR \geq 1$. However, Local Agencies shall justify WRR costs by demonstrating they are cost-effective.

On the “**Package Wizard**” screen, if the individual WxM $SIR \geq 1$ and the package $SIR \geq 1$, then the project qualifies for implementation economically. The following are two allowable approaches:

(1) WRR Costs in TREAT Package:

- (a) Each WxM within the TREAT package shall have an individual $SIR \geq 1$, and
- (b) The TREAT package (including WRR costs) shall have a package $SIR \geq 1$. Describe WRR as “**visual inspections**” and add WRR costs into a TREAT package as “**improvements.**” Such improvements will generate individual SIRs in TREAT as “**N/C**” (not calculated) or 0.

(2) WRR Costs in individual WxM:

- (a) Each WxM (including the WRR costs) within the TREAT package shall have an individual $SIR \geq 1$. Add the WRR cost to the related individual WxM, and
- (b) The TREAT package shall have a package $SIR \geq 1$.

7. Using Leveraged Funds:

Local Agencies may use leveraged funds to reduce weatherization fund source investments in order to bring the $SIR \geq 1$.

8. Required Inputs in TREAT:

- a. **Existing Conditions:** Local Agencies shall model home as is for existing conditions.

Exception: When actual verifiable existing conditions are not available refer to **Policy 5.2.5, TREAT - Section 10, Defining Parameters and Default TREAT Inputs** for instructions on the use of default inputs.

- b. **Improvement Package(s):** In addition to an improvement package defining all proposed measures in the Wx project Scope of Work, Local Agencies are also required to consider the following Wx Measure improvements for energy efficiency and measure interaction in their Improvement Package(s) TREAT project:

- (1) Air Sealing, does not require individual $SIR \geq 1$, but the improvement package including the air sealing cost requires $SIR \geq 1$.
- (2) Ceiling Insulation
- (3) Wall Insulation
- (4) Floor Insulation, insulating water distribution pipe may be included as an ancillary item or may be modeled separately
- (5) Duct Sealing
- (6) Heating and Cooling Systems
- (7) Windows and Doors, only if there is an observed need to improve them
- (8) Duct Insulation
- (9) Water Heater

Exception: Local Agencies shall use **Exhibit 5.1.6A, Economic Analysis of Refrigerator Replacement** to assess refrigerator replacement. For more information, see **Policy 5.7.3, Refrigerator Replacement**.

9. Measure Skipping:

Measure Skipping of a cost-justified *Major Measure* is not permitted at any time. Local Agencies may skip a Weatherization Measure (WxM) or not install the cost justified WxM (and associated WRR) in order of decreasing SIR, if the measure is NOT a cost-justified Major Measure AND one of the following:

- a. **Funding limitations:** If all funds available for the project will not cover the entire Scope of Work, then measures may be removed from the Scope of Work starting with the lowest SIR measure and working up the list from there. The project shall remain overall cost-effective or the project shall be deferred. Necessary Health and Safety (H&S) measures shall NOT be removed from the project; however, WxMs can be removed.
- b. **Client Refusal:** Clients may decline a Wx Measure, if the measure is not a cost-effective major measure. The Local Agency shall:
 - (1) Provide additional client education, and
 - (2) Re-run their Improvement Package TREAT project with an alternative, acceptable material to determine if the substitute material is cost-effective, then either:
 - (a) If no cost-effective option can be identified, the auditor shall include in the project file a comprehensive justification, including background/source documents that support the decision to skip a specific measure. Then, install all other WxMs;
OR
 - (b) If the auditor cannot access background/source documents that justifies the building owner/occupant's decision to decline a measure *or* the measure is defined as a cost-effective "major measure," the situation shall be fully documented in the project file and the project shall be deferred due to client refusal.
 - (3) If during the installation process, the client declines a higher priority measure, work shall stop at the time the client declined the higher priority measure. No further installation is allowed and the project shall be inspected by a Quality Control Inspector (QCI) and closed out as a completed unit. Justification shall be documented in the project file.
- c. **Other:** Physical structural conditions that prevent implementation of a Measure, Local Agencies may on a case-by-case basis skip a WxM. Justification shall be documented.
- d. **Inadequate training:** A lack of training for Subgrantees is not an allowable reason to skip measures. Standard procedure should be to postpone job(s) requiring priority measures that cannot be installed due to lack of trained staff until adequate training is acquired.

10. Defining Parameters and Default TREAT Inputs:

Local Agencies shall use the following key project parameters or default inputs. Justification for any variance from these parameters shall be clearly documented in the project file project notes.

- a. **Fuel costs:** Use current costs for applicable fuel types used at the project site based on local survey. Update current fuel costs annually, at a minimum.
- b. **Installed measure costs:** Local Agencies shall calculate Installed Measure Costs (IMC) incorporating any applicable prevailing wage rates. For use in TREAT, IMCs are verifiable material and labor costs to install WxM and WRR Measures.
- c. **Daily and long term weather:** Use nearest available weather station(s). Other stations may be substituted based on justification of heating degree days.
- d. **Air Infiltration:** Will be based on blower door diagnostics.

Exception: Multifamily dwellings five units and greater do not require blower door testing. If blower door testing is not done, the TREAT default of 0.6 ACH or justified alternative will be used. See **Policy 5.2.3-MF, Multifamily Diagnostic Testing** for more information.

- e. **Thermostat Setting:** Use actual energy bill data and occupancy data. If actual data cannot be calibrated (true up TREAT model with energy bill data), the following default values shall be used:
 - (1) Standard occupied heating temperature of 70 degrees F (70°F) and cooling temperature of 78 degrees F (78°F). Standard number of occupied hours is 16 per day.
 - (2) Standard unoccupied heating temperature of 60 degrees F (60°F) (includes sleep) and cooling temperature of 88 degrees F (68°F).Local Agencies shall document and justify any differences, if neither the actual data (true up) or the default values are used.
- f. **Number of Occupants:** Use actual verified occupancy data. If actual data cannot be verified, standard occupancy of 1.5 people per bedroom shall be used. For dwellings less than five units, standard occupancy may be calculated based on number of bedrooms plus one occupant.
- g. **Surfaces and Spaces:** Use actual energy audit assessment to determine structural characteristics and thermal boundaries. TREAT allows for combining surfaces or spaces based on significant common characteristics.

- h. **Windows and Doors:** Use actual project assessment to determine size, type, and location.
- i. **Lifespan:** Use **Exhibit 5.2.7A, *Weatherization Measures Maximum Lifetimes*** maximum measure life defaults.
- j. **Fans:** Include all building mechanical airflow.
- k. **Baseload:** Use actual verified data from the energy audit assessment, TREAT defaults, or a justified combination.
- l. **Billing Analysis and True Up:** Import or enter the most recent energy bill data (minimum 12 months) to calibrate (true up) the TREAT model. For Multifamily Wx projects (five (5) units or more), TREAT run True Up is required.

Exception: For single-family, small multifamily (four (4) units or less), and mobile home dwellings the billing analysis TREAT true up is optional. For the most accurate energy model and best justification for cost-effectiveness, best practice is to include billing analysis and true up single-family TREAT models. However, not required at this time.

- 11. **Documentation:** Local Agencies shall document all TREAT requirements. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.
- 12. **Installing WxM:** Local Agencies shall physically install WxM in the order dictated by [*workflow*](#).

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See also:

[Weatherization Program Notice \(WPN\) 22-7 Weatherization Health and Safety Guidance](#)
[Weatherization Assistance Program Technical Assistance Center \(WAPTAC\)](#)

Replaces: NEW MF

POLICY 5.2.6-MF MULTIFAMILY REPRESENTATIVE SAMPLE

Purpose: Auditing, testing, and inspecting each dwelling unit in a multifamily building is typically difficult. Instead, the Multifamily Representative Sample Policy allows Local Agencies to use an example of units or spaces for large multifamily buildings (five (5) units or more), in some instances. However, understanding the building is the primary objective. Before conducting the energy audit, the potential need for sampling shall be determined.

1. **Using a Representative Sample:** Local Agencies may use a representative sample in multifamily buildings with five (5) or more units, instead of auditing, testing, and inspecting each dwelling unit if the examples provide an accurate understanding of the building or multiple buildings.
2. **Defining the Representative Sample:** The Representative Sample depends on the size of the building(s), potential issues with tenant dwelling access, HVAC systems, and cost implications. The Representative Sample shall include a minimum of one (1) each Unique Space plus the additional number of units to meet the minimum Unit Rate.
 - a. **Unique Space:** Local Agencies shall identify and group spaces that have similar energy-use characteristics. Examples include dwelling units, lobbies, mechanical rooms, attics, hallways, stairways, rooftops, etc. Each dwelling unit floor plans type (e.g. 1 bedroom, 2 bedroom, etc.) are unique spaces and are in separate groups.
 - b. **Unit Rate:** Local Agencies shall calculate the minimum number of dwelling units in accordance with the following table:

Building Size Total number of Units	Number of Units in Sample (Minimum Sample Total)
5 - 19	3
20-29	4
30-49	5
50 and greater	10%

- c. **Increase Sample Unit Rate:** It is at the discretion of the auditor to determine if the minimum sample unit rate is not enough units to understand the building and to increase the number of example units in the representative sample, as needed.

d. **Choosing Dwelling Units for Representative Sample:**

- (1) **Different Unit Floor Plans:** The representative sample shall contain a minimum of one (1) unit of each different floor plan.

Examples: studio, one (1) bedroom, two (2) bedrooms, three (3) bedrooms, etc.

- (2) **Different Heating, Ventilation and Air Conditioning (HVAC) Systems:** The representative sample shall contain a minimum of one (1) unit with each different HVAC system.

Examples: electric baseboard, steam radiant heat, local exhaust fan, centralized rooftop exhaust, etc.

- (3) **Multiple buildings:** In a complex of multiple buildings, the representative sample shall contain a minimum of one (1) unit from each different building.

- (4) **Owner/Agent Interview:** Use the interview with owner or agent to help determine the representative sample (e.g. heating systems, ventilation system.)

- (5) **Proportional (Recommended):** The auditor should do their best to choose a number of unit types proportional to their occurrence in the building.

Example: In a 100 unit building the Sample Unit Rate is 10% or 10 units. With 70 three-bedroom units and 30 two-bedroom units, the auditor should try to choose seven (7) three-bedroom units and three (3) two-bedroom units.

- (6) **Surface Area Exposure (Recommended):** The auditor should do their best to choose units with varied surface area exposures to the outside.

Example: Each unit surface area exposure to outside might range from one to five surfaces, including: top-floor-level, corner-units for a roof-surface and two-wall-surface exposures; bottom-floor-level, corner-units for a floor-surface and two-wall-surface exposures; middle-floor-level, corner-units for two-wall-surface exposures; top-floor-level, middle-units for a roof-surface and one-wall-surface exposure; bottom-floor-level, middle-units for a floor-surface and one-wall-surface exposure; and middle-floor-level, middle-units for only one-wall-surface exposure.

- (7) **Orientation (Recommended):** The auditor should do their best to choose units with varied orientations: North, South, East, and West.

3. Applying a Representative Sample:

- a. **Audit:** The Energy Audit shall be performed on the representative sample to determine weatherization strategy and develop Scope of Work.
- b. **TREAT Model on Multiple Buildings:** Local Agencies may use one (1) representative building sample TREAT model for a Weatherization Project comprised of a complex of multiple buildings with the same floor plan.
- c. **Blower Door Testing:** Although Blower door testing for Multifamily buildings is optional, if you are conducting blower door testing the following representative sample is recommended:
 - (1) For low-rise (3-stories or less) smaller buildings it is recommended to test approximately 10% (or 3 minimum) of the units within each set of unit types with a similar floor plan. If the representative sample shows widely different (15%) leakage rates or different leakage points, additional units should be tested until the auditor is satisfied there is a good assessment of location of air leaks and can specify how the unit can be effectively air sealed.
 - (2) For high-rise (4-stories or more) larger buildings a more subjective approach can be taken with the goal of determining where significant air leakage points are located and how the unit can be effectively air sealed. Air leakage testing standards usually do not apply directly for large multifamily buildings, as a combination of methods is needed to estimate air leakage effects, and allowable budget for diagnostics limits testing rigor. The auditor shall document the sampling approach in the project file. *For more information see ASHRAE's compartmentalization test. (50 pa test)*
- d. **Verifying, Certifying, or Inspecting Installed Measures:** Local Agencies shall validate and document subcontractor's work performed prior to paying them.
 - (1) **Verifying Measures:** Local Agencies shall confirm work is complete and verify work is appropriate and allowable.
 - (2) **Certifying Measures:** Local Agencies shall certify work is performed in compliance with the Wx Field Guide and in a quality manner. This may include required testing out. See Section **4b. Functional Performance Test Required** (below).
 - (3) **Inspecting Measures:** Measures installed in the field require a final or an in-progress inspection by a qualified Quality Control Inspector (QCI).
 - (a) **In-progress inspections** may suffice as final inspection on the measure if conducted by a qualified QCI.

(b) **Final Inspection:** At final inspection, QCI need not visit every unit if:

- i. In-progress inspections suffice. All measures installed in dwelling units receive and pass in-progress measure inspections by a qualified QCI.
- ii. All installed equipment measures receive and pass functional performance testing. Final inspector may use the representative sample to verify these tests of the commissioned equipment. However, if issues arise with test out documents, the sample will be doubled. If additional issues arise, 100% of inspections shall be performed.
- iii. No individual measures were installed within units.

4. **Prohibiting a Representative Sample:** The use of a representative sample is not allowed for the following:

a. **Health and Safety:** At some point during each project, all units shall have a documented inspection for possible health and safety concerns, including diagnostics if appropriate, followed by work orders for correction.

(1) **Combustion Appliances:** DOE requires that ALL units with a combustion appliance present shall receive pre- and post- health and safety diagnostics testing.

Exceptions:

- (a) Remove combustion appliances.
- (b) Isolate combustion appliance zone.
- (c) Sealed-combustion appliances.

(2) **Pollution Source Survey and Mold Assessment:** Local Agencies shall conduct a pollution source survey and mold assessment on 100% of the units over the course of the project. These assessments may be performed at pre-assessment, pre-audit, audit, in-progress inspections, final inspections, or any combination.

b. **Functional Performance Test Required:** For all newly installed or modified equipment or systems, 100% testing out by a qualified testing agent conducting a Functional Performance Test is required. Representative sampling is not an allowable practice for testing out. See **Policy 9.3-MF, Indoor Air Quality – Mechanical Ventilation**.

c. **DOE Units:** No DOE dwelling unit will be reported to Commerce as closed until the local agency has performed a 100% final inspection and certified that appropriate work has been completed in a quality manner.

d. **Documenting Representative Sample:** Local Agencies shall document in the project file, the representative sample methodology, when and where it was applied, and the specific sample units used within the Representative Sample. See **Policy 5.1.2, Weatherization Project Documentation** for requirements.

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See also:

[Exhibit 5.2.7A, Deemed Measures Priority List \(DMPL\)](#)

[Policy 5.1.1, General Requirements](#)

[Policy 5.3.1-SF, Air Sealing – Stand-Alone Buildings](#)

[Policy 5.3.1-MF, Multifamily Air Sealing – Attached Buildings](#)

[Exhibit 5.1B, WxM Ancillary Items, WRR, and H&S](#)

[Policy 5.2.5, Targeted Residential Energy Analysis Tool \(TREAT\)](#)

Replaces: Policy 5.2.7-SF February 21, 2020

POLICY 5.2.7 DEEMED MEASURES PRIORITY LIST (DMPL)

1. **Using Deemed Measures Priority List (DMPL):**
 - a. Local Agencies may use Deemed Measures Priority List (DMPL) to install all applicable measures on single-family site built, mobile home dwelling, and multifamily low-rise, and multifamily mid/high-rise buildings Weatherization (Wx) Projects. See **Exhibit 5.2.7A, Deemed Measures Priority List (DMPL)**.
 - b. No DOE funds shall be used to install measures on DMPL Wx Projects.
2. **House-as-a-System Approach:** Weatherization Services provided using Deemed Measures Priority List (DMPL) is based on house-as-a-system approach. All applicable measures shall be implemented. See **Policy 5.1.1, General Requirements** for more information.
3. **Applying DMPL:** Deemed Measures Priority List (DMPL) applies to all climate zones, building types, heating types, and building configurations.
4. **Ensuring Quality Wx Projects:** Local Agencies shall ensure each home's scope of work results in quality cost-effective energy efficiency choices.
 - a. **Major Measures are Required:** If a major measure is not installed, Local Agencies shall document justification in the project file.
 - b. **Energy Efficiency:** Local Agencies shall implement the most energy efficient option possible when more than one DMPL option for the WxM is available and the cost is practical.

Examples:

- (1) Choose Attic insulation: Add R-49 (R-0->R-49), instead of Add R-38 (R-0->R-38), if the attic space will accommodate R-49).
- (2) Choose high density insulation to fit in cavity, when practical.

- c. **Air Sealing:** All Wx Projects shall include Air Sealing: Priority air sealing and Blower Door guided cost-effective air sealing. See **Policy 5.3.1-SF, *Air Sealing – Stand-Alone Buildings*** and **Policy 5.3.1-MF, *Multifamily Air Sealing – Attached Buildings*** for requirements.
- d. **Duct Sealing:** All Wx Projects shall include Duct Sealing.
- e. **Partial Measures are Allowed:** If a measure is partially insulated, Local Agencies may complete the insulation to bring the home to the end state as represented in the *DMPL Weatherized* column in **Exhibit 5.2.7A, *Deemed Measures Priority List***.

5. **Costs:**

Local Agencies shall calculate and maintain annually their [*Installed Measure Costs*](#) (IMC), for use with the Deemed Measures Priority List.

- a. DMPL WxM include ancillary items and their costs. See **Exhibit 5.1B, *WxM Ancillary Items, WRR, and H&S***
- b. Local Agencies shall only expend BPA funds on electrically heated units in BPA service territory.

6. **Cost Caps:**

Some measures on the DMPL have an associated BPA Cost Cap with a Not to Exceed (NTE) amount. Local Agencies shall not exceed the measure cap with BPA funding.

Exception: If actual costs exceed the NTE cost cap, Local Agencies may use a second fund source to supplement the amount. Exceeding twice the cap amount using Commerce administered Wx funding is prohibited. Local Agencies shall contact Commerce for prior approval, if costs exceed 1-1/2 times the cap.

7. **Determining Repair Allowance:**

The total Weatherization-Related Repairs (WRR) costs of a Wx project shall not exceed the amount per fund source, allowed without an SIR:

- a. Washington State Weatherization Plus Health (State) funds total IMCs shall not exceed \$10,000.
- b. LIHEAP funds for WRR without a SIR shall not exceed \$5,000.
- c. BPA funds shall not exceed a BPA cost cap, on any specific measure.

8. **Skipping DMPL WxM is Allowed:** The expectation is all available measures shall be implemented. Local Agencies shall justify the reason any eligible WxM is skipped and document in project file. Local Agencies may skip a WxM on the DMPL for good cause, including but not limited to:

- a. **Inaccessible WxM:** A local agency is unable to install a measure because it is not accessible.

- b. **Client Refusal:** A client declines a WxM.
 - c. **Existing Conditions:** The existing condition in the home does not meet the existing threshold requirements on the DMPL table.
9. **Requiring the Alternative Energy Audit - TREAT:** Local Agencies shall use TREAT instead of the DMPL if any of the following apply:
- a. **Non DMPL WxM:** To install Weatherization Measures (WxM) not included in the DMPL requires the use of TREAT to justify a Wx project and the investment by the Wx program. Failure to use TREAT to justify a Wx project that includes measures not included in the DMPL will result in disallowed costs.
Exception: Health and Safety measures, including Plus Health measures do not require $SIR \geq 1$ TREAT justification
 - b. **Other WxM:** To install measures not specifically permitted on the DMPL list or by Wx policy requires the use of TREAT to justify a Wx project and the investment by the Wx Program. Failure to use TREAT to justify a Wx project that includes measures not included in the Wx policy will result in disallowed costs. See **Policy 5.2.5, TREAT**, for requirements
10. **Documentation:** Local Agencies shall document all DMPL requirements, all measures completed, and any eligible WxM (especially a Major Measure) not installed, including the justification. See **Policy 5.1.2, Weatherization Project Documentation** for requirements.
11. **Installing WxM:** Local Agencies shall physically install WxM in the order dictated by [*workflow*](#).

Effective Date: January 1, 2021

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Replaces: Policy 5.3.1 – July 2018

See also:
[Exhibit 5.S9, Cost-Effective Guidelines Worksheet](#)
[Standard Work Specifications \(SWS\)](#)

POLICY 5.3.1-SF AIR SEALING – STAND-ALONE BUILDINGS

1. **Effective Air Sealing:** Local Agencies shall perform air sealing on all weatherization projects. Both priority air sealing and blower door guided air sealing are required.

Exceptions: Air Sealing methods and amount performed can be limited if:

- (E1)It creates a CAZ issue, or
- (E2)There is ACM or assumed ACM issues.

2. **Air sealing locations**

Air seal the building envelope including the heating or cooling duct system, at the pressure boundary and align it with the thermal boundary as defined by a competent energy auditor.

3. **Priority Air Sealing**

All weatherization projects shall include Priority air sealing. Priority air seal all seams, cracks, joints, and holes in locations including, but not limited to:

Attic		
Top plates of all walls	Plumbing vent pipes	Stairwells
Tongue & Groove ceilings	Chases	Exhaust fans
Chimney/Flue	Soffits	Missing wall cavity top plates
Ductwork	Attic hatches	Drop Ceilings
Can Lights	Skylight wells	
Floor		
Chases	Plumbing	Electrical
Blocking all floor cavities	Ductwork	Mobile home marriage lines
Wall		
Electrical wire	Missing knee wall cavity bottom plates	Bottom plates of knee walls
Missing wall cavity top plates	CMU Hollow cones	Holes in walls

4. Blower Door Guided Air Sealing

Blower door diagnostics known as *Blower Door Guided Air Sealing* shall be used to assist in determining appropriate air sealing measures.

Once the contractor or the crew finishes all priority air sealing, proceed with blower door guided air sealing under the cost-effective guideline of 100 CFM per-hour, per-person to identify any additional cost-effective air sealing. Check CFM reading at least each person-hour to ensure work is still cost-effective. When 100 CFM per person-hour can no longer be achieved, blower door guided air sealing is complete. Document all blower door guided air sealing on **Exhibit 5.S9, *Cost-Effective Guidelines Worksheet***.

Documentation of the pre- and post-blower door test results (CFM50) and the air sealing time and efforts shall be present in the client file (project file).

5. Preferred installation method

The preferred method for installing air sealing materials is from the attic side, not living space side, of ceilings and attics, from the inside surface of walls, and from the underside of floors.

- 6. Documentation:** The Local Agency shall document all air sealing requirements. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.

Allowable Costs

Air sealing is an allowable cost under DOE, HHS, BPA, and State funds. Air sealing shall be included in the SIR calculation for all fund sources and in the DOE per home expenditure average. See [Chapter 6, *Allowable Costs*](#), for allowable expenditures.

Specific fund source limitations or allowances are as follows:

BPA: Units shall be electrically heated in BPA service territory.

Effective Date: September 8, 2021

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Weatherization Policy

Replaces: Policy 5.3.1 – January 1, 2021

See also:
[Policy 1.4.2, Owner Contributions](#)
[Policy 5.2.6-MF, Multifamily Representative Sample Standard Work Specifications \(SWS\)](#)

POLICY 5.3.1-MF MULTIFAMILY AIR SEALING - ATTACHED BUILDINGS

1. **Effective Air Sealing:** Local Agencies shall perform air sealing on all Multifamily weatherization projects:

Exceptions: Air Sealing methods and amount performed can be limited if:

- a. It creates a CAZ issue, or
- b. There is ACM or assumed ACM issues.

2. **Air Sealing Locations:** Air sealing shall be performed at the following locations:

- a. **Between Conditioned and Unconditioned Spaces:** Air seal the building envelope including the heating or cooling duct system, at the pressure boundary and align it with the thermal boundary as defined by a competent energy auditor. *For more information, refer to MF SWS 3.1001.5 through 3.1502.2 for best practice techniques.*

Exception: In attached buildings, where air sealing building components disrupts the combustion safety protocol. However, If the combustion safety protocol calls for air sealing walls, floors and or ceilings, the surface shall be made airtight in compliance with the combustion safety protocol. *For more information, refer to MF SWS 2.0204.2 for best practice techniques.*

- b. **Between Units:** Measures shall be taken to minimize air movement across envelope components separating dwelling units, including sealing accessible penetrations in the common walls, ceilings, and floors of each unit and by sealing vertical chases adjacent to the units.

- c. **Between Units and Common areas:** All doors between dwelling units and common hallways shall be gasketed or made substantially airtight.

Exceptions:

- (1) Original building design and ventilation system design will not allow this. Work will preserve existing ventilation system, including apartment door undercuts, to allow a pathway for ventilation from hallways to apartments. *For more information, refer to MF SWS 3.1901.2d for best practice techniques.*
- (2) If you are altering the original building design and ventilation system, ensure compliance with building and fire codes.
- d. **Firewalls and Draft Stops in Unconditioned Attics:** The auditor shall identify any obvious pre-existing holes in firewalls and draft stops. Any holes or penetrations that can be sealed as part of air sealing shall be included in the weatherization project. However, the auditor shall use sound judgement to determine the severity of the needed repairs and determine when the repairs are too expansive for the weatherization program. *For more information, refer to MF SWS 3.1001.6 and 3.1001.7 for best practice techniques.*

(1) Determining Repair Responsibility:

- (a) **Owner:** Any pre-existing damage beyond the scope of the weatherization program is the owner's responsibility to repair. The owner, owner's representative, or both shall be informed of the need for repairs to the firewalls and draft stops. See **Policy 1.4.2, Owner Contributions** for more information.
- (b) **Local Agency:** If the firewall/draft stop will be damaged or is accidentally damaged during weatherization work than the local agency is required to repair the firewall/draft stop back to pre-weatherization work condition.

(2) Determining Fire-resistance Ratings:

- (a) **Drawings available:** Where drawings are available that identify specific fire-resistance ratings (i.e. 1 hour, 2 hour), material and methods will be employed to preserve or restore such ratings.
- (b) **Drawings unavailable:** Where drawings are unavailable or do not specify fire-resistance ratings, the fire resistance rating of the assembly may be inferred from the current construction.

e. Optional Locations:

- (1) Concrete Floor Slab Foundation

For more information, refer to MF SWS 3.1403 for best practice techniques.

- (2) Covers for Sump Pumps, Drains, Pits and other Intentional Slab Penetrations. *For more information, refer to MF SWS 3.1488 for best practice techniques.*

3. **Compartmentalization:** Local Agencies shall minimize transfer air between units (See Section 2b) and between units and common area (See Section 2c) as required by **ASHRAE Standard 62.2-2016**. Depending on the building design, current condition, retrofit cost and auditor's evaluation compartmentalization is allowable. When using compartmentalization follow these guidelines.

- a. **Verify Leakage Rate:** One method of demonstrating compliance with the Transfer Air requirements above shall be to verify a leakage rate below a maximum of 0.3 cfm per ft² (100L/s per 100 m²) of the dwelling unit envelope area (i.e., the sum of the area of walls between dwelling units, exterior walls, ceiling, and floor) at a test pressure of 50 Pa by a blower door test conducted in accordance with either ANSI/ASTM-E779, *Standard Test Method for Determining Air Leakage Rate By Fan Pressurization*. The test shall be conducted with the dwelling unit as if it were exposed to outdoor air on all sides, top, and bottom by opening doors and windows of adjacent dwelling units.
- b. **Visual Inspection:** Another method of compliance with the Transfer Air requirements above is visual inspection and documentation. Local Agencies may use tools and methods such as, a smoke pen, blower door pressurization or depressurization, and an infrared (IR) camera to enhance the visual feedback. *For more information, refer to MF SWS 3.1901 for best practice techniques.*

4. **Materials – Sealant Selection**

- a. Sealants will be compatible with their intended surfaces and applied in accordance with manufacturer specifications.
- b. Selection will be durable, pest resistant, and have a weather-appropriate seal.
- c. Indoor sealants are encouraged to be low volatile organic compound (low-VOC) products that at a minimum meet one of the following standards:
 - (1) Master Painters Institute Green Performance Standard
 - (2) Green Seal

- (3) UL Environment Ecologo
 - (4) Environmental Protection Agency
 - (5) US Green Building Council’s Leadership in Energy and Environmental Design (LEED)
 - (6) GREENGUARD (UL Environment)
 - (7) South Coast Air Quality Management District (AQMD)
 - d. Fire-resistance-rated assemblies will be provided with sealants permitted by the authority having jurisdiction and adopted building code.
 - e. Sealants include, but are not limited to:
 - (1) Dense Pack wall insulation
 - (2) Two Part Form
 - (3) Caulking
 - (4) Liquid Flashing Membrane
 - f. Installation Standards
 - (1) Good ventilation
 - (2) Air seal from crawl or attic, if possible
5. **Air Sealing Attached Buildings using Dense Packing:** If a housing unit is attached to another housing unit, air sealing between conditioned and unconditioned space is cost-effective if performed by a competent installer. Local Agencies installing dense packing to air seal, shall comply with the following:
- a. Dense pack wall insulation, even in cavities that already have insulation and air seal every penetration through the envelope.
 - b. If the auditor suspects the building is too tight, a blower door test shall confirm this condition. The blower door test result below 0.6 ACH50 to be considered too tight.
 - c. A representative sample of buildings types shall be tested by a competent technician. See **Policy 5.2.6-MF, Multifamily Representative Sample** for requirements.
 - (1) The competent multifamily blower door technician shall be independent of the multifamily air seal contractor.

- (2) An equal number of buildings shall be tested at the end of air sealing work. It is the choice of the agency which buildings shall be tested. If the buildings do not show a reduction of leakage of 25%, that work is failed and work shall continue until airleakge reduction exceed 25%.
 - d. Quality assurance of multifamily air sealing shall be realized with periodic spot inspections to test materials used, equipment operation, and verification of air seal work.
 - (1) Air sealing in-progress inspections can include smoke tests, blower door tests, or infrared scans.
 - e. Air seal materials will be consistent with existing or intended fire-resistance assemblies. Seals will be used that prevent visible air movement using chemical smoke at 50 Pascal's of pressure difference.
 - f. Dense pack wall and rim joist shall be performed to the specifications.
 - g. Agency shall have the permission of the building owner to install wall insulation before proceeding.
 - h. The finish of the wall drilled through for dense pack insulation shall match the finish condition of the wall. Approval of the finish of the wall plugs is required by the Building Owner or Owner representative. Documentation of this approval shall be in the project file.
6. **Air Sealing High-Rise Buildings (4-stories or more):** Local Agencies air sealing high-rise buildings shall comply with a prescriptive priority list, as follows:
 - a. **Top of Building:** Seal the Top of the building, including attic floors, mechanical rooms and elevator shafts.
 - b. **Bottom of Building:** Seal the bottom of the building including building entrances, leakage between bottom floor apartment and outdoors and the lower grade core of the building and the parking garage.
 - c. **Vertical Shafts:** Seal the vertical shafts; this will prevent air movement through and eventually out of the building. These are should have been sealed to ensure the integrity of fire separations, but renovations and repairs often open up gaps.
 - d. **Outside Walls and Openings:** Seal outside walls and openings.
 - e. **Compartmentalize:** Seal apartments from common areas, adjacent apartments, stairwells, service areas and common corridors and shafts.
7. **Documentation:** The Local Agency shall document all air sealing requirements. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.

Effective Date: February 21, 2020

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Weatherization Policy

Replaces: Policy 5.4.1 - July 2017

See also:

[Exhibit 5.S5. ASTM E 84, Flame Spread and Smoke Development](#)

[Policy 5.4.2. Attic Insulation](#)

[Policy 5.4.4. Floor Insulation](#)

[Policy 5.1.2.1. Certification of Insulation](#)

POLICY 5.4.1 GENERAL INSULATION REQUIREMENTS

1. **Insulation:** Insulation shall be installed in accordance with manufacturer specifications to prescribed R-values.
2. **Installation standard:**
 - a. Dense pack insulation shall be installed as follows:
 - (1) Cellulose insulation used in an enclosed cavity shall be installed at 3.5 pounds per cubic foot or greater density.
 - (2) Blown fiberglass, mineral fiber, rock and slag wool, or spray foam used in an enclosed cavity shall be installed at or above the manufacturer's recommended density to limit airflow that corresponds to an air permeance value of ≤ 3.5 cfm/sq ft at 50 Pascals, as measured using BPI-102 "Standard for Air Resistance of Thermal Insulation Used in Retrofit Cavity Applications – Material Specification" or ASTM C 522, E 283, or E 2178.
 - b. Fiberglass batt insulation shall be installed as follows:
 - (1) In contact with the sheathing with no voids or gaps.
 - (2) Insulation batts shall not be overly compressed.

Exceptions:

- (a) For use in the Deemed Measures Priority List for a deemed equivalent floor insulation to R-30 in a 2x10:
 - i. Use a R-30HD in a 2x8 floor joist.
- (b) For use in TREAT for a floor insulation alternative:
 - i. Use a R-30 in a 2x8 floor joist for an effective R-value of 25, or
 - ii. Use a R-25 in a 2x8 floor joist for an effective R-value of 24.

- (3) Insulation shall be cut to fit each joist space.
 - (4) All ends shall fit tight without overlapping.
 - (5) Insulation shall fit tight against structural members, rim joist, foundation walls and pipes.
 - (6) Insulation in open cavities, such as knee walls, shall be supported by stringing, housewrap, or other approved material.
3. **Vapor barrier:** Any vapor barrier that is installed in the building envelope shall be located on the warm side of the insulation.
 4. **Potential human contact / Fire rating / Open Cavity:**
 - a. Fiberglass insulation installed that is subject to routine human contact shall be covered with material having a flame spread index of 25 or less and smoke developed index of not greater than 450 when tested in accordance with ASTM E84-01 or UL 723, **Exhibit 5.S5, ASTM E 84, Flame Spread and Smoke Development.**
 - b. Foam insulation flame spread index shall be 75 or less and a smoke developed index of not greater than 450 when tested in the maximum thickness intended for use in accordance with ASTM E 84 or UL 723.
 - c. Foam insulation shall be separated from the interior of the building by an approved thermal barrier at minimum 1/2" gypsum or a material that is tested in accordance with the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275
 5. **Access:** Access shall be provided into attic spaces and crawl spaces. See **Policy 5.4.2, Attic Insulation** and **Policy 5.4.4, Floor Insulation.**
 6. **Certificate of insulation:** A certificate of insulation will be completed and posted as per **Policy 5.1.2.1, Certification of Insulation.**

Effective Date: July 2018

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Weatherization Policy

Replaces: Policy 5.4.2 – July 2016

See also:
[Variance #8 – SWS 2.0601.1c & d and 4.1001.2c](#)

POLICY 5.4.2 ATTIC INSULATION

1. **Insulate Attics/Ceilings:** Local Agencies shall insulate Attics/Ceilings if the cost to insulate is justified using an evaluation of cost-effectiveness where the Savings-to-Investment Ratio (SIR) is 1 or greater.
2. **Mark Insulation Depth:** Local Agencies shall adequately mark insulation depth a minimum of every 300 square feet of attic area, with measurement beginning at the air barrier.
3. **Ceiling loading:** The Local Agency is responsible for ensuring that the ceiling can bear the loads that will be imposed when insulation (new or additional) is installed.
4. **Recessed lighting fixtures:** If insulation is installed, existing non IC-rated recessed lighting fixtures shall be replaced with Energy Star compliant qualified, equivalent or better, or fixtures comparable in energy use and cost that are also:
 - a. Replaced with airtight, Type IC-rated fixtures, and covered with insulation, or
 - b. Replaced with a surface mounted fixtures and opening sealed.

[Variance #23: DOE granted a variance from SWS Section 7.8003.14b Fixture Replacement allowing: WA to install Energy Star compliant or replacement lighting fixtures comparable in energy use and cost.](#)

Exceptions:

- a. Air sealed as approved by the authority having jurisdiction, or
 - b. Separated with a minimum of three (3) inch clearance from insulation with a fire-rated (5/8" gyp, aluminum damming, or other fire rated material equivalent to ASTM E 84) airtight closure taller than the surrounding attic insulation. The top of the enclosure shall be left free of insulation.
5. Doorbell transformers shall remain readily accessible to service.

6. **Soffits and dropped ceilings:** An airtight seal shall be provided around perimeter between light box and interior ceiling. All enclosure seams and penetrations shall be sealed. A sealed rigid barrier enclosure shall be installed in soffits with heat-producing, non IC-rated fixtures prior to installation of insulation to maintain a 3 inch clearance on all sides.

7. **Knob-and-tube wiring in ceilings/attics:** Insulation may be installed over knob-and-tube wiring found in attics or ceilings when the following procedures are followed.

- a. Inspection

The wiring shall be surveyed by a licensed electrical contractor who shall certify in writing that the wiring is in good condition with no evidence of improper overcurrent protection, conductor insulation failure or deterioration, and with no improper connections or splices. Repairs, alterations or extensions of or to the electrical system shall be inspected by an electrical inspector as defined in WAC 296-46B-394 Wiring methods and materials -- Concealed knob-and-tube wiring (<http://apps.leg.wa.gov/WAC/default.aspx?cite=296-46B-394>). A copy of the electrician's certification shall be present in the client file (project file).

Variance #8: DOE granted a variance from SWS Sections 2.0601.1c and d and 4.1001.2c Knob-and-Tube allowing: WA to cover K&T wiring with insulation if LA has licensed electrician inspection and written certification, overcurrent protection.

- b. Overcurrent protection

All knob-and-tube wiring that is to be covered with insulation shall have overcurrent protection in compliance with the National Electrical Code, Table 310-16, 60°C column. Overcurrent protection shall be either circuit breakers or Type S fuses. Type S fuse adaptors shall not accept a fuse of an ampacity greater than is permitted in the above-referenced National Electric Code.

- c. Insulation

After inspection and any subsequent repairs and corrections are made, or over current protection installed, fiberglass or cellulose insulation may be installed. Loose or rolled thermal insulating materials may be installed over knob-and-tube wiring as long as the insulation meets the National Fire Protection Association (NFPA) 101 Life Safety Code, as identified with a flame spread factor of 25 or less as tested using ASTM E 84. See Exhibit 5.S5, ASTM E 84, Flame Spread and Smoke Development. Foam insulation is not allowed for use with knob-and-tube wiring. If repairs or overcurrent protection are not made or provided, then no insulation shall be installed in contact with the knob-and-tube wiring, and the owner of the building will be notified in writing of the areas needing repair, or circuits needing overcurrent protection.

8. **Wiring (other than knob-and-tube):** Insulation may be installed over wiring (other than knob-and-tube wiring) found in attics or ceilings when the following procedures are followed.

a. Wiring

All visible wiring shall be inspected by the Local Agency to ensure that the covering is intact and that there is no non-conforming wiring, such as extension cords, speaker wiring, automotive wiring, etc. or wiring less than 14 gauge, that is integrated into the house electrical system in the attic.

b. Splices and connections

All open electrical junctions, splices, and connections shall be in UL approved junction boxes that have covers that are attached with screws.

c. Electrical boxes

All electrical boxes serviceable from the attic shall be flagged to be seen above the level of the insulation.

d. Dams and Enclosures

Insulation dams and enclosures shall be installed as required.

Variance #9: DOE granted a variance from SWS Section 2.0602.2d Aluminum Wiring allowing: WA requires the safety inspection of the Aluminum wiring system prior to the start of work but not after work is completed.

9. **Attic Access:** Access shall be provided into attic spaces wherever it is practical for a person to reasonably work. Access shall be from the dwelling interior. Attic access covers and doors from conditioned to unconditioned spaces (attics and crawlspaces) shall be tight fitting or weather-stripped to prevent air leakage. All installed attic access shall be easily movable, such as on hinges or screwed. No nails can be used to secure attic access covers.

Exception: If no interior access is practical, access shall be provided through the exterior of the dwelling. Exterior access shall be sized to allow for entry into the attic. All installed attic access shall be easily movable, such as on hinges or screwed. Nails shall not be used to secure attic access covers.

Variance #12: DOE granted a variance from SWS Section 3.1001.9h Sealing access Doors, 3.1201.7h, and 3.1201.8h Repair, Maintenance, and Weather Stripping of Doors allowing: Blower door testing with feel, smoke, or infrared cameras to locate any air leakage sites around doors, windows, and accesses.

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See also:

[Variance #12 — SWS 3.1001.9h-3.1201.7h and 3.1201.8h](#)
[Exhibit 5.2.7A, Deemed Measures Priority List](#)
[Policy 5.1.2.1, Certification of Insulation](#)
[Exhibit 5.1.8A, Certification of Insulation](#)
[Policy 9.9, Asbestos](#)
[Policy 9.8, Lead-Based Paint](#)
[Chapter 6, Allowable Costs](#)

Replaces: Policy 5.4.3 - July 2016

POLICY 5.4.3 WALL INSULATION

1. Walls shall be insulated if the cost to insulate is justified using an evaluation of cost-effectiveness where the Savings-to-Investment Ratio (SIR) is 1 or greater.

Exceptions: If any of the following conditions exist, then the wall cavity should not be insulated:

- a. Knob-and-tube wiring: Wall cavities that contain knob-and-tube wiring that cannot be certified.
- b. Insulated cavity: Cavities that are fully insulated.
- c. Cavities containing ducts/heaters: Any part of the cavity that is used as, or contains, an HVAC duct, contains a gas wall furnace, or contains an electric wall heater or other heat-producing device.
- d. Uninsulated soffit next to cavity: Cavity is open to an uninsulated soffit with a recessed light fixture or other heat-producing device that cannot be properly dammed.
- e. Cavities next to fireplace or chimney: Cavity is next to a masonry fireplace or chimney with less than three-inch clearance between cellulose and masonry.
- f. Cavity next to pocket door: Wall cavity is connected to an unprotected pocket door cavity.
- g. Repairs needed: Interior or exterior repair is needed and will not be performed as part of the weatherization package of the dwelling, water leaks are present, or substandard interior or exterior sheathing is present.
- h. Solid walls: Walls are solid masonry, concrete, concrete block, wood, or adobe.

2. **Timing of wall insulation:** Wall insulation shall be installed after the following activities have taken place:
 - a. Knob-and-tube wiring inspection.
 - b. Minor electrical repairs in walls done by weatherization program.
 - c. Required damming and/or blocking is installed.
3. **Dense pack wall insulation:** All closed wall cavities that can be insulated by dense packing, shall be insulated with a loose fill insulation product designed specifically for dense pack applications.

Exceptions:

- a. If the home's pre-insulation cfm50 shows high building tightness, the wall cavities do not have to be insulated using the dense pack method.
- b. On a project-by-project basis, products other than cellulose may be used, with reasons documented in client file (project file).
- c. If one or more sides of the wall cavity are formed by concrete or masonry, the wall cavities do not have to be insulated using the dense pack method, or
- d. Other situations exist that are documented and approved in advance by Commerce.

Variance #12: DOE granted a variance from SWS Section 3.1001.9h Sealing access Doors, 3.1201.7h, and 3.1201.8h Repair, Maintenance, and Weather Stripping of Doors allowing: Blower door testing with feel, smoke, or infrared cameras to locate any air leakage sites around doors, windows, and accesses.

4. Dense pack walls shall be insulated as follows:

- a. Fill tube method:

Insulation will be installed using the fill-tube method.

- b. Wall Blow Authorization - Interior/exterior installation

Contractors shall get a signed authorization prior to drilling from the homeowner or landlord allowing the contractor to drill holes in the home. Dense pack insulation may be installed from the exterior or interior.

- c. Water column (WC) pressure

Insulation blowing machines shall be tested and perform at a minimum of 80 inches WC on the date of installation.

d. Balloon-framed walls

Walls that do not have a top and/or bottom plate (balloon-framed) shall have stops installed in the top and/or bottom of the cavity before insulating. The stops shall be installed in a manner that will withstand dense-pack insulation installation.

5. **Treatment of interior and exterior surfaces:** The following procedures should be followed when treating exterior or interior surfaces for insulation purposes.

a. Exterior and interior siding shall be inspected prior to any work.

(1) **Asbestos:** Siding that may contain asbestos shall be deferred, presumed to contain asbestos, or tested. Surfaces that either test positive for asbestos or are presumed asbestos, shall not be disturbed unless work is performed by a trained and licensed asbestos professional and work follows procedures in **Policy 9.9, *Asbestos***.

(2) **Lead-based paint:** Siding surfaces that may be coated with lead-based paint shall be tested or presumed to be coated with lead-based paint. For surfaces that either test positive for lead or are presumed lead, work shall follow procedures in **Policy 9.8, *Lead-Based Paint***.

b. Removing exterior siding

Exterior siding shall be removed or lifted to gain access to the exterior wall for drilling. Siding shall be replaced after insulation is installed. Any siding that is damaged shall be repaired or replaced with matching siding that is primed and painted to match existing siding.

Exception: Drilling exterior siding-Exterior siding not containing asbestos that cannot be removed or lifted before drilling walls may be drilled through with the owner's permission. Holes shall be drilled in a level line, and all holes will be filled with a tight-fitting, wooden plug that is installed using an exterior grade, non-silicone-based adhesive, and then filled and smoothed with exterior-grade spackle, textured to match existing surface(s), allowed to cure per manufacturer's specifications, primed, and painted to match existing siding.

6. **Cavities containing chimney/flue:** A cavity containing a metal chimney or flue without a solid barrier and a three-inch clearance zone shall not be blown with insulation.

Allowable Costs

Wall insulation is an allowable cost under DOE, HHS, BPA and State funds. The measure shall be included in the SIR calculation for all fund sources and in the DOE per home expenditure average. See **Chapter 6, *Allowable Costs***, for allowable expenditures.

Specific fund source limitations or allowances are as follows:

BPA: Units shall be electrically heated in BPA service territory.

B. Procedure

1. Programmatic

- a. Client file (project file) shall include the following documentation:
 - (1) Copy of the certificate of insulation.
 - (2) Verification the installed measure has an SIR of 1.0 or greater.
 - (3) All necessary measure-specific documentation.
- b. Local Agencies shall give the homeowner the original certificate of insulation and post a copy in the attic or crawl space of the dwelling unit as appropriate.



Effective Date: July 2022

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Weatherization Policy

Replaces: 5.4.4- July 2018

See also:
[Specification 6.3, Crawlspace, Underfloor, Perimeter Insulation](#)

POLICY 5.4.4 FLOOR INSULATION

Floors over unconditioned crawlspaces and basements shall be insulated if the cost to insulate is justified using an evaluation of cost-effectiveness where the Savings to Investment Ratio (SIR) is 1.0 or greater, or as allowed in Policy 5.2.7, *Deemed Measures Priority List (DMPL)*.

1. **Floor Requirements:** The Local Agency shall:
Refer to Specification 6.3, *Crawlspace, Underfloor, Perimeter Insulation*

Effective Date: September 8, 2021

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Weatherization Policy

See also:

[WPN 19-5, WAP Incidental Repair Measure Guidance, Including Windows, Doors, and Roofs](#)

[Variance #12 – SWS 3.1001.9h-3.1201.7h and 3.1201.8h](#)

[Policy 9.8, Lead-Based Paint](#)

<http://www.nfrc.org/#tabs-nfrclabels>

[Exhibit 5.S10: Standards for Weatherization Materials.](#)

Replaces: Policy 5.4.5 – October 1, 2020

POLICY 5.4.5 WINDOWS AND DOORS

1. **Determining Budget Categories:** Local Agencies may repair or replace exterior windows and doors when the cost can be justified in any of the following budget categories:

- a. **Weatherization Measure (WxM) – Energy efficiency:**

The investment of Commerce administered weatherization funds (DOE, HHS, BPA, and State) is justified using an evaluation of cost-effectiveness where the Savings-to-Investment Ratio (SIR) is 1.0 or greater.

- (1) **For DOE funding:** Energy Efficiency is the only allowable option for window or door repair or replacement. (See Allowable Costs below). DOE window and door replacements shall not be included in the Air Sealing WxM.
- (2) **For other than DOE funding,** if repair or replacement meets criteria of the **Exhibit 5.2.7A, Deemed Measures Priority List** the energy efficiency is deemed cost-effective.
- (3) **Leveraged funds:** Local Agencies may use [leveraging](#) to reduce weatherization fund source investments in order to bring the $SIR \geq 1$. Or, if using the *Deemed Measures Priority List* leveraged funds covering at least 75 percent of the cost of the windows and doors and their installation address criteria or funding limitations.

- b. **Health and Safety (H&S) Measure:**

The condition is compromising the health and safety of the dwelling unit occupants. Health and safety repairs are necessary to eliminate hazards within a structure, which by their remedy, allow for the installation of weatherization materials.

Examples:

- (1) **Security:** The condition is compromising the security of the dwelling unit occupants. If the cost to replace windows and doors is less than the cost to repair or replace components that will reasonably ensure security, then they shall be replaced.

(2) **Client comfort** (window replacement only): Specific windows that effect client comfort may be replaced. Written justification of need for each window shall be in the client file (project file). No more than two (2) windows may be replaced in a home for client comfort reasons. An example of client comfort need is an elderly person with mobility issues that regularly sits at a specific window and has difficulty maintaining body heat where a window replacement can remedy an existing draft or thermal heat loss issue.

c. **Weatherization-Related Repair (WRR) Measure:**

The condition is poor and in need of repair. Weatherization-related repairs are necessary for the effective performance or preservation of weatherization materials. The cost of WRR (incidental repairs) shall be included in the cost of the package of measures installed in a dwelling.

Exception: For other than DOE funding, if the window replacement or repair meets the *Deemed Measures Priority List* criteria the cost-effectiveness is deemed.

Example:

(1) **Durability:** For durability reasons if any components have failed or are deteriorated and they have compromised the structural integrity of the fenestration or of the surrounding framing, the window or door may be repaired. If the cost to replace windows and doors is less than the cost to repair, then they shall be replaced.

2. **Justifying Repair and Replacement:** Local Agencies shall classify all repairs and replacements in the Budget Categories above. The specific justification for each measure will depend on the reason you are repairing or replacing the window or door.

For example, repairing or replacing jalousie windows is an example of a measure that can be justified as any of the above budget categories (WxM, H&S, or WRR measure):

Examples:

- a. **Jalousie windows as WxM:** In fund sources other than DOE, replacing a jalousie window can improve infiltration by reducing air leakage to meet the blower door directed air sealing target. Do not automatically replace windows in bedrooms where the leakage around the window may be needed to provide proper ventilation.
- b. **Jalousie windows as H&S:** The jalousie window is openable from outside and the glass slats are removable, compromising the security of the dwelling unit occupants.
- c. **Jalousie windows as WRR:** The jalousie window has a few broken slats that to repair need replacement slats or to remedy the whole window needs to be replaced.

3. **Cost Considerations:**

- a. **Determining to Repair or Replace:** If the cost to replace windows and doors is less than the cost to repair, then they shall be replaced.
- b. **Air Sealing Cost Splitting:** If improving infiltration, Local Agencies may split the cost for replacement between air leakage reduction and an increase in thermal efficiency when running the calculations through TREAT.

Exception: If using DOE funds, the window and door replacements shall not be included in the air sealing WxM.

~~*Variance #12: DOE granted a variance from SWS Sections 3.1001.9h Sealing access Doors, 3.1201.7h, and 3.1201.8h Repair, Maintenance, and Weather Stripping of Doors allowing: Blower door testing with feel, smoke, or infrared cameras to locate any air leakage sites around doors, windows, and accesses.*~~

4. **Owner contributions:** Local Agencies shall make an attempt to secure owner contributions if window and door repair and replacement are for rental units. See **Policy 1.4.2, Owner Contributions** for more information.
5. **Lead-based paint:** The Local Agency shall address painted window or door components in houses built before 1978 using lead-safe work practices unless testing indicates no lead-based paint is present. See **Policy 9.8, Lead-Based Paint**
6. **Replacement windows:** Replacement windows shall have a U-factor rating of 0.30 or less and an air leakage rating of less than 0.3 cfm/sq.ft. An area weighted U-factor calculation may be used to demonstrate compliance. The replacement window shall have a label from the National Fenestration Rating Council (<http://www.nfrc.org/#tabs-nfrclabels0>) that indicates the U-factor rating, the air leakage rating, the appropriate structural performance rating for the geographical area where the window is installed, and the solar heat gain coefficient (SHGC) of 0.40 or less, appropriate for cooling climates.
7. **Replacement doors:** Replacement doors shall be metal, insulated, and match the style of the existing doors where practical, and shall be hinged. If a new exterior door and jamb is being installed, the door shall have three hinges. All exterior door replacements shall be exterior grade. All replacement doors shall have an insulated core with a minimum R-6 insulation value.

Exception: Wood, fiberglass, or composite doors are allowable if a metal door cannot be used. Wood doors shall be solid core. Veneers on wood doors shall be a minimum of 1/8 inch thick hardwood.
8. **Window Screens:** All replacement windows that are openable shall have a removable insect screen.

9. **Window and Door Exterior and interior trim:** Trim shall be installed in a workmanlike manner and shall match the existing trim as much as is reasonably practical. Existing or new trim shall have all nails set and holes filled with an exterior grade filler. Exterior trim, for replacement windows, doors, and doorframes whether existing or new, shall have any bare wood surfaces primed with an exterior grade primer.

Exception: If cedar trim is used, then no primer or sealer is required.

10. **Storm windows:** A storm window may only be installed over a prime window that is structurally sound. The prime window shall be free of decay, broken windowpanes, worn or damaged rollers, missing, deteriorated or broken glazing, and broken sashes. The Local Agency shall evaluate the costs to replace a window unit with the costs associated with repairing a prime window and installing a storm window to ensure that the most cost-effective treatment is applied.
- a. **Operable storm windows:** Operable storm windows shall be installed over existing operable prime windows, and the storm window shall not interfere with the operation of the prime window. If the operation of the prime window is impeded by paint buildup, mechanical fasteners, or other reasons, a storm window can be installed if the window is restored to an operating condition or if the Local Agency and homeowner agree in writing that the non-opening window is not required for egress or ventilation.
- b. **Storm window removal:** All storm window installations shall provide an easy method of removing the storm sashes so that both the storm and prime windows can be washed.
- c. **Jalousie prime windows:** Jalousie windows or other window types with a glass-to-glass contact cannot be weatherized using a storm window. Jalousie windows may be replaced.

11. **Safety glass:** Safety glass shall be used in replacement window units or replacement glazing in locations where required by building codes and areas identified in the following sections.

a. **Sidelights**

When sidelight windows are replaced or repaired, safety glass is required when all of the following conditions are met:

- (1) The glazed panel is within 24 inches of the door opening.
- (2) The glazed panel is within 60 vertical inches of the floor.
- (3) The window is in the same plane as the door when the door is closed.

- b. **Other safety glass locations:** Safety glass shall be installed when all of these conditions are met:
 - (1) A glazed panel is greater than 9 sqft when measured from the inside of the sashes.
 - (2) The lowest edge of a glazed panel is less than 18 inches above a walking surface.
 - (3) There is a walking surface within 36 horizontal inches of a glazed panel.
 - c. **Shower and tub safety glass requirements:** Safety glass is required in shower and bathtub enclosures for exterior windows that are less than 60 inches above the floor of the enclosure.
 - d. **Safety glass requirements:** Safety glass shall conform to the Safety Glazing Certification Council (SGCC) labeling requirements. Installed safety glass shall have a permanently affixed manufacturer's label or etching.
12. **Replacement glazing** Replacement glazing shall meet the specifications found in **Exhibit 5.S10, *Standards for Weatherization Materials***.
13. **Obscure glass:** Obscure glass shall be installed in windows where privacy is important. The Local Agency shall make the owner aware of locations where obscure glass is to be installed.
14. **Replacement door jambs:** Replacement doorjambbs shall have a width that is no greater than the finished wall thickness, and not less than ¼ inch of the finished wall thickness.
15. **Door finishes:** Replacement wood doors will be primed and painted or sealed on both sides and on all four edges with exterior grade paint. Metal doors shall have a factory primer.
16. **Locksets and deadbolts:** New replacement doors shall have a new lockset and deadbolt installed. The lockset and deadbolt shall be keyed alike. The Local Agency will provide two keys to the owner or occupant of the dwelling unit. When multiple locksets are installed in the same dwelling unit they shall have matching keys.
17. **Other attached items:** Address numbers that were present on the existing front door or trim shall be reinstalled on the new door. Peepholes shall be installed on solid doors and shall be no more than 60" from the bottom of the door. If an existing door had a mail slot or mechanical doorbell, the Local Agency shall provide alternatives that do not require penetration of the door.
18. **Documentation:** The Local Agency shall document all Window and Door requirements, including photo documentation. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.

Allowable Costs

Window and Door repair and replacement are allowable costs under DOE, HHS, BPA, and State funds.

Unless health and safety related, repair and replacement costs shall be included in the SIR calculation for all fund sources and in the DOE per home expenditure average (building cost calculation). See [Chapter 6, Allowable Costs](#) and [Exhibit 6, Fund Matrix](#) for allowable expenditures.

Specific fund source limitations or allowances are as follows:

DOE: Window or Door replacement, repair, or installation is not an allowable health and safety cost. Window and Door costs are allowable if justified using an evaluation of cost-effectiveness where the Savings-to-Investment Ratio (SIR) is 1.0 or greater.

BPA: Units shall be electrically heated in BPA service territory.

Effective Date: July 2022

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Weatherization Policy

See also:

[Specification 12, Air Conditioning and Heating Systems](#)

[10 CFR 440.21\(b\)\(c\)](#)

[10 CFR 440 Appendix A](#)

[Policy 5.5.7, Fuel Switching](#)

[Policy 1.4.2, Owner Contributions](#)

[Performance Tested Comfort Systems \(PTCS\) DHP Sizing Calculator](#)

Replaces: Policy 5.5.1 – Sept 8, 2021

POLICY 5.5.1 AIR CONDITIONING AND HEATING SYSTEMS

1. **Ensuring Adequate Heating Systems:** Local Agencies shall ensure that upon completion of weatherization services all dwelling units have a heating system that is safe, operable, permanently installed, and provides [Adequate Heat](#).
2. **Repairing systems allowed:** The Local Agency may repair air conditioning and heating systems.
3. **Replacing or installing new systems allowed:** The Local Agency may replace or install home air conditioning or heating systems if at least one of the following conditions is met:
 - a. Existing system is beyond repair.
 - b. Existing system can be repaired, but only at greater cost than replacement. The Local Agency shall:
 - (1) Determine it is more cost-effective to replace the system than it is to repair or replace inefficient, non-operable, or unsafe components.
 - (2) Document estimated repair costs, usable life, and efficiency considerations used to justify decision to replace in project file.
 - c. The life expectancy of the existing heat system is less than one year.
 - d. Absence of an operable air conditioning system in the home of an [At-Risk Occupant](#).
 - e. Absence of a permanent adequate heating system.
 - f. When an evaluation of cost-effectiveness determines the Savings-to-Investment Ratio (SIR) is 1.0 or greater.
 - g. Health and safety.

4. **Inspecting and Testing of Heating Systems:** The Local Agency shall:
 - a. **Primary Systems:**
 - (1) Inspect and test the system(s) in each dwelling unit for safe operation prior to delivering weatherization services.
 - (2) Repair, replace and remove, or render inoperable unsafe primary units, or deferral is required.
 - (3) Document the condition of heating system prior to weatherization, in the project file.
 - b. **Secondary Systems:** Maintenance, modification, or replacement of secondary systems is ordinarily the responsibility of the building owner. Replacement or installation of secondary units is not allowed with DOE funding.
 - (1) Inspect secondary systems for safety, and
 - (2) Document any hazards identified, in the project file.
 - (3) Notify the client in writing, of findings including recommendations for future use or non-use.
 - (4) Remove, disconnect, or repair the secondary system hazards is only allowable if necessary for health and safety or if the SIR is 1 or greater.
5. **Sizing and selecting systems:** The Local Agency shall:

Refer to Specification 12, *Air Conditioning and Heating Systems* for requirements

 - a. Size and select heating system replacements in accordance with Manual J calculated heat load.
6. **Requiring rental owner contributions to replace systems:** The Local Agency shall:

Refer to Policy 1.4.2, *Owner Contributions* for requirements and exceptions in addition to the following:

 - a. Require rental owner contributions for air conditioning and heating system replacements in rental units.
 - (1) **Capital improvements:** Since a new air conditioning or heating system is considered a capital improvement to the property, the expectation is a rental owner contribution of at least 50 percent of the cost.
 - (2) **Rental Owner Refusal:** If rental owners refuse to participate, Local Agency options include the following:
 - (a) Defer project.
 - (b) Alternative financing.

(c) Negotiate a combination or modification of the contribution options listed in Policy 1.4.2, *Owner Contributions* to allow weatherization funds to cover more than 50 percent of the cost of the system replacement.

7. **Requiring Permits:** Local Agencies or their subcontractors shall obtain required permits prior to the replacement of a system.
8. **Switching Fuels:**
Refer to Policy 5.5.7, *Fuel Switching* for acceptable conditions within Wx Program.
Refer to Policy 6.9.1.2, *Tier 2 Provisional Fuel Switch Program*, for new opportunities.
 - a. Within typical Weatherization services, the general practice of fuel switching when replacing heating systems is not permitted.
9. **Client Education:** The Local Agency shall:
Refer to Policy 5.1.4, *Client Education* for requirements.
 - a. Provide air conditioning and heating system information and the importance of regular maintenance to all clients.
10. **Documentation:** The Local Agency shall:
Refer to Policy 5.1.2, *Weatherization Project Documentation* for requirements.
 - a. Document all air conditioning and heating systems requirements, in project file.

Effective Date: July 2022

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Weatherization Policy

See also:

[Policy 9.4, Combustion Safety Testing](#)

[10 CFR 440.21\(b\)\(c\)](#)

[10 CFR 440 Appendix A](#)

Replaces: Policy 5.5.2 – July 2017

[Specification 12, Air Conditioning and Heating Systems](#)

POLICY 5.5.2 COMBUSTION HEATING SYSTEMS

1. **Testing for Safety:** The Local Agency shall test all combustion systems for safety pre- and post-weatherization work. Also see **Policy 9.4, Combustion Safety Testing**.
2. **Testing for Heat Rise:** The Local Agency shall test all forced air heating systems for heat rise. If the heat rise is outside the manufacturer's acceptable range the system fails. If the heating unit fails the heat rise test, The Local Agency shall have the appropriate repairs made or defer the project until the problem is corrected.

Exception: If manufacturer's acceptable heat rise range is unavailable, the default acceptable heat rise range is greater than 40° and less than 70° Fahrenheit.

3. **Servicing Gas and Oil Heating Systems:** Gas and Oil fired heating systems shall be serviced to:
 - a. Correct hazards identified during combustion safety inspection and testing.
 - b. Improve combustion or distribution efficiency.
 - c. Provide the minimum service for a gas or oil heating system where no hazards have been identified:
 - (1) Clean air handler of furnace or unit heater.
 - (2) Check and change furnace filter if necessary.
4. **Replacing for efficiency:**
 - a. Improve efficiency of gas or oil fired heating systems as justified with a Savings-to-Investment Ratio (SIR) of 1.0 or greater.
 - (1) Determine Annual Fuel Utilization Efficiency (AFUE) rating of existing heating system either from the manufacturer's information or by the type and age of the unit.
 - (2) Determine replacement cost using Local Agency procurement procedures which align with the Uniform Guidance, as required by Commerce.

- (3) Generate SIR options using TREAT or ECOS software for replacement with both 80% and 90% AFUE. Choose replacement efficiency with higher SIR.
 - (4) Consider fuel switch replacing with electric system, to reduce carbon.
5. **Maximizing efficiency of new replacement systems:** All new oil or gas heating systems installed shall have a minimum AFUE rating of 90% unless:
- a. A 90% efficient unit is cost prohibitive (cannot be cost justified by an SIR of 1.0 or greater). Any replacement furnace shall be at least 80% efficient and cost justified by an SIR of 1.0 or greater
 - b. Leveraged funds may be used to reduce weatherization fund source investments in order to bring the SIR to 1.0 or greater.

Effective Date: July 2016

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Weatherization Policy

Replaces: Policy 5.5.3 –July 2015

See also:
[Variance #17-SWS 5.3003.3a, c-g](#)

POLICY 5.5.3 ELECTRIC HEATING SYSTEMS

1. **Inspection of electric heating systems:** The minimum requirement for electrically heated dwelling units is:
 - a. Visual inspection of the electrical system.
 - b. Visual inspection of heating system clearances to combustibles.
 - c. Visual inspection of air handler (if present).
 - d. Verification that the system is permanently installed and securely attached to the floor, wall, or ceiling.
2. **Heat Rise:** The Local Agency shall test all forced air heating systems for heat rise. If the heat rise is outside the manufacturer's acceptable range the system fails. If the heating unit fails the heat rise test, The Local Agency shall have the appropriate repairs made or defer the project until the problem is corrected.

Exception: If manufacturer's acceptable heat rise range is unavailable, the default acceptable heat rise range is greater than 40° and less than 70° Fahrenheit.

Variance #17: DOE granted a variance from SWS Section 5.3003.3 Evaluating Airflow allowing: WA Standard which requires a client interview, confirmation of flow at each register, measurement of heat rise, pressure pan, and room pressures. Unless duct systems are missing or destroyed and require repair or replace, WA will air seal but not resize ducts.

3. **Electric heating system service:** Electric heating systems shall be serviced to:
 - a. Correct hazards identified during initial inspection.
 - b. Complete system checks and repairs detailed in the work order form.
 - c. Improve distribution efficiency.
 - d. Provide the minimum service where no hazards are identified
 - (1) Fan blades and cabinet of the air handler cleaned free of all visible dirt.
 - (2) Check and change furnace filter if necessary.

POLICY 5.5.4 SOLID FUEL BURNING APPLIANCE SYSTEMS

A. Policy

1. Local Agencies may repair and replace solid fuel burning appliance systems. Maintenance, repair, and replacement of primary indoor heating units is allowed where occupant health and safety is a concern. Maintenance and repair of secondary heating units is allowed. For more information on secondary systems, See [Section 5.5.1, *Air Conditioning and Heating Systems*](#).
 - a. A supplemental audit for solid fuel burning appliance systems shall be completed prior to repair or replacement. See [Exhibit 5.1.3A, *Solid Fuel Burning Appliance Systems Supplemental Audit Form*](#).
 - b. Replacement is allowed if an evaluation (supplemental audit) performed by either the local agency or a heating system subcontractor determines either of the following, even when another heating system is in the home:
 - (1) The life expectancy of a unit or system is less than one year.
 - (2) It is more cost-effective to replace the unit or system than it is to perform necessary repairs.
2. If a local agency chooses to include repair and replacement of solid fuel burning appliance systems in its weatherization program, the following shall be in place:
 - a. Necessary permits shall be obtained prior to heating system replacement.
 - b. All applicable restrictions and code regulations shall be met.
 - c. Local Agencies shall have appropriate liability insurance.
 - d. Local Agencies shall have a trained technician perform all installations, maintenance, and inspection. All work shall receive approval from subsequent inspections.
3. **Wood and pellet stoves:** The Local Agency shall have a trained technician perform a safety inspection on all operable solid fuel burning stoves. Repair technician shall list recommended corrections, and corrections made, for safe operation. This information shall be provided to the occupant and a copy kept in the client file (project file).
 - a. Information on clean burning practices

The Local Agency shall provide all clients with solid fuel burning information pamphlet on clean and efficient burning techniques.
 - b. Fire Extinguishers

Chapter 5 Providing Weatherization Services
Policy 5.5.4 Solid Fuel Burning Appliance Systems

Providing fire extinguishers is an allowed health and safety cost only when a solid fuel burning appliance is present. When a fire extinguisher is provided, the manufacturer's instructions including the owner's manual, warranty, and the expected lifetime of the unit information shall be left with the occupant of the dwelling unit.

4. Local Agencies shall provide consumer conservation education on safe operation, proper maintenance, and clean & efficient burning techniques.
5. Required Standards
 - a. Solid Fuel Burning Devices Standards ([Chapter 173-433 WAC](#))
 - b. Certification and labeling by the National Fire Protection Association under NFPA 211, Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances. The local fire marshal or building inspector will have the most current information on the standard.
 - c. Certification by the [Underwriters Laboratory](#) for systems with electrical parts.
 - d. [Environmental Protection Agency](#) emission standards or local standards if they are stricter.
 - e. The following also apply for mobile homes:
 - (1) Systems that are certified and labeled for mobile homes.
 - (2) Permits from the state [Department of Labor and Industries](#).

6. Additional Requirements for Solid Fuel Burning Appliance Systems

Solid fuel burning appliance systems shall be provided with combustion air ducted directly to the appliance. Combustion air shall be provided as recommended by the manufacturer's specifications.

Exceptions:

Combustion air may be supplied to the room in which the solid fuel appliance system is located in lieu of direct ducting, in an existing home, provided that:

- a. The appliance system is not designed for directly connected outside air or;
- b. The existing construction prohibits the introduction of outside combustion air directly to the appliance system.
- c. The combustion air source shall be located as close to the solid fuel burning appliance system as possible, shall be provided with a backdraft damper, and shall be no less than six inches in diameter.

**Chapter 5 Providing Weatherization Services
Policy 5.5.4 Solid Fuel Burning Appliance Systems**

Allowable Costs

Repair and replacement of solid fuel burning appliance systems are allowable costs under DOE, HHS, and State funds. These measures fall within the total health and safety measures and repairs limits (See [Chapter 9, Health and Safety](#)). These measures do not need to be included in the SIR calculation for all fund sources or in the DOE per home expenditure average. See [Chapter 6, Allowable Costs](#), for allowable expenditures. Providing fire extinguishers is an allowed health and safety cost only when a solid fuel burning appliance is present.

B. Procedure

1. Programmatic

- a. Client file (project file) shall include the following documentation:
 - (1) Supplemental audit ([Exhibit 5.1.3A, Solid Fuel Burning Appliance Systems Supplemental Audit Form](#).)
 - (2) Clear record of who analyzed or worked on the heating system, when, and work performed.
 - (3) Inspection approval.
 - (4) Paid invoices for all work contracted out or performed by an outside heating technician.
 - (5) All necessary measure-specific justification.
 - (6) Delivery of consumer conservation education.
- b. Local Agency files shall include the following documentation:
 - (1) Necessary permits.
 - (2) Liability insurance.
- c. See [Chapter 6, Allowable Costs](#).
- d. See [Chapter 9, Health and Safety](#).

2. Required Installation Standards and Materials Specifications

See [Specifications](#)

Effective Date: July 2018

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Weatherization Policy

Replaces: Policy 5.5.5 July 2012

See also:
[10 CFR 440.21\(b\)\(c\)](#)
[10 CFR 440 Appendix A](#)

POLICY 5.5.5 SPACE-HEATERS (Zonal Heaters)

1. **Justification:** Local Agencies may repair and replace space-heaters under one of the following conditions:
 - a. Energy efficiency if the total cost is justified using an evaluation of cost-effectiveness where the Savings-to-Investment Ratio (SIR) is 1.0 or greater.
 - b. Client health and safety.
2. **General Requirements:** Local Agencies shall follow these general requirements for repair and replacement:
 - a. **Incidental repairs:** Make incidental repairs to space-heaters as necessary to address health and safety issues.
 - b. **Provisions for working smoke detectors:** Inspect to ensure that a working smoke detector is installed on the same floor as the space-heater. The cost of smoke detectors may be charged to Health and Safety Costs.
 - c. **Other safety hazards:** Check to ensure that no obvious building code violations or other safety hazards related to the space-heater are evident, for example electric wiring and heater vent pipe.
 - d. **Permits and inspections:** Secure building permits where required and have qualified inspections made before any heater is put into operation. The cost of permits may be charged to Program Costs.
3. **Space-Heater Type Specific Requirements:** Local Agencies shall follow the specific requirements for space-heater types listed below.
 - a. **Electric Space-Heaters – Permanently Installed Zonal Heaters:**
 - (1) Electric Space-Heaters are permanently installed zonal heaters and are generally:
 - (a) Lower output ratings (size);
 - (b) Risk of fire hazards; and

- (c) Installed in older homes, which frequently cannot safely carry the power required to operate an electric heater
 - (2) Only minor repairs on electric space-heaters are allowed. Replacements with like heaters are not encouraged.
 - (3) Check circuitry to ensure adequate power supply for existing space-heaters.
- b. Stand-Alone Electric – Portable and Plug-in Space-Heaters:**
- (1) Stand-Alone Electric space-heaters are generally portable, plug-in space-heaters and do not include the following:
 - (a) Baseboard units
 - (b) Zoned heating system components
 - (c) Other permanently installed electric heating units
 - (2) Repair, replacement, or installation is not allowed. Removal is recommended. Inform client of hazards and collect a signed waiver if client refuses removal.
 - (3) Check circuitry to ensure adequate power supply for existing space-heaters.
- c. Unvented Gas- and Liquid-Fueled Space-Heaters:**
- (1) **Primary Heat Source:**
 - (a) Unvented Gas- and Liquid-Fueled Space-Heaters are not allowed as primary heat source.
 - (b) Weatherization work is prohibited where the completed dwelling unit is heated with an unvented gas- and/or liquid-fueled space-heater as the primary heat source.
 - (c) The primary heat source shall be replaced with a vented unit prior to weatherization.
 - (d) The replacement unit should be sized so it is capable of heating the entire dwelling unit, consistent with audit requirements described in 10 CFR 440.21(e)(2).

(2) **Secondary Heat Source:**

- (a) **Removal is required:** Units that meet the ANSI Z21.11.2, but are not operating safely, or that do not meet ANSI Z21.11.2 shall be removed and disposed of properly prior to weatherization but may remain until a replacement heating system is in place.

Exception: If unvented gas- or liquid-fueled secondary heat unit conforms to ANSI Z21.11.2.

- (b) **Remaining Units:** An unvented gas- and liquid-fueled space-heaters that remains in a completed single-family house after weatherization shall:
- i. Not have an input rating in excess of 40,000 Btu/hour;
 - ii. Not be located in, or obtain combustion air from sleeping rooms, bathrooms, toilet rooms, or storage closets.

Exceptions:

- 1) **Bathroom:** One listed wall-mounted space-heater in a bathroom if permitted by the authority having jurisdiction which meets all of the following:
 - a) Has an input rating that does not exceed 6,000 Btu/hour;
 - b) Is equipped with an oxygen-depletion sensing safety shut-off system; and
 - c) The bathroom has adequate combustion air;
- 2) **Bedroom:** One listed wall-mounted space-heater in a bedroom if permitted by the authority having jurisdiction, which meets all of the following:
 - a) Has an input rating that does not exceed 10,000 Btu/hour;
 - b) Is equipped with an oxygen-depletion sensing safety shut-off system; and
 - c) The bedroom has adequate combustion air.

- (c) **Inform Client of Dangers:** Inform client of dangers of unvented space-heaters. CO, moisture, and NO₂, can be dangerous even if CO alarm does not sound.

d. **Vented Gas- and Liquid-Fueled Space-Heaters**

- (1) Vented gas- and liquid-fueled space-heaters shall be treated as furnaces in terms of combustion safety testing, repair, and replacement. See **Policy 9.4, Combustion Safety Testing** and **Policy 5.5.2, Combustion Heating Systems**.

4. **Client Education:** Local Agencies shall provide Space-Heater information to clients. See **Policy 5.1.4, *Client Education*** for requirements.

Allowable Costs

Repair and replacement of space-heaters are allowable costs under DOE, HHS, BPA, and State funds. Unless health and safety related, repair and replacement shall be included in the SIR calculation for all fund sources and in the DOE per home expenditure average. See [Chapter 6, *Allowable Costs*](#), for allowable expenditures.

Specific fund source limitations or allowances are as follows:

DOE: If the measure is an approved WAP expenditure and the audit justifies the costs with an SIR equal to or greater than 1.0, the measure shall be performed and costs charged as a Weatherization Measure (WxM). If the measure is not an eligible WxM, the measure may be charged as either a Health and Safety (H&S) measure or a Weatherization-Related Repair (WRR).

BPA: Units shall be electrically heated in BPA service territory.

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See also:

[Specification 12.1, Ductless Heat Pumps](#)
[Bonneville Power Administration's Qualified Products List](#)
[Northwest Ductless website](#)
[Policy 5.5.1, Air Conditioning and Heating Systems](#)

Replaces: Policy 5.5.6 July 2021

POLICY 5.5.6 DUCTLESS HEAT PUMPS (DHP)

1. Ductless Heat Pumps (DHP): The Local Agency shall:
Refer to Specification 12.1, *Ductless Heat Pumps* for requirements

POLICY 5.5.7 FUEL SWITCHING

A. Policy

1. Commerce does not permit the general practice of non-renewable fuel switching when replacing heating systems and hot water tanks.
 - a. Local Agencies shall notify Commerce in writing (email acceptable) if they intend to switch fuels as part of their weatherization services using Commerce funds.
 - b. Local Agencies may switch fuels under the following conditions:
 - (1) Energy efficiency if the total cost is justified using an evaluation of cost-effectiveness where the Savings-to-Investment Ratio (SIR) is 1.0 or greater.
 - (2) Client health and safety.
2. The switched-fuel unit cannot exceed the cost of replacement using the existing fuel unless the difference comes from sources other than Commerce.
3. When switching from electric to oil or gas, all costs associated with the installation of a gas heating system or water heater, and all required elements of the new heating system (providing a new supply line, flue, chimney, ducts), shall be considered as part of the total cost.

Allowable Costs

Switching fuel is an allowable cost under HHS and State funds with prior Commerce written notification. Unless health and safety related, fuel switching shall be included in the SIR calculation of each fund source. See [Chapter 6, Allowable Costs](#), for allowable expenditures.

B. Procedure

1. Programmatic
 - a. Submit written notification (email acceptable) to assigned Commerce field representative. Include supporting documentation if health and safety related.
 - b. Client file (project file) shall include the following documentation:
 - (1) Copy of written notification submitted to Commerce.
 - (2) A complete cost analysis justifying the work, including verification the installed measure has an SIR of 1.0 or greater if it is based on energy efficiency.
 - (3) Justification if health and safety-related.

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(4) All necessary measure-specific justification.

c. See [Chapter 6, Allowable Costs](#).

2. Required Installation Standards & Materials Specifications

Not applicable.

Effective Date: July 2018

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Replaces: Policy 5.5.8 – July 2015

See also:
[Policy 5.1.4, Client Education](#)

POLICY 5.5.8 THERMOSTATS

1. **Installing Thermostat:** Installation of a thermostat or replacement of an existing thermostat is allowable.
2. **Determining Type of Thermostat to Install:** Contractor shall determine if a standard or a programmable thermostat should be installed, and install the appropriate thermostat. All thermostats shall have a dead-band range of less than two degrees. To meet this requirement bi-metal, line-volt thermostats shall have third party verification
 - a. Operating instructions for programmable thermostats

The Local Agency shall ensure that the dwelling unit occupants fully understand the benefits of a programmable thermostat and can demonstrate how to program the thermostat for optimal use, and how to change the back-up battery.
3. **Thermostat Power Source:** Thermostats shall be source powered. Programmable thermostats shall also have a battery back-up.
4. **Required Thermostat Features:** Thermostats shall be digital, have a built in anti-short-cycle feature and include a positive on-off switch that is easily accessible. Programmable thermostats shall also have a 7-day cycle, or a 5 day-2 day cycle, a set-back capability of at least 10 degrees, and provide at least 4 program periods per day.
5. **Placement:** The top of the thermostat shall be 60 inches from the floor. When an occupant uses a wheelchair, thermostat top shall be 48 inches from floor.
6. **Thermostats for Heat Pump Systems:** Thermostats used with heat pump systems shall be designed so that temperature pick-up is accomplished by using heat pumping as much as possible, and electric resistance elements only when necessary.
7. **Disposing Hazardous Materials – Mercury:** Hazardous Waste Materials generated in the course of weatherization work shall be disposed of according to all local laws, regulations and/or Federal guidelines, as applicable.
8. **Client Education:** Local Agencies shall provide hazardous waste material information to all clients. See **Policy 5.1.4, Client Education** for requirements.

Effective Date: July 2016

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Replaces: Policy 5.5.9 – April 2009

See also:
[10 CFR 440.18 Allowable expenditures](#)
[Appendix A - 10 CFR 440, Standards for Weatherization Materials](#)
[DOE Program Guidance](#)

POLICY 5.5.9 RENEWABLE ENERGY SYSTEMS

1. Section 206 of the Energy Policy Act of 2005 (EPACT 2005) amended the Energy Conservation and Production Act (42 U.S.C. 6861 et seq.) to clarify that assistance under Department of Energy's (DOE) Weatherization Assistance Program for low-income persons may be provided for renewable energy systems and to provide definitions and criteria to be used in assessing eligibility. DOE amended their Final Rule, 10 CFR 440, to codify the EPACT provisions.
2. EPACT 2005 set a ceiling per dwelling for such assistance, subject to annual adjustments as provided in the statute.
 - a. These funds are not in addition to the current average cost per unit. The maximum represents the cumulative total average expenditures allowable for labor, materials, and related matters per unit.
 - b. See annual adjustments in **Section 3.1** of the annual *Program Year 20YY Weatherization Grant Guidance* Weatherization Program Notice (numbered YY-01). See **Subsection 3.1.1 Adjusted Average Cost per Dwelling Unit** for guidance on how to apply the average ceilings on DOE Weatherization funds for units using renewable energy systems.
3. EPACT 2005 requires DOE to establish a procedure under which a manufacturer of a technology or system may request the Secretary of Energy to certify the technology or system as an eligible renewable energy system. Approved renewable energy systems will be listed in **Appendix A - 10 CFR 440, Standards for Weatherization Materials**.
4. Local Agencies shall verify installed renewable energy system measures have an SIR of 1.0 or greater as determined by TREAT. Client file (project file) shall include SIR verification and all necessary measure-specific justification.

Allowable Costs

Approved renewable energy systems are an allowable cost under DOE funds. Policies for HHS, BPA, and State funds will be determined.

Specific fund source limitations or allowances are as follows:

BPA: Units shall be electrically heated in BPA service territory.

DOE: Approved renewable energy systems will be listed in **Appendix A - 10 CFR 440, *Standards for Weatherization Materials***. Solar Water Heating Devices which conform to SRCC (Solar Rating and Certification Corporation) OG 300 are an example of an approved renewable energy system.

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See also:

[Policy 5.2.3-SF, Diagnostic Testing](#)
[Exhibit 5.S10, Standards for Weatherization Material Specifications.](#)
[Duct Leakage Affidavit \(Existing Construction\)](#)
[Variance #17 – SWS 5.3003.3a,c-g](#)
[Variance #26 – SWS 3.1601.3a and 4a, 6.6002.1c, 6.6102.1c](#)

Replaces: Policy 5.6.1 – July 2016

POLICY 5.6.1 HEATING AND COOLING DUCTS

1. **Insulating and Sealing Ducts:** When ducts are insulated or sealed they shall meet the requirements detailed in this policy.

~~Variance #17: DOE granted a variance from SWS Section 5.3003.3 Evaluating Airflow allowing: WA Standard which requires a client interview, confirmation of flow at each register, measurement of heat rise, pressure pan, and room pressures. Unless duct systems are missing or destroyed and require repair or replace, WA will air seal but not resize ducts.~~

2. **Surveying, Inspecting, and Testing Ducts:** The Local Agency shall conduct diagnostic testing and visually inspect all accessible ducting in the heat distribution system including the plenum, trunk and branch lines. Refer to **Policy 5.2.3, Diagnostic Testing**.
 - a. **Pressure pan testing required:** Pressure pan testing of duct systems is required.
Exceptions:
 - (1) The Local Agency may elect to have ducts tested using a duct testing device and the associated procedures outlined by the manufacturer as an alternative to pressure pan testing.
 - (2) The entire distribution system is located within the envelope's conditioned space.
 - b. **Dominant duct leak test required:** Dominant duct leak test is required.
 - c. **Duct Testing Required when Replacing Air Handler:** Total leakage or leakage to outside duct testing (eg Duct Tester, Duct Blaster) is required for any newly installed furnace. Fill out WSU Duct leakage affidavit form and post on panel with a copy in the client file (project file).
3. **Using Materials:** Materials used for replacement, repair, and sealing of ducts shall be approved and listed in **Exhibit 5.S10, Standards for Weatherization Materials**.

4. **Repairing or Replacing Ducts:** The Local Agency or Subcontractor shall reconnect all serviceable ductwork found disconnected from boots, trunks, or plenums. Method used for reconnection shall be permanent and appropriate to the materials being connected. All ductwork that is torn, crushed, or severely deteriorated shall be replaced or repaired.

5. **Sealing Ducts:**

a. When determined necessary by diagnostic testing and visual inspection, leakage in ducts will be reduced to lowest practical level. All the following accessible ducts both inside and outside envelope shall be sealed to provide permanent, airtight connections using mastic, mastic and fiber mesh, or aluminum butyl tape:

- (1) Connections to the air handler cabinet and plenums
- (2) Ductwork-to-ductwork connections
- (3) Elbows, holes, joints, and seams, including lateral seams
- (4) Gaps:

(a) Small gaps, seams, cracks, joints, holes, and penetrations less than ¼” shall be sealed with fiberglass mesh and mastic, when they within 10 feet from air handler.

Exception: Mastic alone will be acceptable for holes less than ¼” that are more than 10 feet from air handler.

(b) Medium gaps, seams, cracks, joints, holes, and penetrations between ¼” and ¾” shall be backed using temporary tape (e.g. foil tape) as a support prior to sealing. Then they shall be sealed with fiberglass mesh and mastic.

(c) Large gaps, seams, cracks, joints, holes, and penetrations greater than ¾” shall be repaired using rigid duct material. Fiberglass mesh and mastic will overlap repair joint by at least 1” on all sides.

b. **Timing:** Ducts shall be sealed prior to insulating.

6. **Insulating Ducts:** All heating and cooling ducts located outside the heated envelope of the dwelling unit shall be insulated to a minimum of R-8 and have an attached vapor retarder.

7. **Flex duct requirements:**

a. Flex duct, existing or installed, in unconditioned spaces shall be insulated to a minimum, effective R-8 or buried under attic insulation, whichever is greater.

b. Flex ducts shall have an attached vapor retarder. Using a tape approved by the manufacturer, all seams and connection of the duct insulation will be taped.

- c. Flex duct shall be of the proper length for connection between two points without excessive bends or sag.
- d. Horizontal and vertical runs of flex duct shall be supported using nylon, plastic, or metal strapping having a minimum width of ½ inch. Support strapping or hangers shall not compress the insulation.
- e. Support strapping or hangers shall be installed within 1 foot of a joint or connection with a maximum of 4 feet between supports.
- f. Flex duct shall not be installed in a manner allowing direct contact with the ground.
- g. Flex duct shall be connected to metal collars or boots. The inner layer of the flex shall be secured using a compression strap. The outer layer of insulation shall also be secured using a compression strap.

8. Metal duct:

- a. Metal duct, existing or installed, in unconditioned spaces shall be insulated to a minimum, effective R-8 or buried under attic insulation, whichever is greater.
- b. Metal ducts shall have an attached vapor retarder. Using a tape approved by the manufacturer, all seams and connection of the duct insulation will be taped.
- c. Metal ducts shall be of proper length without unnecessary elbows or changes in direction.
- d. Sections shall be securely connected to each other using a minimum of 3 screws for round ducts and 4 for rectangular.
- e. Insulation shall be permanently secured with rot and stretch proof twine or rust-proof wire, without unduly compressing the insulation.
- f. Horizontal and vertical duct runs shall be supported using nylon, plastic, or metal strapping having a minimum width of ½ inch. Support strapping or hangers shall not unduly compress the insulation.
- g. Support strapping or hangers shall be installed within 1 foot of a joint or connection with a maximum of 4 feet between supports.
- h. Metal ducts shall not be installed in a manner allowing direct contact with the ground.

Variance #26: DOE granted a variance from SWS Section 3.1601.3a, 3.1601.4a, 6.6002.1c, and 6.6102.1c Duct Support allowing: Duct support strapping of nylon, plastic, or metal (1/2" or wider) for all ducts.

9. Rigid fiberglass duct board: Rigid fiberglass duct board shall not be used to fabricate ducts.

10. Perimeter wall insulation: Where perimeter insulation, R-10 or greater, has been installed on the walls surrounding a basement or sealed crawlspace containing heating or cooling ducts, the ducts shall not be insulated unless a SIR greater than 1 is demonstrated.

Effective Date: July 2016

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Replaces: Policy 5.6.2 – July 2015

See also:
[Variance #26 – SWS 3.1601.3a and 4a, 6.6002.1c, 6.6102.1c](#)

POLICY 5.6.2 MECHANICAL VENTILATION DUCTS (Exhaust Venting)

1. **Ducting Mechanical Ventilation:** All mechanical ventilation fan exhaust ducting (whole building and local) shall comply with the following:

- a. Extend directly to the outside of the structure (preferably through a vertical surface, rather than through the roof).
- b. All exhaust fans shall be equipped with a backdraft damper located at either the fan outlet or the vent termination.

Exception: Exhaust fans designed and wired to operate continuously do not require a damper.

- c. Termination cap for exhaust fan shall be screened (minimum opening size ¼”; maximum ½”) or otherwise protected from entry by leaves, pests, or other materials.
- d. Duct shall connect to a collar of the termination cap. Collar shall pass through the building envelope.
- e. Entire duct system, including termination cap shall have at least the equivalent net free area of the fan outlet.
- f. Ducting shall be constructed of rigid vent pipe material. Kitchen range hood ducts shall have a smooth interior surface and shall be constructed of galvanized metal, copper, or stainless steel.

Exception (does NOT apply to kitchen range hood exhaust fan ducting): Where rigid vent pipe is impracticable, flex duct may be used for runs no longer than 6 feet from fan to vent cap. For runs longer than 6 feet, flex duct may be used if the duct diameter is increased an additional 50% from the fan outlet diameter. In no installation shall the flex duct be allowed to loop. If running flex duct across varying heights (such as ceiling joists), the flex duct shall be stretched and secured to a splint to avoid sagging and the collection of condensation.

- g. Insulated to minimum R-8 if it passes through unconditioned space.
- h. Airtight and mechanically fastened at each joint using a minimum of three (3) screws, and taped using aluminum butyl tape, to the fan outlet and to the collar of termination cap. For metal ducting, the insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow.

- i. Supported using nylon, plastic, or metal strapping with a minimum width of ½ inch (range hood ducting shall be supported with metal strapping). Support strapping or hangers shall not compress the insulation. Support strapping or hangers shall be installed within 1 foot of a joint or connection and a minimum of every 4 feet thereafter, or per manufacturer's specifications.

Variance #26: DOE granted a variance from SWS Section 3.1601.3a, 3.1601.4a, 6.6002.1c, and 6.6102.1c Duct Support allowing: Duct support strapping of nylon, plastic, or metal (1/2" or wider) for all ducts.

2. **Outdoor air inlets:** When outdoor air inlets for individual rooms are installed, local agencies shall:
 - a. Have a controllable and secure opening.
 - b. Be sleeved and flashed or otherwise designed so as not to compromise the properties of the wall or window in which they are placed.
 - c. Be screened (1/2" screen minimum) or otherwise protected to prevent entry of leaves, debris, or pests.
 - d. Not be located within ten (10) feet of hazardous or unsanitary locations.

Effective Date: July 2016

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Replaces: Policy 5.6.3 – July 2015

See also:
[Variance #26 – SWS 3.1601.3a and 4a, 6.6002.1c, 6.6102.1c](#)

POLICY 5.6.3 DRYER DUCTS (Dryer Vent Pipe)

1. **Dryer ducting:** Clothes dryer ducting installed shall comply with the following:
 - a. Extend directly to the outside of the structure.
 - b. Vent shall terminate in a non-screened vent cap with a damper. The exhaust duct shall terminate not less than 3 feet in any direction from openings into the building.
 - c. Have a smooth interior finish and shall be constructed of metal a minimum 0.016 inch (0.4 mm) thick. The exhaust duct size shall be 4 inches (102 mm) nominal in diameter.
 - d. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Screws shall not be used to connect dryer ducting.
 - e. Not exceed 35 feet in length from dryer location to outlet terminal. The maximum length shall be reduced two and one-half (2.5) feet for every 45 degree elbow and five (5) feet for each 90 degree elbow. One foot of flex duct is equal to two feet of smooth duct pipe.
 - f. Both vertical and horizontal runs shall be supported using nylon, plastic, or metal strapping with a minimum width of ½ inch. Support strapping or hangers shall be installed within one (1) foot of a joint or connection and a maximum of every four (4) feet thereafter.

Variance #26: DOE granted a variance from SWS Section 3.1601.3a, 3.1601.4a, 6.6002.1c, and 6.6102.1c Duct Support allowing: Duct support strapping of nylon, plastic, or metal (1/2" or wider) for all ducts.

- g. Horizontal runs shall be sloped downward toward the vent discharge.
- h. Dryer ducts located in unconditioned space shall be insulated to a minimum R-8.
- i. UL listed foil type or semi-rigid sheet metal to rigid metal will be fastened with clamp.
- j. Dryer ducts shall be sealed.

2. **Dryer transition duct:** The dryer transition duct is the ducting between the dryer and the point at which it goes through the wall, floor, or ceiling and leaves the vicinity of the dryer. This ducting shall be listed and labeled in accordance with UL 2158A. The transition duct shall not exceed eight feet in length and be long enough to allow for moving the dryer away from the wall, but not allow excess bending and kinking that can trap lint and water in the ducting. The transition ducting is not meant to pass through a wall, floor, or ceiling. The transition duct shall connect to a smooth metal duct or a metal collar where it penetrates the ceiling, wall, or floor.

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See also:

[RCW 59.18.060](#)

[Exhibit 5.S8, Safety Label for Domestic Water Heaters](#)

[Variance #24 – SWS Section 7.8102.1a](#)

[Variance #28 – SWS 7.8103.1c](#)

[Policy 1.4.2, Owner Contributions](#)

Replaces: Policy 5.7.1 – July 2021

POLICY 5.7.1 WATER HEATERS

1. **Repairing Water Heaters:** Local Agencies are obliged to consider repairing water heaters, including replacement of elements, wiring, and thermostats.
 - a. Local Agencies may replace a water heater if the cost of repair exceeds the cost of replacement or if the broken water heater is more than 10 years old.
 - b. When a hot water heater is not repairable, local agencies may replace it with an energy efficient model with the lowest installed cost.
2. **Replacing Water Heaters:** Local Agencies may replace water heaters under one of the following conditions:
 - a. Energy efficiency if the total cost is justified using an evaluation of cost-effectiveness where the Savings-to-Investment Ratio (SIR) is 1.0 or greater.
 - b. Client health and safety.

Variance #24: DOE granted a variance from SWS Section 7.8102.1a Water Heater Replacement (Direct or Power Vented allowed: Direct or power vented Energy Star qualified or EER >= 0.58 are required for combustion based water heater replacements. Variance allows atmospherically vented water heaters in un-conditioned space if passes all required combustion safety tests.

3. **Inspecting and Testing Water Heaters:** Local Agencies shall inspect and test the system(s) in each dwelling unit for safe operation prior to delivering weatherization services.

Test all combustion systems for safety pre- and post-weatherization work.

4. **Requiring Owner Contributions when Replacing Water Heaters in Rental Units:** Owner Contributions are required for water heater replacements in rental units. See **Policy 1.4.2, Owner Contributions** for requirements and exceptions in addition to the following:

- a. **Capital Improvements:** Since a new water heater is considered a capital improvement to the property, the expectation is an owner contribution of at least 50 percent of the cost.
- b. **Owner Refusal:** If owners refuse to participate, Local Agency options include the following:
 - (1) Defer project.
 - (2) Alternative financing.
 - (3) Negotiate a combination or modification of the contribution options listed in **Policy 1.4.2, Owner Contributions** to allow weatherization funds to cover more than 50 percent of the cost of the system replacement.

5. **Insulating Water Heaters:** Water heaters in unconditioned spaces shall be insulated.

Exceptions: Do not add external fiberglass insulation if any of the following conditions exist and cannot be corrected with available funding:

- a. Internal insulation is R-10 or greater.
- b. There is evidence of leaks or other impending failure.
- c. External insulation is prohibited by the manufacturer.
- d. There is evidence of improper combustion for a gas-fired unit.
- e. Vent pipe or draft hood is improperly installed.
- f. There is improper or inadequate venting for a gas fired unit.
- g. Combustion air supply is improper or inadequate.
- h. A temperature and pressure relief valve is not present or is located more than 6 inches from the tank or is capped or plugged.
- i. Hazardous or improper electrical connections are present.
- j. Thermostat cover plate is not present.
- k. Burner access doors are not present.
- l. Adequate clearances cannot be maintained.
- m. Water Heaters within living space

- 6. Insulating Wrap R-value:** Insulating wraps shall have an insulation value of R-11 or greater.

Exception: If clearance does not permit R-11, insulate to the maximum the space allows.

Variance #28: DOE granted a variance from SWS Section 7.8103.1e minimum of R-24 on hot water tanks allowing: WA to insulate hot water tanks in unconditioned areas to a minimum of R-11. WA does not require insulation on tanks located in conditioned space, if H&S, or manufacturer guidelines.

- 7. Providing Minimum Clearances for Heat Producing Appliances and Venting:** Clearances between the surface of the wrap or pipe insulation and adjacent heat producing appliances, including vent connectors, shall be maintained according to state and local codes.
- 8. Meeting Clearances within Enclosed Spaces:** Water heaters shall meet the manufacturer's clearance requirements when installed in closets and enclosed spaces.
- 9. Setting Temperature:** Prior to the installation of an insulating wrap, the hot water discharge temperature shall be set not to exceed 120°F or as prescribed by local code.
Exception: If the client requests a different temperature setting the Local Agency shall document this request in writing in the client file (project file).
- 10. Installing Wraps:** Insulation wraps shall be installed according to the methods and procedures in the Field Guide.
- 11. Labelling Wrapped Water Heaters:** A Commerce approved safety label shall be installed on the insulating wrap in a visible location. For a sample label with the information required on the label See **Exhibit 5.S8, Safety Label for Domestic Water Heaters.**
- 12. Installing an Emergency Drain Pan and Drain Line:** An emergency drain pan will be installed with sides that extend a minimum of 2.5" above floor if leakage would cause damage to the home and in accordance with P2801.5 of the 2012 IRC. A ¾" drain line or larger will be connected to tapping on pan and terminated in accordance with P2801.5.2 of the 2012 IRC.

POLICY 5.7.2 WATER PIPE

A. Policy

1. The Local Agency shall install insulation on accessible hot and cold water lines.

Exceptions: Water pipes shall not be insulated if any of these conditions are present:

- a. Water pipes or valves are leaking or are improperly supported.
 - b. When electric heat tape is being used to prevent freezing of pipes.
2. **Pipe insulation R-value:** Water pipe insulation installed by the Local Agency shall have a minimum effective insulation value of R-3.
 - a. Insulate the first 6 feet of both cold-water inlet and hot-water outlet pipes beginning at the water heater tank.
 - b. Insulate hot and cold water distribution pipe in unconditioned space.
 3. **Installation standard for foam pipe insulation:** Insulation shall be installed to these standards:
 - a. Insulation with a lengthwise slit shall be positioned on horizontal pipe so that the slit is on the bottom side of the pipe.
 - b. Insulation shall be sized to fit and firmly secured to the pipe. Products that are glued shall use the manufacturer's recommended adhesive and all slits in the material shall be sealed.
 - c. Products that are not glued shall be held in place with elasticized tape, wire, or plastic ties.
 - d. Elasticized tape shall be applied every nine (9) inches on center, and around each joint between separate pieces of material.
 - e. If ties are used, they shall be made of either galvanized wire or non-slipping plastic.
 - f. The ties shall be spaced at one inch from each end of the material and thereafter every nine (9) inches on center.
 - g. Other techniques for attaching pipe insulation may be acceptable if approved in writing by Commerce.

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- h. Insulation material shall be cut and folded, or otherwise molded, to completely cover all elbows or curved pipe without compressing the insulation or allowing gaps to occur in the insulation.
- 4. **Installation standard for fiberglass:** If fiberglass batts are used, then the batts shall be at least R-7 when flat. After installation a minimum of R-3 shall be present on any water pipes, including piping for refrigerator ice makers that are not enclosed within the floor insulation. The insulation shall be permanently attached to the pipe with wire, cable ties, twine, strapping tape, or by other approved methods. Waste or drain pipes are excluded from this insulation requirement. Water pipes that are protected by (enclosed within) installed floor insulation are not required to be separately wrapped.
- 5. **Insulation of pipes exposed to weather:** If insulation is installed on pipes exposed to the weather, then such insulation shall be resistant to degradation from moisture, ultraviolet light, and extremes in temperature, or a jacket or facing shall be installed that protects the insulation from these conditions.

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See also:

[Exhibit 5.1.6A, Economic Analysis of Refrigerator Replacement Refrigerator and Freezer Energy Rating Database](#)

Replaces: Policy 5.7.3 – July 2017

POLICY 5.7.3 REFRIGERATOR REPLACEMENT

1. Local Agencies may replace refrigerators with weatherization funding when the demonstrated savings-to-investment ratio (SIR) is 1.0 or greater. Freezer-only unit replacements are not allowed.
 - a. Local Agencies shall use Commerce approved methods to determine the SIR. These methods include:
 - (1) TREAT (Targeted Residential Energy Analysis Tool)
 - (2) Weatherization program on-line tool: *Refrigerator Replacement Analysis Tool* on the Commerce Weatherization page. See **Exhibit 5.1.6A, Economic Analysis of Refrigerator Replacement**.
 - b. Local Agency shall use one of the following to determine the energy usage of the existing refrigerator:
 - (1) **Data logging of existing refrigerator:** use a minimum of 2 hours of data logging information, or
 - (2) **Database:** Refrigerator and Freezer Energy Rating Database
 - c. Leveraged funds can be used to bring the SIR of a marginally cost-effective measure to 1.0 or greater.
 - d. All units in an eligible multi-unit project may receive a replacement refrigerator if the SIR is 1.0 or greater.
2. **Document cost-effectiveness:** The Local Agency shall document in the client file (project file) that the replacement is cost-effective with an SIR of 1.0 or greater, and the method used to determine the SIR.

3. **Replacement refrigerators:** Replacement refrigerators shall meet the following criteria:
- a. Energy Star or better energy efficiency. A non-Energy Star refrigerator may be installed provided the SIR for the non-Energy Star model is demonstrated to be higher than the SIR for the Energy Star model.
 - b. Top-mount freezer (two door models).
 - c. Models with no extra features such as door ice, through door water dispensing, or automatic icemakers.
 - d. Automatic defrost
 - e. Based on the size and needs of the family.
4. **Refrigerator sizing:** The smallest size refrigerator that is practical for each household shall be installed. The following guidelines shall be used:

Family of 1 - 2	15 cubic foot
Family of 3 - 4	18 cubic foot
Family of 5 or more	21 cubic foot

5. **Client agreement:** Residents shall agree to the removal of the old refrigerator and all non-functioning, unused, or underused refrigerators by the local agency. The Local Agency and client shall have a written agreement that is documented in the client file (project file) that the refrigerator being replaced will be removed by the Local Agency. Additional refrigerators or freezers, whether working or not, may be removed upon written agreement between the owner and the Local Agency.
6. **Establishment of ownership:** If the refrigerator is installed in a rental unit, the ownership of the existing and the replacement refrigerator shall be established, and documented in the client file (project file). This shall be done before the replacement refrigerator is installed.
7. **Disposal of removed refrigerators**The Local Agency shall remove the old refrigerator from the property and dispose of it properly per Section 608 of the 1990 Clean Air Act, as amended by 40 CFR 82, Subpart F, 1995 at an EPA-approved disposal site that reclaims the refrigerant. The client file (project file) or central vendor file will contain documentation of the proper disposal from the disposal facility, or a statement signed by a commercial vendor indicating that the vendor will dispose of the refrigerator at an approved disposal site that reclaims the refrigerant.

Allowable Costs

Refrigerator replacement, including costs associated with CFC disposal, is an allowable cost under DOE, HHS, BPA, and State funds. Refrigerator replacement shall be included in the SIR calculation for all fund sources and in the DOE per home expenditure average. See **Chapter 6, Allowable Costs**, for allowable expenditures.

Specific fund source limitations or allowances are as follows:

BPA: Funds will cover 100 percent of the refrigerator cost. Funds may be used for non-electrically heated homes in BPA service territory.

B. Procedure

1. Programmatic

- a. Client file (project file) shall include the following documentation:
 - (1) Verification installed measure has an SIR of 1.0 or greater using proven methods.
 - (2) All necessary measure-specific justification.
 - (3) Client approval.
 - (4) Ownership status of the replaced refrigerator.
 - (5) Copies of the manufacturer's warranty and client's signature indicating receipt of original warranty.
 - (6) Refrigerator disposal method.
 - (7) Reclaimed refrigerant disposal method.
- b. See **Exhibit 5.1.6A, Economic Analysis of Refrigerator Replacement**
- c. See **Chapter 6, Allowable Costs**
- d. See **Chapter 9, Health and Safety**

2. Required Installation Standards and Materials Specifications

See *Specifications*

Effective Date: February 21, 2020

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Weatherization Policy

Replaces: Policy 5.7.4 – July 2017

See also:
[Variance #23 – SWS 7.8003.14b](#)

POLICY 5.7.4 ENERGY EFFICIENT LIGHTING

1. Retrofit of lighting fixtures, replacement of incandescent screw-in bulbs with light emitting diode (LEDs) or compact fluorescent screw-in bulbs (CFLs), and replacement of halogen or incandescent torchiere lamps with LED or CFL torchieres are allowable weatherization measures under the following provisions:
 - a. **Eligible units:**
 - (1) Owner-occupied dwellings.
 - (2) Rental units where tenants pay electric bills.
 - (a) All lighting measures installed in rental housing units shall directly benefit low-income tenants.
 - (b) Do not install lights in locations where the building owner pays the electric bills, such as common areas or master-metered buildings except when building owner is a nonprofit organization.
 - b. **Retrofit of lighting fixtures:** Retrofit of lighting fixtures is allowable if costs are justified with an SIR calculation of 1.0 or greater using TREAT.
 - (1) **Type of fixtures:** Fixtures that are installed shall be hardwired fluorescent or LED fixtures that meet all of the following:
 - (a) UL listed.
 - (b) Energy Star rated or equivalent energy use.
 - (c) Fully warranted for one year after the date of installation.
 - (d) Interior fixtures shall be with electronic ballast only.
 - (2) **Exterior fixtures:** Exterior fixtures shall be constructed of UV resistant materials and rated for installation in damp or wet locations. Magnetic ballast fixtures are allowed.

- (3) **Installation requirements:** Fixtures shall be installed in accordance with all applicable codes governing installation of electrical devices and shall be installed by a contractor licensed to perform this work.

Variance #23: DOE granted a variance from SWS Section 7.8003.14b Fixture Replacement allowing: WA to install Energy Star compliant or replacement lighting fixtures comparable in energy use and cost.

- c. **Replacement lamps:** Replacement of lamps is allowable if costs are justified with an SIR calculation of 1.0 or greater using TREAT or using the Deemed Measures Priority List.

- (1) **Types of replacement lamps:** LEDs or CFLs that are installed shall be Energy Star rated or equivalent energy use and be warranted for one year from the date of purchase.

- (2) **Light output:** Replacement lamps shall provide light output levels that meet or exceed the level of the bulbs that they are replacing.

- (3) **Incandescent replacement:** All incandescent screw-in bulbs can be replaced with LEDs or CFLs

Exceptions: Replacement lamps should not be installed if any of the following conditions exist:

- (a) Socket or fixture is nonfunctional, damaged, or unsafe.
- (b) Circuit is controlled by a solid-state timer.
- (c) Circuit is controlled by a non-CFL compatible dimmer.
- (d) Fixture is located in a storage room, closet, or other seldom used room.
- (e) Fixture is controlled by an occupancy sensor.
- (f) The client refuses to have LEDs or CFLs installed.

- (4) **Torchiere replacement:** With client approval, high intensity incandescent or halogen 1200w or more shall be removed and replaced with Energy Star rated or equivalent energy use LED or CFL torchiere lamps.

- (5) **Outdoor locations:** Replacement lamps may be installed in outdoor locations attached to the dwelling provided they are installed in a fixture that protects the lamp from the weather.

- (6) **Field testing:** The installer shall test all installed replacement lamps before leaving the dwelling unit, and shall ask the client if the lighting level is adequate, if the client is available.
2. Every effort should be made to arrange cost sharing with utilities and use utility funds first.
3. **Client Education:** Local Agencies shall provide energy efficient lighting information to all clients and proper disposal information, as applicable. See **Policy 5.1.4, Client Education** for requirements.

Allowable Costs

Retrofit of lighting fixtures, replacement of incandescent screw-in bulbs with light emitting diode (LEDs) or compact fluorescent screw-in bulbs (CFLs), and replacement of halogen or incandescent torchiere lamps with LED or CFL torchieres are allowable costs under DOE, HHS, BPA, and State funds. Retrofit of fixtures and replacement of halogen or incandescent torchiere lamps with LED or CFL torchieres shall be included in the SIR calculation for all fund sources and in the DOE per home expenditure average. See **Chapter 6, Allowable Costs**, for allowable expenditures.

Specific fund source limitations or allowances are as follows:

BPA: Funds may be used for non-electrically heated homes in BPA service territory.

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Weatherization Policy

See also:

[Policy 5.2.5, Targeted Residential Energy Analysis Tool \(TREAT\)](#)
[Policy 5.2.7, Deemed Measures Priority List \(DMPL\)](#)
[Policy 6.9.1, Washington State Weatherization Plus Health \(State\) Funding Policy](#)
[Chapter 6, Allowable Costs](#)
[Exhibit 6, Fund Matrix](#)
[Chapter 9, Health and Safety](#)
[Exhibit 6.1, Fiscal Definitions](#)

Replaces: Policy 5.8.1 - July 2018

POLICY 5.8.1 WEATHERIZATION-RELATED REPAIR (INCIDENTAL REPAIR)

Building rehabilitation is beyond the scope of the Weatherization Assistance Program. Homes with conditions that require more than incidental repair should be deferred or funded with an allowable funding source. Local Agencies may perform repairs needed to protect weatherization measures or their function.

1. **Justifying WRR Cost-Effectiveness:** Weatherization-Related Repairs (WRR) shall be justified using an evaluation of cost-effectiveness, using one of the following methods:
 - a. TREAT: See **Policy 5.2.5, Targeted Residential Energy Analysis Tool (TREAT)**, Section 6b. *Weatherization-Related Repairs Measure Costs*.
 - b. Deemed Measures Priority List: See **Policy 5.2.7, Deemed Measures Priority List (DMPL)**, Section 7. *Determining Repair Allowance*.
2. **Including WRR Costs in SIR Package:** The costs of WRR shall be included in the Wx project total package of costs. Including the WRR costs, the package Savings-to-Investment Ratio (SIR) shall be 1.0 or greater.

Exceptions:

- a. The individual WRR measure does not require an individual SIR of 1.0 or greater.
 - b. WRR funded with Washington State Weatherization Plus Health (State) funds are not included in the SIR calculation.
 - c. WRR funded with LIHEAP funds, up to \$5,000 are not included in the SIR calculation. Any LIHEAP funded WRR repairs without a SIR, exceeding \$5,000 shall receive prior written approval from Commerce.
3. **Budgeting, Tracking, and Reporting WRR Costs:** Weatherization-related repair costs shall be budgeted, tracked, and reported separately from energy saving measures and health and safety costs in Local Agency accounts, in WIDS, and on assessment/audit forms.

4. **Documentation:** The Local Agency shall document WRR requirements. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.

Effective Date: July 2022

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Weatherization Policy

Replaces: NEW (see also LIHEAP-ARP Funding) [Deferral Tracker](#) [Policy 6.9.1, WA State Weatherization Plus Health Funding Exhibit 6.9.1.1A, Provisional Deferral Tracker](#)
[Replaces: NEW \(see also LIHEAP-ARP Funding\)](#) [Exhibit 6.9A, Funding Over-Limit Request Form](#)

See also:

POLICY 5.8.2 WEATHERIZATION READINESS (WRED)

1. **Weatherization Readiness Purpose:** The intent of Weatherization Readiness (WRed) is to enhance, improve, and supplement the Weatherization (Wx) Program. Funding used for WRed is to:
 - a. Repair homes to make them Weatherization ready.
 - b. Prevent deferrals.
 - c. Complete Wx projects currently in deferral or postponed status due to structural, mechanical, and other physical conditions which cannot be addressed otherwise.
 - d. Enable the completion of a Wx Project thereby reducing the need for Energy Assistance, saving energy, and using energy efficiently.
2. **Weatherization Readiness Definition:** Weatherization Readiness (WRed) is necessary repair or correction to physical building related issues required to move Wx Projects forward to completion, not necessarily directly related to energy efficiency measures.
3. **Weatherization Readiness Rules:** Local Agencies shall follow all Weatherization Program requirements except as amended herein.
 - a. **Eligible Clients:** Clients that are income eligible for the Weatherization (Wx) Program are eligible for Weatherization Readiness (WRed).
 - b. **Eligible Projects:** Both Single Family and Multifamily projects are eligible for Weatherization Readiness.
 - (1) **Deferred or Postponed:** Wx projects deferred or postponed for repair needs beyond the scope of Wx, may qualify for WRed.
 - (2) **Weatherization Opportunities:** The purpose of WRed is to complete repairs required to move Wx projects forward to completion.

c. **Project Types**

- (1) **Allowable Project Types:** Necessary repairs or corrections to move Wx Projects forward to completion including, but not limited to:

Examples: Vermiculite, other ACM, Lead, Electrical, Electrical Panel Upgrades, Plumbing, replacing faulty Polybutylene plumbing, limited Roof Repair, and Roof Replacement.

- (2) **Project Types Not Allowed:** Client related issues, including behavioral issues and home improvements unrelated to Weatherization Readiness are beyond the scope including, but not limited to:

Examples: Hoarding, Landlord participation refusal, No Wx opportunities, Remodeling, and Building Additions.

4. **Weatherization Readiness Funding:** Local Agencies shall:

Refer to individual funder policy or contract for specific fund limit or braiding/blending.

- a. **Funders:** Use funding for WRed expenditures as allowed by individual funders, currently: DOE, LIHEAP ARP, BPA, and State funding (in the form of Tier 2 Provisional Program, Non-SIR Repair (NSR), and WRR without SIR).

- b. **Braiding/Blending Funds:** The Local Agency shall:

Refer to Exhibit 6.9A, *Funding Over-Limit Request Form*

- (1) Receive Commerce prior written approval if they braid/blend Weatherization Readiness/Deferral funds on one Wx Project and meet all of the following:

- (a) Braids/Blends funds from more than two (2) funders or fund types (e.g. WRed, NSR, and Tier 2), and
(b) Exceeds \$35,000

5. **Weatherization Readiness Savings-to-Investment Ratio:** WRed costs are not included in the SIR calculation.

6. **Weatherization Readiness Reporting:** Local Agencies shall report:

- a. On the DOE required Exhibit 6.9.1.1A, *Provisional Deferral Tracker*:

- (1) Report all WRed funds (DOE, LIHEAP ARP, and BPA).
(2) Report all Deferral funds (Tier 2 Provisional Program)

- b. In Contract Management System (CMS), using:

- (1) The Weatherization Readiness (WRed) measures budget line on the Request for Reimbursement CMS form, for reimbursement of WRed costs.

- (2) The Deferral measures budget line on the Request for Reimbursement CMS form, for reimbursement of Deferral costs.
 - c. In Weatherization Information Data System (WIDS), using:
 - On the Costs Tab:
 - (1) Choose allowable Funder line to report WRed fund expenditures within Wx Projects.
 - (2) Use the 'Other' column, to enter WRed costs.
 - (3) Use the 'Comments' field to note the tasks completed as WRed measures.
 - On the Measures Tab:
 - (4) Use the 'Other' row (at bottom) and the 'Comment' field to identify the specific WRed measure(s).
 - d. In ECOS using the Weatherization Readiness category
7. **Prevailing Wage:** All Weatherization projects, including Weatherization Readiness are subject to prevailing wage law.

POLICY 5.9.1 MOBILE HOMES

A. Policy

1. The local agency shall weatherize mobile homes in accordance with the State of Washington Weatherization Manual (Policies and Procedures, and Supporting Documents). The following more specific mobile home requirements in **Policy 5.9.1, *Mobile Homes*** take precedence over the general policies.
2. **Underfloor insulation:** Contractors blowing insulation into the cavity between rodent barrier and sub-floor shall install fiberglass insulation only, at a density of 1.5 pounds per cubic foot (lb/cu.ft.). Insulation shall be in substantial contact with the underfloor. Open floor cavities shall be insulated per [Policy 5.4.4, *Floor Insulation*](#).

The belly board (flexible rodent-barrier) shall be complete and intact in areas where insulation is blown-in. The rodent barrier shall be supported as required to avoid sagging.

Holes in the rodent barrier shall be patched with like or similar materials that are stitch stapled or mechanically fastened and glued to the existing rodent barrier with adhesive, mastic, or caulk.

Stitch staples shall be at a minimum size 9/16, type galvanized or stainless, and gauge 4M. Patches shall be sealed with caulk, glue, mastic, or adhesive (peel & seal) and have a minimum number of 4 staples per patch.

Holes in the rim joist used to install insulation in the cavity between the belly board and sub-floor shall be plugged with wooden plugs glued in place with an exterior-rated sealant.

a. **Skirting:**

Repair or replacement is considered a weatherization-related repair and shall be included in the package of measures and meet an SIR of 1 or greater. If skirting is not present all insulation and ductwork installed by the program shall be protected.

3. **Ceiling insulation:** Installation of ceiling insulation in crowned and flat roofs shall be installed to a minimum R-38 or the highest practical R-value, filling the entire attic cavity.

a. **Ventilation:**

Attics with pitched roofs where the insulation does not fill the cavity shall be ventilated per Section 6, Attic/Ceiling Insulation.

Chapter 5 Providing Weatherization Services
Policy 5.9.1 Mobile Homes

b. Patching insulation access holes in roofing:

Contractors shall patch all holes created to install attic insulation. Holes shall be patched to prevent intrusion of bulk moisture. Patches on roofs shall be installed in a manner that ensures they are as durable as and last the life of the existing roofing.

Access holes created to install attic insulation shall not compromise the structural integrity of the roof system.

4. Exterior roof insulation: Contractors shall determine that the ceiling/roof system is structurally adequate to support the combined weight of all materials imposed on the ceiling/roof system including insulation that may be installed in the attic cavity.

a. Attic cavity fill:

Contractors shall fill the attic cavity between the ceiling and roof with insulation prior to applying exterior ceiling/roof insulation.

b. Insulation and membrane:

Contractors shall install a minimum 2 inches of rigid extruded polystyrene or polyisocyanurate insulation covered with an EPDM or PVC membrane.

c. Securing insulation boards:

Contractors shall secure insulation boards to the roof structure using fender washers with a minimum diameter of 1 inch, and screws long enough to penetrate the roof trusses a minimum of 1 inch.

Screws shall be attached to the roof trusses every 30 inches. The maximum distance between screws is 30 inches.

Screw heads shall not project above the rigid board insulation.

d. Roof membranes:

Roofing membranes shall cover the existing roof and extend down the wall. The membrane shall be secured to the wall in a manner that prevents water intrusion into the wall cavity. The roofing system shall be sufficiently rigid and sloped to prevent “ponding” or “pooling” of water on roof surface after installation.

Chapter 5 Providing Weatherization Services
Policy 5.9.1 Mobile Homes

e. Roofing projections:

All existing exhaust fan terminations, plumbing vent stacks, and combustion appliance vent stacks shall extend through the new exterior roof insulation and terminate in an airtight and water-tight manner.

- (1) All combustion appliance vent stacks shall be extended, if necessary, to meet applicable HUD code and appliance manufacturers' specifications for minimum height of the vent stack termination above the new roof level.
 - (2) New vent caps for exhaust fans shall not be of smaller diameter than the duct or pipe projecting through roof, shall allow free flow of air, and shall supply a net free ventilation area (NFA) not less than 60% of the size of the duct or pipe (Example: A vent cap installed on a 7 inch diameter bathroom fan exhaust duct shall have a minimum diameter of no less than 7 inches, and provide an NFA of no less than 23 square inches).
 - (3) Ducts or pipes shall be sealed to the inside of the vent cap to prevent the entrance of exhaust air or gases into the ceiling cavity. Where the existing vent duct or fan housing does not adequately project above the roof surface to allow sealing it to the inside of the new vent cap, add a section of not less than 26 gauge galvanized steel duct of the same diameter as the existing duct or fan housing. The rigid duct section shall overlap the existing duct or fan housing by a minimum of 1 inch and not extend above the bottom of the vent openings in the vent cap.
 - (4) Fan/duct extensions shall be sealed to the outside of the existing duct or fan housing and to the inside of the vent cap with a continuous bead of silicon caulk.
 - (5) Vent caps for all kitchen exhaust fans shall be made of metal and sealed to the fan exhaust duct and roof cap with high temperature silicon.
 - (6) All roof penetrations shall be flashed with membrane compatible materials.
5. **Wall insulation:** Mobile home wall insulation can be installed on a case by case basis, where the Savings-to-Investment Ratio (SIR) is 1 or greater, depending on the type and construction of the mobile home. If installing wall insulation it should be done in a manner that fills the wall cavity.

a. Installation

Insulation shall be installed between the exterior side of the existing insulation and the interior side of the exterior wall.

Chapter 5 Providing Weatherization Services
Policy 5.9.1 Mobile Homes

b. Insulating wall cavities with an existing vapor-retarder

When a vapor-retarder is present on the interior side of the existing insulation, install the new insulation on the exterior side of the existing insulation.

c. Securing siding

If metal siding panels have been removed or opened to facilitate installation of insulation reinstall panels in a secure manner to prevent panel separation and water intrusion.

Fasteners used for securing wall panels shall be gasketed, corrosion resistant, self-tapping screws.

- 6. Exterior water heater closets:** Where it is not practical to insulate water heaters the water heater closet exterior door shall be insulated to minimum R-11. The exterior door and interior of the closet shall be air sealed to prevent air infiltration.

a. Exterior water heater closet with combustion appliance

Exterior water heater closets with a combustion appliance shall have combustion air inlets that meet International Mechanical Code standards.

b. Mobile Home Air sealing

All considerations from Specifications Section 5 should be included in the air sealing of a mobile home with attention to all accessible marriage lines in a multi-section unit.

[2020 Standard Work Specifications \(SWS\)](#)
[Multifamily Weatherization Specification](#)

CHAPTER 6

ALLOWABLE COSTS and FISCAL

See also
[Policies and Procedures – P](#)
[Multifamily Policies – M](#)
[Specifications – S](#)
[Exhibits – E](#)
[Definitions – D](#)

SECTION 6.1 GENERAL STANDARDS FOR ALLOWABLE COSTS

A. Policy

1. Allowable weatherization costs shall be:
 - a. Reasonable for the performance of the contract and of benefit to the program for which the funds are provided.
 - b. Allocated to the contract under these policies.
 - c. Conform to any limitations or exclusions set forth in these policies or in the contract as to type or amount of cost of items.
 - d. Consistent with policies and procedures that apply uniformly to other activities of the organization and are accorded consistent treatment.
 - e. Determined in accordance with generally accepted accounting principles.
 - f. Adequately documented.
2. Correction of pre-existing code compliance issues is not an allowable cost other than where weatherization measures are being conducted.

B. Procedure

1. Local Agency files shall include all required expenditure documentation.
2. See funding source Special Terms and Conditions, Policies and Procedures, or Policies and Guidelines for allowable costs specific to each funding source.
3. See [Chapter 5, Providing Weatherization Services](#), for allowable weatherization measures and fund source limitations & allowances.

Effective Date: July 2017

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Weatherization Policy

See also:

[Section 8.7, Reporting and Reimbursement of Expenses](#)

[Section 6.8, Audits](#)

[Section 8.4, Subcontracting](#)

[Chapter 8, Program Management, Administration, and Reporting](#)

[Section 6.6, Equipment](#)

[Section 8.12, Inventory Control](#)

[OMB 2 CFR Part 200, Uniform Guidance](#)

Replaces: Section 6.2 – July 2012

POLICY 6.2 GENERAL STANDARDS OF FISCAL ACCOUNTABILITY

1. Method of Compensation:

Commerce will reimburse local agencies for all allowable costs upon receipt of authorized requests for reimbursement as directed by Commerce. See **Section 8.7, Reporting and Reimbursement of Expenses**.

2. Accounting and Auditing:

Local Agencies are responsible for complying with all applicable guidelines and procedures, demonstrating responsible management of cash flow, inventory control, equipment purchase, and administrative costs. See **Section 6.8, Audits**.

3. Subcontracting:

- a. Subcontractors shall be selected using competitive procedures among potential bidders for weatherization services. See **Section 8.4, Subcontracting**.
- b. Procurement procedures and pertinent contracts will be reviewed during the annual monitoring process.

4. Record-keeping:

- a. Local Agencies shall keep records that fully disclose the following:
 - (1) Amount and disposition of funds received.
 - (2) Total Installed Measure Cost of a weatherization project.
 - (3) Total Building Cost by funding source,
 - (4) Source and amount of funds used from all funding sources.

- b. Records shall be retained for six years from the last financial audit or the completion of the length of commitment, whichever is later.

5. Reporting:

Local Agencies will provide reports or answers in writing to specific questions or surveys requested by Commerce or its funding sources by the specified deadline. See **Chapter 8, Program Management, Administration, and Reporting.**

6. Purchasing Equipment:

- a. All purchases of equipment with values exceeding \$5,000 require Commerce written approval.
- b. Requests for vehicles purchased with DOE funding require prior written DOE approval. Allow 90 days for DOE review.
- c. See **Section 6.6, Equipment** for additional policies, including procurement with multiple fund sources and equipment sharing with non-weatherization programs.

7. Securing Commerce's Interest in Motor Vehicles, Equipment, and Fixtures:

Local Agencies are responsible for ensuring Commerce's financial interest in motor vehicles, equipment, and fixtures with purchase values of \$10,000 or more, purchased under Commerce contracts. See **Section 6.6, Equipment**, for additional policies.

8. Inventory Control

Local Agencies are required to maintain an inventory of materials and non-expendable tools and equipment. See **Section 8.12, Inventory Control.**

9. Authorized Expenditures

OMB 2CFR Part 200, Uniform Guidance is used as general guidelines for determining which weatherization costs are allowed.

- a. Exceptions exist where costs conform to specific categories in the applicable contract, policies and procedures, weatherization budget, state law, or local ordinance.
- b. Commerce determines the proper interpretation of the federal or state procedures as they relate to costs allowed or prohibited under this program.

Effective Date: January 1, 2021

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Weatherization Policy

Replaces: Section 6.3 – July 2017

See also:

[OMB 2 CFR Part 200, Uniform Guidance](#)
[Section 6.4, Program Operation Costs](#)

POLICY 6.3 ADMINISTRATIVE COSTS

1. **Defining Administrative Costs:** Administrative costs are costs associated with those functions of a general nature not clearly identifiable with a program. These functions include planning, budgeting and accounting, and establishment and direction of local agency policies, goals, and objectives.
2. **Allowing Administrative Costs:** Allowable administrative costs include costs associated with functions such as:
 - a. General board/committee meetings.
 - b. Executive Director.
 - c. General staff meetings.
 - d. Office management.
 - e. Accounting, auditing, and budgeting.
 - f. Corporate legal services.
 - g. Personnel management.
 - h. Purchasing and distribution of supplies.
 - i. Insurance and bonding.
 - j. Receptionist, switchboard, mail distribution, filing, and other central clerical services.
 - k. Word processing and computer services.
 - l. Computer equipment used for administrative functions.
 - m. Organizational and procedure studies.
 - n. General record keeping.
 - o. Office space/facilities lease or rental – including outstations.

- p. Utilities in the office space/facilities.
- q. Postage.
- r. Duplicating/copying.
- s. Telephone equipment and services.
- t. Administrative staff training.
- u. Applicable state and local taxes.
- v. General personal liability and property insurance (Liability insurance for onsite work is a program cost. See **Section 6.4, *Program Operation Costs***.)

DOE allows general personal liability and property insurance to be charged to the liability line item of the contract.

3. Charging Program Services to Program Support, not Administration:

Personnel typically identified as administration may relate, at times, more directly to program activities than to administration. Even some hours of “management staff” may be properly allocated to program support costs, but only if the positions are not included in an indirect cost pool.

4. Cost Allocation Plans:

Local Agencies shall ensure their Cost Allocation Plans used to spread central administrative costs across local agency programs are in accordance with the **OMB 2 CFR Part 200, *Uniform Guidance***.

5. Indirect Rates:

- a. Local Agencies may apply a federally approved indirect cost rate to charge administrative costs only if both of the following conditions are met:
 - (1) The agency has an approved indirect cost agreement with a cognizant federal agency.
 - (2) The indirect cost agreement precludes the application of the indirect rate to direct client benefits in this program.
- b. The application of indirect cost charges may not result in exceeding applicable contract budget limits.

6. Submitting Cost Allocation Plans:

Each local agency shall annually submit a copy of its cost allocation plan to Commerce with its General Weatherization Work Plan.

7. Documenting Administrative Costs:

Local Agency files shall include the following documentation:

- a. All applicable administrative costs.
- b. Auditor approval of cost allocation plan.
- c. Indirect cost agreement approval letter.

Effective Date: January 1, 2021

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Weatherization Policy

See also:

[Exhibit 6.1, Weatherization Program Fiscal Definitions](#)
[Section 5.7, Renewable Energy Systems](#)
[Section 6.4.1, Compliance with Federal Rules for Use of Recycled Insulation Materials](#)
[Policy 5.1.5 Low-Cost/No-Cost](#)
[Policy 5.8.1, Weatherization-Related Repair](#)
[Chapter 9, Health and Safety](#)
[OMB 2 CFR Part 200, Uniform Guidance](#)

Replaces: Policy 6.4 – July 2018

POLICY 6.4 PROGRAM OPERATION COSTS

1. Program operation costs are costs that can be clearly identifiable with a program and are comprised of Weatherization Measures, Health and Safety Measures, Weatherization-Related Repair Measures, Program Support, Vehicle and Equipment, and Other Program Operations. See **Exhibit 6.1, Weatherization Program Fiscal Definitions**.
 - a. **Installed Measure Costs:** Installed Measure Costs include the Budget Categories of Weatherization Measures (WxM), Health and Safety Measures (H&S), and Weatherization-Related Repair Measures (WRR). Examples of Installed Measure Costs (IMC) include:
 - (1) Securing building permits when necessary for the installation of weatherization measures.
 - (2) Approved renewable energy systems (DOE funds only). See **Section 5.7, Renewable Energy Systems**
 - (3) Material Costs
 - (a) Material costs charged by a subcontractor.
 - (b) Purchase and delivery of materials. See **Section 6.4.1, Compliance with Federal Rules for Use of Recycled Insulation Materials**, for procurement guidance for recycled insulation materials.
 - (c) Storage or warehousing of weatherization materials.
 - (d) Payment of staff involved in purchasing, inventory, and distribution of weatherization materials.
 - (e) Payment for labor involved in fabricating materials.
 - (4) Labor Costs
 - (a) Labor costs charged by a subcontractor.
 - (b) Local Agency weatherization crew costs (salary and benefits).
 - (c) Supervisory on-site labor such as crew chiefs.

b. Splitting Installed Measure Costs:

- (1) Local Agency may split costs for one measure between Fund Sources.
- (2) Local Agency is encouraged not to split costs for one measure between Installed Measure Costs (IMC) Budget Categories. Clear delineation between IMC Budget Categories and alignment with the measure justification will result in cleaner data.
 - (a) **Splitting IMC:** There are some instances where, depending on circumstances, the measure can qualify as either a WxM or a H&S measure such as heating or cooling system replacement. Local Agency is encouraged not to charge a percentage of costs for this one measure to both WxM and H&S. When the measure can be cost-justified, the measure shall be treated as an WxM.
 - (b) **Secondary H&S Justification:** The measure may be considered for H&S repair or replacement only after it is determined that the measure is not cost-effective. The rationale for performing each H&S measure in an individual home and its relationship to the WxM that necessitated it shall be clearly documented in the client file (project file).

Examples:

- (1) Installing dense pack sidewall insulation in a pre-1978 house with lead-based paint on the walls, the RRP costs can be charged separately as H&S cost. Everything specific to RRP that would not have happened otherwise during installation, may be charged as a H&S costs.
- (2) Costs of containing asbestos when removing a furnace. The furnace removal is conducted in order to install the new furnace as part of the efficiency measure and those costs are part of the SIR. If the old furnace is covered in asbestos, the extra costs incurred because of the WPN 22-7 requirement to hire an asbestos control professional and take certain precautions during removal can be charged separately as H&S cost.
- (3) Surface preparation where WxM are being installed (e.g., cleaning mold off window trim in order to apply caulk) shall be charged as part of the WxM, not to the H&S budget category.

c. Program Support Costs - Examples include:

- (1) Weatherization audit and inspection.
- (2) Client Education

- (3) Direct supervision of program services and other direct program management/oversight responsibilities.
- (4) Intake and outreach staff.
- (5) Printing.
- (6) Office space and utilities.
- (7) Telephone calls.
- (8) Copying.
- (9) Postage.
- (10) Equipment, vehicle, and tool maintenance—including computer and other electronic equipment and software used by weatherization program activities.
- (11) Lease or rental of tools, equipment, and vehicles.
- (12) Low-Cost/No-Cost Wx Activities. See **Policy 5.1.5 Low-Cost/No-Cost**.

d. Purchasing Vehicle and Equipment Costs- Examples include:

- (1) Purchase of vehicles.
- (2) Equipment and tool purchase—including computer and other electronic equipment and software used by weatherization program

e. Other Program Operations Costs - Examples include:

- (1) Financial Audit
- (2) Liability Insurance
 - (a) Program-related liability insurance—including POI insurance.
 - (b) Payments for liability insurance covering personal injury and property damage for on-site work.
 - (c) Liability insurance for onsite work.
- (3) Leveraging expenses used to increase the amount of weatherization assistance from non-Federal sources, including private sources such as utilities.

2. Combined Funds

- a. When non-Commerce funds (such as utility funds) are combined with Commerce funds on a weatherization project, Commerce's share will be the minimum amount necessary to complete the weatherization work after funds from the other sources are used.
- b. Commerce funds for weatherization shall not be used to supplant other funds or programs.

3. Building Cost and Unit Cost Calculations

- a. For each Weatherization project, Building Costs are calculated for any given time period and funding source(s) and are the sum of the following:
 - (1) Installed Measure Costs (IMC) from WIDS
 - (a) Weatherization Measures (Wx)
 - (b) Weatherization-Related Repair Measures (WRR)
 - (2) Program Support Costs from the monthly Requests for Reimbursement. The Program Support costs are allocated in a reasonable and consistent manner in accordance with **OMB 2 CFR Part 200, *Uniform Guidance***.
- b. Single-Family Projects are one unit per building. The Unit Cost (cost per unit) is the same as Building Cost.
- c. Multifamily Projects are multiple units per building. To determine Unit Cost for each building, divide the total calculated Building Cost by the total number of units entered in WIDS.
- d. Program Support costs calculated on a Monthly and Quarterly basis for use in assessing agency performance will be considered to be temporary only.
- e. The final total Building and Unit Costs will be determined for each funding source at contract closeout.
- f. The following costs are NOT included in Building Cost (Unit Cost):
 - (1) Administration
 - (2) Health and Safety Measures Costs
 - (3) Other Program Operations Costs
 - (a) Financial Audits
 - (b) Liability Insurance
 - (c) Leveraging Costs
 - (4) Training and Technical Assistance Costs
 - (5) Special Project Costs

4. State and Local Taxes

- a. Charge applicable state and local taxes on purchases to the same budget category and funding source as the purchased item or service.
- b. Local Agencies making weatherization improvements under the weatherization program for low-income homeowners or renters are eligible for exemption from state sales tax and use tax. See Washington State Department of Revenue Special Notice: [*Sales and Use Tax Exemption for the Weatherization Assistance Program*](#). Purchases of qualified materials shall be accompanied by a [*Buyers' Retail Sales Tax Exemption Certificate*](#).

See our Frequently Asked Question for more information: [*Tax Exemption*](#)

B. Procedure

1. Local Agencies shall organize all bookkeeping and production records systems to account for the different cost allowances and budget categories of the various funding sources involved.
2. Local Agencies shall report program expenditures to Commerce as required.
3. See **Chapter 5, *Providing Weatherization Services***, for allowable weatherization measures and fund source limitations & allowances.

SECTION 6.4.1 COMPLIANCE WITH FEDERAL RULES FOR USE OF RECYCLED INSULATION MATERIALS

A. Policy

1. Commerce and local agencies shall comply with Environmental Protection Agency (EPA) regulations regarding the use of recycled materials (40 CFR 247.12, Comprehensive Procurement Guideline for Products Containing Recovered Materials (www.epa.gov/)).
 - a. Local Agencies are required to make good faith efforts to procure insulation products that contain recycled materials.
 - b. Exceptions to this policy may be made only if the following conditions can be documented:
 - (1) Inability of the product to perform its intended purpose.
 - (2) Unavailability of the product at a reasonable price.
 - (3) Inability to obtain the product within a reasonable period of time.
 - (4) Inadequate number of vendors for obtaining and verifying estimates of recovered materials content to insure a satisfactory level of competition at the time of procurement.
2. In addition to meeting procurement specifications, local agencies shall establish an affirmative procurement program consisting of four items (a through d).
 - a. Preference program for purchasing designated items.
 - (1) EPA regulations provide three general approaches:
 - (a) Minimum content standards that identify the minimum content of recovered materials that an insulation product shall contain.
 - (b) Case-by-case procurement, allowing competition between insulation products made of new materials and those with recovered materials.
 - (c) An alternative approach that accomplishes the same objectives as a) and b).
 - (2) EPA regulations recommend that the procuring agency use minimum content amount for commercially available insulation products that may contain recovered materials. These include:
 - (a) Cellulose, loose fill, and spray-on (75 percent post-consumer recovered paper by weight).

Chapter 6 Allowable Costs
Section 6.4.1 Compliance with Federal Rules
for use of Recycled Insulation Materials

- (b) Perlite composite board (23 percent post-consumer recovered paper by weight).
- (c) Rock wool (50 percent recovered materials).
- b. Promotion program.
- c. Procedures for obtaining estimates and certifications of recovered materials content and for verifying the estimates and certifications.
- d. Annual review and monitoring of the effectiveness of the program.
- 3. Further guidance is provided in the See *Specifications*

B. Procedure

- 1. Local Agencies shall allow Commerce access to all affirmative procurement program documentation upon request.
- 2. Local Agency files shall contain the following documentation:
 - a. Procurement conditions that prohibit compliance with 40 CFR 247.12.
 - b. Verification the agency is in compliance with EPA's affirmative procurement program.
- 3. See *Specifications*

Effective Date: October 1, 2020

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Weatherization Policy

Replaces: Section 6.5 – July 2017

See also:

[10 CFR 440.23](#)

[Exhibit 6.5A, Training and Technical Assistance Expense Form](#)

[Exhibit 6.5B, Peer Exchange Proposal Form](#)

POLICY 6.5 TRAINING AND TECHNICAL ASSISTANCE COSTS

1. Expenditure of contract funds awarded specifically for training and technical assistance (T&TA) purposes are subject to the following conditions:

a. Training shall have direct application and benefit to local agency weatherization programs and assigned staff.

Local Agencies shall document how other programs will share the training costs, if the training is not strictly for the benefit of the weatherization program staff.

b. Priority is given to direct training opportunities for staff, crews, and subcontractors.

c. Staff salaries while attending training, providing training, traveling to and from training, and participating in on-the-job training is an allowable expense. Equipment and materials related to training may also be purchased with these funds, with appropriate written justification and prior approval from Commerce.

d. Subcontractors under contract to Local Agencies, training fee, subcontractor's time during training, travel, and per diem expenses are allowable expenses, if investment in the subcontractor is a benefit for the Wx Program.

e. T&TA funds cannot be used for:

(1) Salaries not related to training activities;

(2) Vehicle or equipment purchases; or

(3) Program costs.

2. Local Agencies shall complete the **Exhibit 6.5A, Training and Technical Assistance Expense Form**.

a. Local Agencies shall include all names and titles of individuals attending training.

b. Local Agencies shall keep Training and Technical Assistance Expense Forms on file for review by Commerce field representatives.

3. Commerce may occasionally reimburse local agency costs for providing, or travel to receive, training and technical assistance through the Peer Exchange Program.
 - a. Prior Commerce approval is required for this reimbursement.
 - b. Local Agencies shall submit the **Exhibit 6.5B, *Peer Exchange Proposal Form*** to Commerce.

Effective Date: July 2021

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Weatherization Policy

See also:

[Exhibit 6.6A, Vehicle or Equipment Purchase Request and Approval Form](#)

[Policy 8.12, Inventory Control](#)

[Policy 8.12.1, Disposition of Vehicle or Equipment \(Non-Expendable\)](#)

[Exhibit 8.12.1A, Vehicle or Equipment Disposition Form](#)

[Exhibit 8.12.1BA, Final Disposition Report Form](#)

[10 CFR 600.236 Procurement](#)

[OMB 2 CFR Part 200, Uniform Guidance](#)

<https://www.dol.wa.gov/>

<http://apps.leg.wa.gov/rcw/>

Replaces: Policy 6.6 – January 1, 2021

POLICY 6.6 PURCHASING VEHICLE OR EQUIPMENT (Non-Expendable)

1. **Purchasing Vehicle or Equipment (Non-Expendable):** Purchase of a vehicle or equipment shall comply with **OMB 2CFR Part 200, *Uniform Guidance*** and the State of Washington Weatherization Manual (Wx Manual) Policy. Requirements vary based on the per-unit [Acquisition Cost](#) threshold of five thousand dollars (\$5,000) amount.
 - a. **\$5000 or More – Approval Required:** All vehicle or equipment purchases with Weatherization (Wx) Program federal and state funds and which have a per-unit acquisition cost of \$5,000 or more and a useful life of more than one year, require:
 - (1) **Submitting a Request Form:** Local agencies shall submit an **Exhibit 6.6.A, *Vehicle or Equipment Purchase Request Form***, including:
 - (a) Three quotes from different vendors or quotes through Washington State Department of Enterprise Services (DES).
 - (b) Statement that low bid will be selected or sufficient justification of “best value selection,” if low bid is not chosen for awarding agency approval.
 - (c) Attach current Local Agency Procurement Policy.
 - (d) Bid Analyses: Local Agency shall identify which bid they chose and why.
 - (2) **Receiving Prior Written Approval:** Local Agencies shall receive prior written approval from Commerce on ***Purchase Request Form***.
 - (a) If Local Agency uses Department of Energy (DOE) funding for acquisition, this includes prior written approval from DOE Project Officer. Allow 90 days for DOE review

- b. **Less than \$5000:** All purchases with Weatherization (Wx) Program federal and state funds and which have a per-unit acquisition cost of less than \$5,000, require:
 - (1) **Vehicle:** Local Agencies shall notify Commerce using **Exhibit 6.6.A, Vehicle or Equipment Purchase Request Form** prior to purchase.
 - (2) **Equipment:** Does NOT require approval or notification.
2. **Using Local Agency Procurement System:** Local Agencies shall use their established procurement policies and procedures in accordance with 2 CFR Part 200. Within this policy are the specific procurement requirements for the Wx Program.
3. **Funding Options:**
 - a. **Lease or Purchase:** Local Agencies shall evaluate options to lease versus purchase on equipment and vehicles, if lease is applicable.
 - b. **Funders:** Local Agencies shall explore funding options to acquire vehicles and equipment other than the permissible Commerce administered funds (DOE, LIHEAP, or BPA). Commerce administered funds shall only be used, after exploring all other options.
 - (1) **DOE Funding:** When DOE funding is used to purchase vehicles or equipment, Local agencies shall follow DOE Allowances:
 - (a) 10 CFR 440.18: For the purposes of determining the average cost per dwelling limitation, costs for the purchase of vehicles or other certain types of equipment may be amortized over the useful life of the vehicle or equipment.
 - (b) Trade-in of previously acquired vehicle or equipment of \$5,000 or more is allowed with DOE approval. See **Policy 8.12.1, Disposition of Vehicle or Equipment (Non-Expendable)**.
 - (c) DOE would not need to approve a vehicle lease that does not include a “purchase option.” If a lease-purchase option is proposed, regardless of the purchase price, DOE would need to approve the purchase of the vehicle.
 - (2) **Washington State Weatherization Plus Health (State) Funding:** Vehicle purchase with State funds is not allowable.
4. **Vesting Title:** Title shall vest in Local Agency subject to the following conditions. Local Agency shall:
 - a. **Use Vehicle or Equipment** in Wx program as long as needed. If no longer needed see **Policy 8.12.1, Disposition of Vehicles or Equipment** for requirements
 - b. **Not encumber** the property without prior written approval from Commerce.

- c. **Share Vehicle or Equipment:** While vehicle or equipment is used in Wx, the Local Agency may also make available for use in other programs provided such use will not interfere with Wx work. If vehicle or equipment is shared with other Local Agency's programs, the Local Agency shall:
 - (1) **Notify Commerce.**
 - (2) **Non-Federal Program:** Consider user fees, if appropriate
 - (a) Purchase with funding sources in the same proportion as planned use, or
 - (b) Keep use records and charge all programs a proportional share for usage.
 - (3) **Fee-for-Service:** Local Agencies are encouraged to earn Program Income. However, Local Agencies shall charge a fee no less than private sector rates (e.g. IRS mileage rate, Rental company fee)
5. **Insuring Vehicle or Equipment:** Local agencies shall provide insurance liability coverage for vehicle or equipment at a minimum of \$1,000,000 automobile liability coverage per occurrence. See **Wx Program Contract, *Special Terms and Conditions*** for requirements and more information.
6. **Managing Vehicle or Equipment until Disposition:** Local Agencies shall maintain, report, and reconcile inventory records until disposition. See **Policy 8.12, *Inventory Control*** and **Policy 8.12.1, *Disposition of Vehicles or Equipment***.
7. **Securing Interest in Vehicles or Equipment:** Local agencies are responsible for ensuring the Wx Program's financial vested interest in vehicle or equipment with purchase values of \$5,000 or more, purchased under Commerce contracts.
8. **Reporting Final Purchase:** Local Agencies shall report to Commerce the final purchase to align the inventory records in accordance with **Policy 8.12, *Inventory Control***.
9. **Documentation Required:** Procurement records and Local Agency files shall include a copy of the completed **Exhibit 6.6A, *Vehicle or Equipment Purchase Request Form*** and all the applicable supporting documentation, as follows:
 - a. **Reason and Purpose** for Vehicle or Equipment purchase, and if purchase is shared.
 - b. **For Replacements:** Correlating **Exhibit 8.12.1A, *Vehicle or Equipment Disposition Form*** and **Exhibit 8.12.1BA, *Final Disposition Report Form***
 - c. **For Lease Considerations:** If lease option is applicable,
 - (1) Lease Cost Analysis
 - (2) Lease Terms and Conditions

d. **Attach Copies:**

- (1) Vehicle and Equipment Inventory List
- (2) Local Agency Procurement Policy and Process:
 - (a) Local Agency shall indicate all Procurement Policy sections which apply to purchase
- (3) Bid Specification for Vehicle or Equipment, as provided to vendors
- (4) Three (3) Quotes/Bids, as received from vendors

e. **Summary Description** of vehicle or equipment requested, as included in bid specification and procurement process.

f. **Recap of the the three (3) Quotes/Bids**

- (1) For a side-by-side comparison
- (2) Identifying if the specification was met

g. **Bid Analyses:**

- (1) Disclosing if lowest bid was chosen, or
- (2) Providing a “best value selection” justification, if lowest bid was not chosen
- (3) Statement of which bid chosen and why

h. **Authorized Signature:** Signature of authorized person certifying signatory statement that purchase will be in accordance with all applicable rules.

i. **Commerce Approval** including:

- (1) DOE approval for vehicle or equipment purchased with DOE funds.
- (2) DOE approval for any trade-in whose current fair market value is \$5,000 or more, when making a replacement purchase.

Effective Date: September 19, 2016

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Weatherization Policy

Replaces: Section 6.7 – July 2015

See also:
[Exhibit 6, Fund Matrix](#)
[Exhibit 6.7, Budget Revision Request Form](#)
same as, *Weatherization Grant Budget Change Request Form*

POLICY 6.7 BUDGET REVISIONS

1. **Locating Approved Local Agency Budgets:** Approved budgets for local agencies are included on the Face Sheet and Attachment B – Budget of the grant document.
2. **Transferring Funds between Budget Category Line Items:**
 - a. **Less than or equal to 5%:** Local Agencies may make budget revisions less than or equal to five percent (5%) of the Program Operations total without submitting a *Budget Revision Request Form*.
 - b. **More than 5%:** Local Agencies shall submit budget revisions more than five percent (5%) of the Program Operations total in writing (email acceptable) with **Exhibit 6.7, Budget Revision Request Form** to a Commerce Weatherization Program Manager. Local Agencies shall receive budget revision approval prior to submitting expenditure reports reflecting the revisions.
3. Allowable budget category line item transfers include:
 - a. Administrative funds may be transferred to Program Operations.
 - b. Program Operations are broken down into the following categories. Local Agencies may transfer funds between these categories based on certain parameters. Please see **Exhibit 6, Fund Matrix** for more details.
 - (1) Weatherization Measures (WxM)
 - (2) Health and Safety Measures (H&S)
 - (3) Weatherization-Related Repair Measures (WRR)
 - (4) Program Support Costs (PSC)
 - (5) Vehicle and Equipment
 - (6) Other Program Operations Costs (Financial Audit, Liability Insurance, and Leveraging)

- c. All Training and Technical Assistance (T&TA) transfers require written approval from a Commerce Weatherization Program Manager.
 - (1) Local Agency shall submit any T&TA budget category fund transfer requests in writing with an **Exhibit 6.7, Budget Revision Request Form**. Local Agencies shall receive budget revision approval prior to submitting expenditure reports reflecting the revisions.
 - (2) Local Agencies may only transfer T&TA funds to WxM. Funds from other categories cannot be transferred into T&TA.
 - (3) Before approval, Commerce will evaluate whether an agency has sufficient staff training.
 - (4) If the request is approved, the T&TA budget category amount shall comply with the funder's minimum and maximum T&TA expenditure requirements.
4. **No Adjusting after Contract Termination:** No changes to the contract are allowed after the contract is terminated.
5. **Documenting Budget Adjustments:** Local Agencies shall retain records of all Commerce approved budget revisions and provide those records upon request.

Effective Date: January 1, 2021

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Weatherization Policy

Replaces: Section 6.8 – July 2015

See also:
[OMB 2 CFR Part 200, Uniform Guidance](#)

POLICY 6.8 AUDITS

1. **Annual Audit:** All program funds made available to Commerce Local Agencies will be audited annually in accordance with the following:
 - a. Generally accepted accounting principles (GAAP).
 - b. The Office of Management and Budget (OMB) Compliance Supplement for Single Audits of State and Local Governments.
 - c. **OMB 2CFR Part 200, Uniform Guidance**
 - d. All state and federal laws and regulations governing the programs in which local agencies participate.
2. **Funding Annual Audit:** Costs of audits will be incorporated into Commerce's contracts, charged to the Local Agency's Other Program Operations category of expenditure.

If local agencies meet the threshold contained in **OMB 2CFR Part 200, Uniform Guidance**, DOE allows the costs of financial audits to come off the top of the contract.
3. **Auditors:** Local Agency auditing will be conducted by any of the following entities:
 - a. Office of State Auditor.
 - b. Local Agency selected single independent Certified Public Accountant (CPA) firm.
4. **Auditor Qualifications:** Before engaging an auditing firm to perform an audit, Local Agencies shall confirm auditors are licensed to perform work in Washington State, have experience with the *Uniform Guidance* and single audits, and meet required independent CPA provisions. Auditor shall provide positive assurance documentation to Local Agency, including but not limited to: a copy of their latest Peer Review, annual training.
5. **Review Audit Procedure:** Local Agencies shall allow Commerce access to all audit reports upon request, and if applicable, audit-finding action plans.

Effective Date: March 16, 2022

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Weatherization Policy

See also:

[Weatherization Program Notice 16-5, Multifamily Weatherization Memorandum 035, Weatherization Leveraging Policy 1.1.2, Determining Income Eligible Clients](#)
[Policy 9.2.1, Plus Health \(Wx+H\)](#)
[Exhibit 6.9A, Funding Over-Limit Request Form](#)

Replaces: Policy 5.8.2 – September 8, 2021

POLICY 6.9.1 WASHINGTON STATE WEATHERIZATION PLUS HEALTH (STATE) FUNDING (formerly known as Matchmaker Funding)

1. **Washington State Weatherization Plus Health (State) Funding** – Provides:
 - a. **Tier 1: Weatherization Program**
 - (1) Weatherization (Wx) Services to low or very low-income households and follows existing Wx Manual.
 - (2) Healthy Homes improvements (Plus Health (+H) Measures) into Wx projects and follows Policy 9.2.1, *Plus Health Program*,
 - (3) Repairs necessary for the effective performance or preservation of Wx materials and follows Policy 5.8.1, *Weatherization-Related Repair (Incidental Repair)* or Policy 5.8.2, *Weatherization Readiness (WRed)*, and
 - (4) Leverage for federal funding to supplement individual Wx Measure costs in Wx projects, single-family dwellings as well as multifamily buildings.
 - b. **Tier 2: Provisional Program**

Refer to Policy 6.9.1.1, *Deferral Program*
Refer to Policy 6.9.1.2, *Fuel Switching Program*

 - (1) Depending on available funding, Commerce will implement provisional programs to allow additional measures supplementing the Wx Program, for a limited time.
2. **State Funding Income Eligibility:** Local Agency shall:

Refer to Policy 1.1.2, *Determining Income Eligible Clients* for requirements.

 - a. Qualify clients through one of the following:
 - (1) **WAP Eligibility:** Weatherization Assistance Program (WAP) specific thresholds either 200% FPL (Federal Poverty Level) or 60% SMI (State Median Income), whichever is greater.

- (2) **Qualified Eligibility – Categorical Income Eligibility:** All qualified LIHEAP-EA clients or HUD means-tested clients automatically qualify for Weatherization.
 - (a) Washington State Low Income Home Energy Assistance Program (LIHEAP-EA) threshold is 150% FPL as published by Department of Health and Human Services (HHS). All qualified LIHEAP-EA clients will qualify for Wx Services, or
 - (b) Department of Housing and Urban Development (HUD) means-tested Federal public assistance programs use an income threshold is 80% AMI (Area Median Income). All qualified HUD means-tested clients will qualify for Wx Services.
- (3) **State Funding Only Eligibility:** If a Local Agency is only using State funds for Installed Measure Costs (IMC) in a Wx project, then they are allowed to qualify the client income eligibility at 80% AMI, if greater than 200% FPL or 60% SMI.
 - (a) **Optional:** Use of the 80% AMI threshold is optional for Local Agencies, as not to add excessive administrative burden.
 - (b) **Priority:** Local Agencies shall prioritize clients that qualify under 200% FPL or 60% SMI, before clients that qualify under 80% AMI.
 - (c) **State Funds Only:** A Wx project, in which clients qualify directly for the Wx Program using 80% AMI threshold, is restricted to using State funding only. No federal funds shall be used to install measures (IMC) on this Wx project.

3. State Funding Limits

a. Tier 1:

(1) Plus Health:

Refer to Policy 9.2.1, *Plus Health (+H)* for requirements.

- (a) Up to and including \$4000 with a Self-Declaration of Qualified Conditions, or
- (b) Up to and including \$8000 with verified severe household health hazard or verified medical respiratory issue.

Exception: To exceed the set \$8000/unit maximum limit, Local Agencies shall submit Exhibit 6.9A, *Funding Over-Limit Request Form* providing appropriate written justification and receive prior written approval from the Commerce Washington State Weatherization Plus Health Program Manager.

(2) **Installed Measure Cost (IMC):** Up to \$10,000 total Installed Measure Cost (IMC).

The total IMC is verifiable material and labor costs to install:

- (a) Weatherization (Wx) Measures, plus
- (b) Health and Safety (H&S) Measures, plus
- (c) Weatherization-Related Repair (WRR) Measures, plus
- (d) Leveraged Measures

Exception: To exceed the set \$10,000/unit maximum limit, Local Agencies shall submit Exhibit 6.9.1A, *State Weatherization Plus Health Funding Over-Limit Request Form* and receive prior written approval from the Commerce Washington State Weatherization Plus Health Program Manager.

- b. **Tier 2:** Up to \$25,000 total Installed Measure Cost (IMC), for each Tier 2 Provisional Program. One project may receive multiple Tier 2 Provisional Program services. The total IMC is verifiable material and labor costs to install Tier 2 Provisional Program measures. Multifamily projects shall receive owner contribution.

- c. **Training and Technical Assistance:** Not available.

- d. **Vehicles and Equipment:** Not available.

4. **Leveraging with State Funding –** Washington State Weatherization Plus Health (State) Funding qualifies as a leveraged resource because it aims to achieve a certain objective and allows the Local Agencies to determine the individual recipient(s) of the measure(s).

To use State funding as leverage for federal funding to supplement individual Wx Measure (WxM) costs in Wx projects, Local Agencies shall meet all of the following:

- a. **Discounted Measure Cost:** Use federal funding to pay for the portion of an individual WxM that achieves the required SIR ($SIR \geq 1.0$), thereby reducing the WAP investment to the cost effective portion.
- b. **Utility Leverage Cost:** First, use utility funding to pay for the balance, the portion of an individual WxM that is over the SIR threshold.
- c. **State Leverage Cost:** If utility leverage is not available, use State funding to pay for the balance, the portion of an individual WxM that is over the SIR threshold.
- d. **Energy Model Audit Tool:** Per DOE Memo 035, where State funds are used to reduce the cost of a measure to meet the programs SIR requirement, Local Agencies may enter the “discounted measure cost” only into the audit tool (as if they were purchasing the item “on sale”). Enter the discounted cost, the actual cost incurred by WAP into the audit tool (TREAT), not the full cost. The utility or state leverage cost is not required in model.

- e. **Document Leverage:** Document leverage costs in:
 - (1) WIDS on the “Costs” tab, for “Utility leverage cost” - on the “Utility” line in the “Other” column, or “State leverage cost” - on the “MMP – Match Maker Program” line in the “Other” column.
 - (2) ECOS on the Assign Funding screen, with “Leveraged” measure.
- f. **Last Measure in Package:** The Local Agency shall:
 - (1) Ensure the measure being “discounted” remains the last measure in the package of measures being installed.
 - (2) Install the list of cost-effective measures identified in the initial energy audit.
 - (3) Only consider leveraging measures that did not attain the SIR of 1.0, if all the cost-effective measures in the initial audit are also installed.
 - (4) Not “leapfrog” cost-effective measures to accommodate a measure included in the package of measures, as a result of using leverage funds.
 - (5) Receive Commerce prior written approval on a case-by-case basis for any instances where ‘last measure in package’ requirement is not achieved.
- 5. **Tier 2 – Provisional Program Purpose:** The intent of these Provisional Programs is to enhance, improve, and supplement the Weatherization (Wx) Program. The core goal is to enable a Wx project reducing the need for Energy Assistance, saving energy, and using energy efficiently. All Local Agencies may participate.
 - a. **Eligible clients:** Income eligible Wx Program clients are eligible for Tier 2 Program.
 - b. **Eligible projects:** Single-Family (SF) and Multifamily (MF) projects are eligible for Tier 2 Provisional Program services. A Tier 2 project may also receive Weatherization, Plus Health, another Tier 2 Provisional Program, and HRLP funding.
 - c. **Owner contribution:** The Local Agency shall:
Refer to Policy 1.4.2, *Owner Contributions* for other information
 - (1) Require owner contributions for all Tier 2 rental projects.
 - (2) At a minimum, require rental owner to contribute 10% of the Tier 2 investment. The Local Agency shall receive Commerce prior written approval for exceptions.
 - (3) Disallow Tier 2 services for any project, if a rental owner (SF rental or MF) is unwilling or unable to contribute.
 - d. **Reporting:** Local Agencies shall report Tier 2 - Provisional Program Projects, in:
 - (1) Weatherization Information Data System (WIDS),
 - (2) Energy Community Online System (ECOS), or
 - (3) As requested by Commerce to capture additional detail and data points.

Tiered Service Delivery

Tier	Title	Additive Dollar Limit, per unit	Purpose	Grant or Loan	Eligible Applicant
1	Wx Measures (WxM), Health and Safety (H&S), Wx-Related Repair (WRR), and Leveraged Measures	Up to \$10,000 Total IMC limit, without prior written approval from Commerce	Install Wx measures, make repairs necessary to eliminate hazards within a structure that allow for the installation of Wx materials, and make repairs necessary for the effective performance or preservation of Wx materials, not subject to SIR. Use as leverage to enable other funds to achieve SIR.	Grant	<ul style="list-style-type: none"> • Owner occupied • SF and MF Rental
	Plus Health	Up to \$4,000 or Up to \$8,000 verified hazard or medical	Install in all units any Plus Health measures up to the lower limit To use the higher limit, verify severe household health hazards or medical respiratory issues.		
2	Provisional Program	Up to \$25,000 for each Tier 2 Provisional Program	Complete Wx projects using provisional program policy if issues can't be addressed in basic Wx Program.	Grant	<ul style="list-style-type: none"> • Owner occupied • SF and MF Rental
3	Mobile Home Replacement (MHR)	TBD			

Effective Date: July 1, 2022 – June 30, 2023

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Weatherization Policy

Replaces: Pilot Program Guidelines (2/17/20 – 6/30/21)

See also:
[Exhibit 6.9.1.1A, Provisional Deferral Tracker](#)
[Policy 5.8.2, Weatherization Readiness \(WRed\)](#)
[Exhibit 6, Fund Matrix](#)

POLICY 6.9.1.1 TIER 2 - PROVISIONAL STATE WX+H DEFERRAL PROGRAM

1. **Deferral program purpose:** The intent of the Deferral Program is to complete Wx projects in deferral or postponed status due to structural, mechanical and other physical conditions that cannot be addressed otherwise.
2. **Allowable project types to qualify for Tier 2 - Provisional Deferral Program:**
 - a. **Deferred or postponed:**
 - (1) Weatherization (Wx) projects deferred or postponed for repair needs beyond the scope of Wx.
 - (2) If correction needed is not addressed, it would require deferring or postponing the Wx project.
 - b. **Need repairs:** The Local Agency shall:
Refer to Policy 5.8.2, *Weatherization Readiness (WRed)* for more information.
 - (1) Make the dwelling Weatherization Ready by performing necessary repair or correction to physical building related issues required to move Wx projects forward to completion, not necessarily directly related to energy efficiency measures:
 - (a) Depending on available funding, and
 - (b) If completing repair makes the home Weatherization Ready.
 - c. **Weatherization opportunities:** Projects shall have a minimum of two Wx Major Measures available.
3. **Disallowed project types:** The Local Agency shall not use Deferral Program funding for client related issues, including behavioral issues. These issues are beyond the scope of this provisional program. **Examples** of project types not allowed include, but are not limited to: Hoarding, Landlord participation refusal, and No Wx opportunities.
4. **Braiding/Blending Funds:** The Local Agency shall:
Refer to Policy 5.8.2, *Weatherization Readiness (WRed)*, Section 4 for more information.
5. **Reporting:** The Local Agency shall:
Refer to Policy 5.8.2, *Weatherization Readiness (WRed)*, Section 6 for more information.

Effective Date: July 1, 2022 – June 30, 2023

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Weatherization Policy

See also:

[Exhibit-6.9.1.2A, Homeowner-Participation-Agreement-with-PLIA](#)

[Exhibit-6.9.1.2B, Homeowner-Participation-Agreement-NO-PLIA](#)

<https://plia.wa.gov/heating-oil-loan-and-grant-program/>

[Exhibit-6.9.1.2C, Provisional Fuel Switch Tracker](#)

[Exhibit 6, Fund Matrix](#)

Replaces: Pilot Program Guidelines (2/17/20 – 6/30/21)

POLICY 6.9.1.2 TIER 2 – PROVISIONAL STATE WX+H FUEL SWITCH PROGRAM

8. **Fuel Switch Program Purpose:** The intent of the Fuel Switch Program is to
 - a. Contribute to the 2021 Washington State Energy Strategies goal, that by 2050, we can nearly eliminate the use of climate-threatening fossil fuels while continuing to maintain and grow a prosperous economy.
 - b. Reduce high energy burden of clients receiving LIHEAP energy assistance.
 - c. Develop an understanding of costs and scope of work throughout Washington State electric heating systems.
 - d. Use outcomes to revise Washington State Wx policies and procedures pertaining to Fuel-switching.

9. **Project elements to qualify for Fuel Switch Program:**
 - a. **Oil or propane heat:** The existing primary heating system shall be oil or propane.
 - b. **Weatherization opportunities:** The Local Agency shall prioritize comprehensive projects combining Fuel Switching and Wx. Projects shall have a minimum of two Wx Major Measures available.
 - c. **High efficiency heating system replacements:** The Local Agency shall:
Refer to Policy 5.5.6, *Ductless Heat Pumps (DHP)* for more DHP information
 - (1) **Heat pump replacement system:** Replace primary heating systems with standard heat pump or ductless heat pump. Replacement heat pump equipment shall be manufactured by a company listed in the Air Conditioning, Heating and Refrigeration Institute (AHRI) Unitary Directory.
 - (2) **Code compliance:** Follow all applicable building codes.
 - (3) **Permits:** Obtain permits and final local jurisdiction inspections, as needed.
 - (4) **Installation:** Install per manufacturer's installation instructions.

(5) Equipment efficiency requirements:

- (a) **Heat pumps:** The heat pump equipment shall be rated with a Seasonal Energy Efficiency Ratio (SEER) rating of 16 or greater and a Heating Seasonal Performance Factor (HSPF) of 9.0 or greater
 - i. **Ductless heat pumps:** The ductless heat pump equipment shall be rated with a HSPF of 10.0 or greater if utilizing a single head, or a HSPF of 9.0 or greater if utilizing multiple heads.

(6) **Sizing:** Heat load calculation and sizing calculation are required. Use Manual J and S, or equivalent to size equipment properly.

(7) Ductwork:

- (a) Wherever possible, the Local Agency shall use the existing ductwork.
- (b) Airflow evaluation and ductwork sizing is required.

d. **Decommission existing heating systems:** The Local Agency shall:
Refer to Exhibit 6.9.1.2A, *Homeowner-Participation-Agreement-with-PLIA*
Refer to Exhibit 6.9.1.2B, *Homeowner-Participation-Agreement-NO-PLIA*

- (1) Decommission the existing oil or propane heating system, including the fuel tank in compliance with state and local laws. This may mean either leaving in-place or removing and disposing of system elements properly.
- (2) Use the required Homeowner Participation Agreement when decommissioning an oil tank.

e. **Documentation**

Refer to Policy 6.9.1, *Wx+H Funding, Section 5d, Reporting*

- (1) Copy of final passed local jurisdiction for permits.
- (2) Copy of AHRI certification.
- (3) Copy of the heat load/sizing calculation.
- (4) Manufacturer's installation instructions.

10. **Fuel switching project costs:** Fuel switching project costs include project support costs, installed measures costs, decommissioning costs, and other costs associated with state and local code requirements.

- a. **Installed measure costs:** IMCs include all elements of the replacement heating system including but not limited to: the heating equipment, ductwork and registers, and electrical work.
- b. **Decommissioning costs:** This includes the costs to decommission the existing fuel tank in compliance with state and local code requirements.

11. **Insurance:** If replacing oil-heating system, the Local Agency shall:

- a. Perform a registration search to confirm if client currently has Pollution Liability Insurance Agency (PLIA) insurance.
- b. Determine process (with PLIA or NO PLIA) to move forward and use the appropriate form.
- c. At a minimum, provide PLIA Heating Oil Loan and Grant Program (link above) information to clients.

12. **Fuel Switch Reporting:** Local Agencies shall report:

- a. On the Exhibit 6.9.1.2C, *Provisional Fuel Switch Tracker*:
 - (1) Report all Fuel Switch funds
- b. In Contract Management System (CMS), using:
 - (1) The Fuel Switch measures budget line on the Request for Reimbursement CMS form, for reimbursement of Fuel Switch costs.
- c. In Weatherization Information Data System (WIDS), using:

On the Costs Tab:

- (1) Choose MMP – Match Makers Program (State) Funder line to report Fuel Switch fund expenditures within Wx Projects.
- (2) Use the 'Other' column, to enter Fuel Switch costs.
- (3) Use the 'Comments' field to make any Fuel Switch notes.

On the Measures Tab:

- (4) Use the 'Other' row (at bottom) and the 'Comment' field to identify the specific Fuel Switch measure(s).
- d. In ECOS use Energy Audit Heating/Cooling Systems

Effective Date: July 2022

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Weatherization Policy

Replaces: Policy 5.8.3 – Oct 1, 2021

See also:

[Policy 5.5.1, Air Conditioning and Heating Systems](#)

[Policy 1.1.2, Determining Income Eligible Clients](#)

[Exhibit 6, Fund Matrix](#)

POLICY 6.9.2 LIHEAP FUNDING POLICY

1. **Emergency or Stand-Alone Air Conditioning and Heating Systems Measure:**
Refer to Policy 5.5.1, *Air Conditioning and Heating Systems* for requirements.
 - a. **Stand-Alone Air Conditioning and Heating System Measure:** In emergency situations, Local Agency may repair, replace, or install new air conditioning and heating systems as a stand-alone measure. Local Agencies shall:
 - (1) **Sizing Systems:** Size replacement or new systems according to Policy 5.5.1, *Air Conditioning and Heating Systems*, Section 5, *Sizing Systems*.
 - (2) **Duct Sealing:** On ducted systems, at a minimum perform duct sealing. Refer to Policy 5.6.1, *Heating and Cooling Ducts*.
 - b. **Follow-up Weatherization:** Local Agencies shall perform a visual assessment to determine if Wx is needed.
 - (1) **Weatherization Audit:** If warranted, Local Agencies shall perform a full Wx Audit within 60 days to confirm if there are any other Wx opportunities.
 - (2) **Justification Documentation:**
 - (a) **Comprehensive:** If Local Agency provides complete Wx services, they shall comply with the Wx Manual requirements, including justification and documentation requirements.
 - (b) **Stand-Alone:** If no other Wx measures are required or possible, Local Agency shall notify Commerce and document in the project file the justification for the need to perform a stand-alone measure.
 - c. **Funding:**
 - (1) **Energy Assistance (EA) Other Emergency Systems (OES):** Local Agencies shall prioritize the use of the EA OES Program and their funding first, if possible. If EA OES funding is unavailable, then LIHEAP Weatherization (Wx) funding may be used for the Stand-Alone Air Conditioning and Heating System measure.
 - (2) **Limit:** Using Wx LIHEAP funding, costs for emergency or stand-alone air conditioning and heating system repairs, replacements, or new installs shall not exceed \$7500. It is allowable to use both EA OES and Wx LIHEAP funding on one project.

2. **LIHEAP Funding Income Eligibility:** Local Agency shall:
Refer to Policy 1.1.2, *Determining Income Eligible Clients* for requirements.
 - a. Qualify clients through one of the following:
 - (1) Washington State Low-Income Home Energy Assistance Program (LIHEAP-EA) threshold is 150% of the federal poverty level (FPL) as published by Department of Health and Human Services (HHS). All qualified LIHEAP-EA clients will qualify for Weatherization Services. Or,
 - (2) Weatherization Assistance Program (WAP) specific thresholds either 200% FPL or 60% SMI, state median income, whichever is greater.
3. **LIHEAP Budget Category Fund Limits**
 - a. **Weatherization Measures (WxM):** Energy efficiency measure are allowed if the total cost is justified using an evaluation of cost-effectiveness where the Savings-to-Investment Ratio (SIR) is 1.0 or greater ($SIR \geq 1$) or assumed cost-effective as defined on **Exhibit 5.2.7A, Deemed Measures Priority List**.
 - b. **Health and Safety (H&S) Measures:** Up to 25% of program operations budget is allowed.
 - c. **Weatherization-Related Repair (WRR) Measures:** Up to 15% of program operations budget is allowed.
Exception: Roof replacement (full cost or partial) is prohibited using LIHEAP funding.
 - d. **Plus Health (+H) Measures:** Plus Health Measures are not allowed with LIHEAP funding. The only measures listed in the Wx+H policy allowed with LIHEAP funding are the Weatherization Measures, which qualify under the Weatherization Program.

Effective Date: July 1, 2021 – Sept 30, 2023

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Weatherization Policy

Replaces: TEMPORARY Wx Readiness Guidance - Jan 26, 2022 Policy Memo

See also:

POLICY 6.9.2.1 LIHEAP-ARP FUNDING

13. **LIHEAP-ARP Funding Purpose:** The intent of the Low-Income Home Energy Assistance (LIHEAP) American Rescue Plan (ARP) funding is to enhance, improve, and supplement the Weatherization (Wx) Program.

LIHEAP-ARP funds can:

- a. Provide Weatherization Readiness
Refer to Policy 5.8.2 *Weatherization Readiness (WRed)*
- b. Provide Weatherization Services, using them as regular LIHEAP Wx funds.

The core goal is to enable the completion of a Wx Project reducing the need for Energy Assistance, saving energy, and using energy efficiently.

14. LIHEAP-ARP Project Types

- (3) **Allowable Project Types with LIHEAP-ARP funding:** Necessary repairs or corrections to move Wx Projects forward to completion including, but not limited to:

Examples: Vermiculite, other ACM, Lead, Electrical, Electrical Panel Upgrades, Plumbing, replacing faulty Polybutylene plumbing, and limited Roof Repair.

- (4) **Project Types Not Allowed with LIHEAP-ARP funding:** Roof replacement (full cost or partial) is prohibited using LIHEAP funding. Client related issues, including behavioral issues and home improvements unrelated to Weatherization Readiness are beyond the scope including, but not limited to:

Examples: Hoarding, Landlord participation refusal, No Wx opportunities, Remodeling, Building Additions, and full Roof Replacement.

15. LIHEAP-ARP Funding Limits:

- a. **Limit:** Using LIHEAP-ARP funds shall not exceed \$10,000 per unit.
- b. **Combining Funds:** Wx Projects receiving LIHEAP-ARP funds and Weatherization Readiness may also receive Weatherization (including regular LIHEAP), Plus Health, State Tier 2 Provisional Program, and HRLP funds.

[2020 Standard Work Specifications \(SWS\)](#)
[Multifamily Weatherization Specification](#)

CHAPTER 7

QUALITY ASSURANCE

See also
[P](#)
Policies and Procedures – [P](#)
[M](#)
Multifamily Policies – [M](#)
[S](#)
Specifications – [S](#)
[E](#)
Exhibits – [E](#)
[D](#)
Definitions – [D](#)

Effective Date: October 1, 2021

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Weatherization Policy

Replaces: Policy 7.1 – July 2021

See also:

[Exhibit 7.1A, Quality Control Inspection \(QCI\) Form](#)
[PM 15-03, Wx Policy Memo QCI Expectations](#)

POLICY 7.1 LOCAL AGENCY INSPECTION OF WEATHERIZATION WORK

1. **Written Internal Monitoring Procedures:** Local Agencies shall define written internal monitoring procedures to perform regularly as a means for quality control, compliance assurance, and risk assessment. Such procedures shall include written inspection procedures including the use of **Exhibit 7.1A, Quality Control Inspection (QCI) Form** to ensure comprehensive and consistent inspections of all units weatherized.
2. **Final Inspection Required Prior to Completed Unit Reporting:** No dwelling unit will be reported to Commerce as completed until the local agency has performed a final inspection and certified that appropriate work has been completed in a quality manner.
3. **Validating Work Prior to Payment:** Local Agencies shall validate and document subcontractor's work performed prior to paying them, by confirming work is complete, verifying work is appropriate and allowable, and certifying work is performed in compliance with the Wx Field Guide and in a quality manner. Measures installed in the field require a final or an in-progress inspection
4. **Timing of Inspections:** Inspections shall take place within 30 days of completion of work on the residence.
5. **Inspector Requirements:** A certified Quality Control Inspector (QCI), someone other than the auditor or the installer(s), shall conduct final inspections

Exception: Local Agencies that are unable to meet this requirement for any reason including, but not limited to, staff losses or changes, shall contact Commerce within 10 business days. Local Agencies may apply for a waiver from the Auditor/Inspector separation requirement. This waiver requires prior written Commerce approval.

- a. Inspector shall be certified as a Home Energy Professional Quality Control Inspector.
Exception: To perform multifamily building final inspections, in addition to the Home Energy Professional Quality Control Inspector (QCI) certification, multifamily inspectors shall also receive the supplemental multifamily training and pass the test.
- b. The Peer Circuit Rider/Building Performance Center will provide training and testing.
- c. Newly hired inspectors shall have work reviewed by a certified QCI until they are certified.

6. **Eligibility for the Auditor/Inspector Separation Waiver:** Local Agencies may apply for an Auditor/Inspector Separation Waiver as part of their Quality Management Plan if any of the following apply:
 - a. Has only one QCI certified staff member responsible to perform both audits and inspections,
 - b. Is transitioning between certified technical staff,
 - c. Experiences technical staff losses, or
 - d. Has another documented reason.
7. **Applying for the Auditor/Inspector Separation Waiver:** To request the Auditor/Inspector Separation Waiver, Local Agencies shall:
 - a. Submit the Auditor/Inspector Separation Waiver Request in writing.
 - b. Provide an outline of internal controls documenting how the agency will ensure compliance.
 - c. Provide the timeframe for use of the waiver.
 - d. If waiver request is due to loss of staff, provide request within 10 days.
8. **Qualifying for the Auditor/Inspector Separation Waiver:** To initially qualify for the Auditor/Inspector Separation Waiver, Commerce will review and assess the following local agency information:
 - a. Documentation provided in waiver request,
 - b. Risk assessment score,
 - c. Previous monitoring and inspection reports,
 - d. Third party QCI inspection reports for the past year (if applicable),
9. **Using the Auditor/Inspector Separation Waiver:** To continue to use the Auditor/Inspector Separation Waiver, local agencies shall:
 - a. Attach in WIDS for every project, all of the following:
 - (1) Scope of Work
 - (2) Audit (*Standardized Audit Form*)
 - (3) Quality Control Inspection (QCI) Form (*Standardized QCI Form*)
 - b. A minimum 10% of the total annual unit production shall be inspected and monitored by Commerce, and

- c. If required by Commerce, Local Agencies shall use the Peer Circuit Rider program or identify a peer agency for peer exchange to consult with for 3rd party perspective.
10. **In-Progress Inspector Exceptions:** In low volume, low dollar, and low risk project situations, an in-progress inspection may be completed by appropriate staff even if they do not have QCI certification.
- a. Since the QCI signs off on the completed project as a whole and all of the individual measures at the end, the responsibility remains with the QCI. Local Agencies are ultimately responsible and liable for their QCI staff or contractors' work. Local Agencies are expected to determine reasonable risk and reach agreement with their QCI on this process prior to final inspection. For example, a specialty contractor installs a fan and the project manager or crew lead inspects fan to determine if it works.
 - b. In project situations other than low volume, low dollar, and low risk in-progress inspections require a QCI; e.g. attic insulation in multifamily weatherization represents a high dollar investment that needs an approved inspection by a QCI prior to payment.
11. **Documenting Inspections:** Local Agencies shall:
- a. Use the required QCI Form: **Exhibit 7.1A, *Quality Control Inspection Form***
 - b. Document in the client file (project file) the signed and dated documentation (hard copy or electronic copy attached to WIDS project) of all inspections:
 - (1) In-progress Inspections (if applicable): Requires appropriate staff approval and documentation.
 - (2) Final Inspections: Requires QCI declaration if unit passes QC inspection (or not), QCI signature, QCI number, and expiration date. If the unit does not pass QC inspection, another Final Inspection is required.
 - (3) Monitored Inspections: Requires a QCI approved final inspection and a Commerce signature.
12. **Avoiding Third Party QCI Conflict of Interest:** Any third party QCI is prohibited from inspecting their company's work due to conflict of interest.

SECTION 7.2 COMMERCE PROGRAM MONITORING

A. Policy

1. Commerce conducts annual program monitoring in accordance with the Protocols section of the *Weatherization Monitoring Manual*.
2. Local Agencies will provide Commerce field representatives with all requested information and assistance in a professional, cooperative manner and by date requested.
 - a. Local Agencies will complete and submit to Commerce an annual General Weatherization Work Plan and Monitoring Questionnaire.
 - b. Questions may be addressed to the local agency during desk review prior to the monitoring visit. The local agency will respond to all Commerce questions in a timely fashion.
 - c. Local Agencies are expected to ensure that necessary diagnostic equipment and appropriate employees are available throughout the duration of the Commerce site visit, including employees who may have flexible work schedules.
 - d. Requests to change a monitoring visit shall be received in writing 30 days prior to scheduled visit (emergencies excluded).
 - e. Executive directors are strongly encouraged to participate in monitoring exit conferences.
 - f. Local Agencies will within 30 days of receipt of the monitoring report make corrections to work quality issues and submit a written response to Commerce.
 - g. An immediate (24 hour) correction notice may be issued to a local agency for serious Health and Safety violations found during site inspections.
3. All Wx measures shall be installed in compliance with Commerce requirements. Commerce is responsible to monitor and inspect *Blended Projects* and *Blended Measures*. Commerce will not monitor, inspect, or issue discrepancies, corrections, or findings for *Utility-Funded Projects* or *Utility-Funded Measures*.

Exception: If in the course of a Blended Project inspection a Health and Safety (H&S) hazard is discovered for a Utility-Funded Measure, Commerce will write a correction and expect the local agency to fix or remove the H&S hazard.

B. Procedure

See the *Weatherization Monitoring Manual* on Commerce's Weatherization Documents Web page.

Effective Date: July 2017

1 of 1

Weatherization Policy

Replaces: Policy 7.3 July 2015

See also:

POLICY 7.3 ASSESSING LOCAL AGENCY RISK

This policy applies to local agencies, which administer the Weatherization (Wx) Program and use Commerce administered funds.

1. **Risk Assessment:** Commerce completes an annual Weatherization Program Risk Assessment for each local agency.
2. **Monitoring Plan:** Risk assessment scores will drive the development of each Local Agency's monitoring plan for the July 1-June 30 fiscal year.

Effective Date: July 2017

Page 1 of 1

Weatherization Policy

Replaces: Policy 7.4 – July 2015

See also:

POLICY 7.4 WEATHERIZATION OUTCOMES

This policy applies to local agencies, which administer the Weatherization (Wx) Program and use Commerce administered funds.

1. Each fiscal year Commerce, in partnership with the Advisory Committee, will determine a set of outcome measures.
2. Data for the outcome measures will be pulled from WIDS and submitted invoices at the end of each quarter:
 - a. October for July-September (Quarter 1 – Summer)
 - b. January for October-December (Quarter 2 – Fall)
 - c. April for January-March (Quarter 3 – Winter)
 - d. July for April-June (Quarter 4 – Spring)
3. Commerce measures Weatherization Outcomes quarterly for each local agency.

[2020 Standard Work Specifications \(SWS\)](#)
[Multifamily Weatherization Specification](#)

See also
[P](#)
Policies and Procedures – [P](#)
[M](#)
Multifamily Policies – [M](#)
[S](#)
Specifications – [S](#)
[E](#)
Exhibits – [E](#)
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Definitions – [D](#)

CHAPTER 8

PROGRAM MANAGEMENT, ADMINISTRATION, AND REPORTING

SECTION 8.1 SOLICITING PROVIDERS FOR WEATHERIZATION PROGRAM SERVICES

A. Policy

1. Primary service delivery is provided by community-based, nonprofit, and local government agencies. Commerce defines the above entities as local agencies.

Commerce gives special consideration in designating local public or nonprofit agencies that received funds for energy related assistance programs under the 1964 Economic Opportunity Act.

2. Local Agencies shall have demonstrated, and continue to demonstrate, fiscal accountability and program effectiveness.

If, in a particular geographic area, a program or local agency has been terminated, or failed to meet Commerce's requirements in the previous program year, a successor agency that operates in substantially the same manner will be considered.

Effective Date: July 2017

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Weatherization Policy

Replaces: Section 8.2 – July 2015

See also:

POLICY 8.2 – GENERAL WEATHERIZATION WORK PLAN - *DELETED*

This policy left intentionally blank

Effective Date: July 2017

Page 1 of 1

Weatherization Policy

Replaces: Section 8.3 – July 2014

See also:

POLICY 8.3 – CONTRACTS AND AMENDMENTS - *DELETED*

This policy left intentionally blank

SECTION 8.3.1 SPENDING LIMITS

A. Policy

1. Commerce may impose spending limits on contracts, restricting the amount of money a local agency may spend, regardless of the total amount of the contract.

For example, spending limits may be used to limit expenditures until the local agency meets certain conditions or Commerce receives full program funding.

2. Within the limit set by Commerce, administrative expenditures cannot exceed a percent of the spending limit that is higher than the percent of the administrative funds in the contract award.

For example, if the contract provides seven percent of the total award for administration, up to seven percent of the spending limit may be spent for administrative costs.

3. Commerce will only reimburse local agencies up to the amount of the spending limit until the local agency receives email or written notification from Commerce that the spending limit is lifted.

B. Procedure

Local Agency files shall include a hard copy of Commerce notification.

Effective Date: July 2022

Page 1 of 1

Weatherization Policy

See also:

[Exhibit 8.4A, Certification Regarding Debarment, Suspension, or Ineligibility and Voluntary Exclusion – Primary Tier Covered Transactions.](#)

Replaces: Section 8.4 – July 2017

POLICY 8.4 SUBCONTRACTING

1. **Subcontracting Weatherization Services:** The Local Agency may:
 - a. Subcontract labor and installation services in accordance with procurement standards described in Commerce’s contract *General Terms and Conditions, and Special Terms and Conditions*.
 - (1) When contracting with installers, manufacturers, or suppliers, Local Agencies shall follow standard business practices for selecting the best weatherization material or installation for the best price.
 - (2) Local Agencies are responsible for ensuring that subcontractors are familiar with program measures, installation specifications, and current techniques and methodologies.
2. **Subcontractor License and Insurance Requirements:** The Local Agency shall:
 - a. Ensure all Subcontractors are licensed, bonded, and insured in accordance with Commerce policy and state law.
 - b. Update annually and keep records on file of individual contractor license, insurance, and bonding information available online at Washington State Department of Labor and Industries, for all subcontractors.
 - c. Allow a contract with a dealer to perform the necessary work, if the client has a service [Dealer of Record](#) and if that dealer is fully insured and licensed.
3. **Competency, Training, and Certifications:** It is important that installers and technicians be qualified to do the work required under the Weatherization program. The Local Agency should be aware that there are many trades for which the State of Washington does not require workers to have a professional license.

4. **Certifying Annually:** Local Agencies shall certify annually that neither the organization nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in a weatherization contract with Commerce by any federal department or agency as part of the General Weatherization Work Plan. See **Exhibit 8.4A, Certification Regarding Debarment, Suspension, or Ineligibility and Voluntary Exclusion – Primary Tier Covered Transactions.**
 - a. Local Agencies are prohibited to enter into contracts with parties that are suspended or debarred, or whose principals are suspended or debarred.
 - b. Covered transactions include procurement contracts for goods and services equal to or in excess of \$100,000 or more.
5. **Reviewing Information:** Commerce reserves the right to review and approve the selection process and the contract form used by local agencies.
6. **Documenting Subcontracts:** Local Agency files shall include all contracts entered into with subcontractors.

Effective Date: July 2022

Page 1 of 1

Weatherization Policy

Replaces: Section 8.4.1 – July 2018

See also:
[Exhibit 8.4.1A, Property Owner Release Form](#)
[Policy 1.3.3, Using Owner/Agency Agreements](#)

POLICY 8.4.1 WARRANTIES AND OWNER RELEASE

1. **One-Year Warranty:** The Local Agency and Sucontractors shall:
 - a. Provide one-year warranties to cover any defect in the material, manufacture, design, or installation of all materials, equipment, or products.
 - (1) Give original warranty paperwork for materials and appliances installed or provided to: occupant, owner, and document a copy in the project file.
 - (2) Confirm homeowner receipt of all warranty information.
 - (3) Verify any defects the client discovers and reports to Local Agency within one (1) year from the date of project completion, qualifying under warranty.
 - (4) Remedy the warranty defects discovered, reported, and verified without charge and within a reasonable period of time.

2. **Owner authorization:** Local Agencies shall:
 - a. Receive owner authorization to install measures on a dwelling unit.
 - (1) For owner occupied projects, Exhibit 8.4.1A, *Property Owner Release Form*, is an example of acceptable documentation.
 - (2) For Rentals, Exhibit 1.3.3B *Wx Program Rental Property Owner/Agency Agreement*.

3. **Documentation:** Local Agencies shall:

Refer to Policy 5.1.2, *Weatherization Project Documentation*

 - a. Document in the project file:
 - (1) Confirmation of homeowner receipt of warranty information
 - (2) Scope of Work
 - (3) Exhibit 8.4.1A, *Property Owner Release Form*, Exhibit 1.3.3B *Wx Program Rental Property Owner/Agency Agreement*, or equivalent documentation.

Effective Date: July 2017

Page 1 of 1

Weatherization Policy

Replaces: Section 8.5 – April 2009

See also:

[Exhibit 8.5A, Federal Certification Regarding Lobbying](#)
[Standard Form LLL, Disclosure of Lobbying Activities](#)

POLICY 8.5 CERTIFICATION REGARDING LOBBYING

1. **Filing Lobbying Certification Annually:** Local Agencies that receive \$100,000 or more in federal funds, in one or more awards during the fiscal year, shall file a Federal Certification Regarding Lobbying annually. See **Exhibit 8.5A, Federal Certification Regarding Lobbying**.
 - a. The same requirements apply to all levels of subcontract, sub grant, and contracts under grants, loans, and cooperative agreements.
2. **Certifying Federal Funds will not be used for Lobbying:** Local Agencies shall certify that they will not use federal funds to lobby for support of federally funded programs.
3. **Disclosing Lobbying Activities:** If any funds other than federal are used for lobbying at the federal level, as defined in the certification, such activity shall be reported on the **Standard Form LLL, Disclosure of Lobbying Activities**.
4. **Documenting Certifications and Disclosures:** Local Agency files shall include the following documentation:
 - a. Copies of all certifications and disclosures signed by the local agency and submitted to Commerce. See **Exhibit 8.5A, Federal Certification Regarding Lobbying**
 - b. Copies of all certifications and disclosures signed by subcontractors and submitted to the local agency. See **Exhibit 8.5A, Federal Certification Regarding Lobbying**
 - c. Copies of **Standard Form LLL, Disclosure of Lobbying Activities**, as applicable.

Effective Date: October 1, 2021

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Weatherization Policy

Replaces: Policy 8.6 - July 2017

See also:
Contract Management System (CMS) Portal via [SAW](#)

POLICY 8.6 ISSUANCE OF INITIAL PAYMENTS

1. **Requesting Initial Payment:** To request approval for an initial payment one month prior to planned expenditures, a Local Agency shall contact the Commerce Program Manager. Once approved, the Local Agency shall use the added "*Initial Payment Request*" line in request for reimbursement through the Contract Management System (CMS) Portal, for any federal Weatherization funding source.

Exception: State Funding is prohibited from initial payments.

- a. Requests for an initial payment shall not exceed the Local Agency's planned expenditures for the first sixty days' Administration/Program Operations, not to exceed ten percent (10%) of the total Administration/Program Operations budget.
- b. Commerce will issue the initial payment once both parties sign the weatherization program contract and the Local Agency submits the request for initial payment.
- c. The initial payment shall be liquidated within sixty days of issue.
- d. Examples:
 - (1) If a Local Agency has a \$10,000 initial payment and sends in a request for reimbursement showing \$8,000 in expenditures and estimates that its expenditures for the next month will be close to \$10,000, then the Local Agency should enter \$8,000 in the "*Initial Payment Request*" space on its request for reimbursement. Commerce will apply the \$8,000 the Local Agency spent towards liquidation of its original initial payment to show that those funds were expended first. Commerce will issue a new initial payment for \$8,000 leaving the Local Agency with the \$2,000 remaining from the initial payment and new initial payment of \$8,000 for a total of \$10,000.
 - (2) If a Local Agency has a \$10,000 initial payment and sends in a request for reimbursement with \$12,000 of expenditures but wants to maintain only a \$10,000 initial payment, the Local Agency should enter \$10,000 in the "*Initial Payment Request*" space.
 - (3) If a Local Agency has a \$10,000 initial payment and sends in a request for reimbursement for \$10,000 but knows it will only need \$5,000 for the next month, the Local Agency should request an initial payment of \$5,000.

- (4) If a Local Agency has a \$10,000 initial payment and sends in a request for reimbursement for \$2,000 and requests an initial payment of \$2,000, Commerce will issue it. However, if the Local Agency only spends another \$2,000 the following month and it requests additional funds, the initial payment will not be approved and the expenditures will be applied against the \$10,000 initial payment. Future requests for reimbursement will also be applied against the initial payment until Local Agency expenditures increase or the initial payment is completely liquidated.
2. **Deducting Reimbursements from Initial Payment:** When Commerce receives a request for reimbursement after the initial payment is issued, the requested reimbursement will be deducted from the initial payment.
3. **Requesting Additional Initial Payment:** When an initial payment is reduced and performance verifies need, the Local Agency may submit a request for an additional initial payment on any month's request for reimbursement to bring them up to the sixty days of Administration/Program Operations, not to exceed ten percent (10%) of the total Administration/Program Operations budget.
4. **Returning Over-Projected: Initial Payment** After sixty days, if the Local Agency has over-projected its initial payment needs or has more than ten percent (10%) cash on hand, Commerce may request that the excess amount be returned by a check accompanying that month's request for reimbursement.

When cash initial payment needs have been over-projected and are reconciled, the Local Agency may request an additional initial payment for sixty days of Administration/Program, not to exceed ten percent (10%) of the total Administration/Program Operations budget. Commerce may, however, adjust the initial payment request based on the previous sixty days expenditures.
5. **Requiring Justification and Prior Approval:** Written justification and prior approval is required for initial payment payments exceeding ten percent (10%) of the total contract amount.
 - a. Local Agencies shall submit their requests using the "*Initial Payment Request*" line on the request for reimbursement (A19 forms) through the CMS Portal and also submit a justification for requesting the additional initial payment.
 - b. Additional initial payments will be approved to meet occasional special needs required to meet exceptional production demands, not as a regular fiscal policy.
6. **Billing any Outstanding Initial Payment:** In any given year, all outstanding Local Agency initial payment amounts shall be applied to allowable program costs on the June 19-1A *Reimbursement Request Form* and submitted to Commerce no later than July 15th. Outstanding initial payment amounts not cleared as above by July 15th will be billed to the Local Agency for payment.

Effective Date: July 2017

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See also:

[10 CFR 440.25](#)

[10 CFR 600](#)

Commerce General Terms and Conditions and Specific Terms and Conditions
Contract Management System (CMS) Portal via [SAW](#)
[Exhibit 8.8, Final Contract Closeout Report- example](#)

Replaces: Section 8.7 – July 2016

[Exhibit 1.3.1E, Sample Weatherization Program Utility Information Release Waiver](#)

POLICY 8.7 REPORTING AND REIMBURSEMENT OF EXPENSES

1. **Monthly Reimbursements:** The payment system for local agencies is based on monthly reimbursement in the amount of actual expenditures from the previous month.

No payment will be made until Commerce receives an accurate and complete request for reimbursement (A19 forms) through the Contract Management System (CMS) Portal.

2. **Budget Categories:** Subsequent to the issuance of a working capital advance, Commerce will reimburse local agencies for expenditures which are within the budget categories reported on the request for reimbursement.

3. **Reporting Requirements**

- a. **Monthly Requests for Reimbursement**

- (1) Local Agencies shall submit their requests for reimbursement with verified electronic signature monthly, on or before the 15th of each month for the previous month's expenditures.
- (2) Local Agencies shall report each month on a separate form.
- (3) Local Agencies shall report each fund source on a separate form.
- (4) Local Agencies shall submit each separate A19 form electronically through the CMS Portal.
- (5) Local Agencies should include unpaid obligations in requests for reimbursement on an accrual accounting basis.

Exception: Unpaid obligations may be included in reports on a cash accounting system as part of a negotiated reporting requirement waiver. See *Reporting Requirement Waivers* in this policy.

- (6) Local Agencies shall submit monthly requests for reimbursement even if there was no production or fiscal activity during the previous month.
- (7) Commerce will make an effort to correct incomplete or inaccurate requests for reimbursement by phone or email. If an incomplete or inaccurate request for reimbursement is returned for correction, the local agency shall submit a corrected request for reimbursement within ten working days from the date returned.
- (8) Local Agencies shall retain documentation (electronic or hard copy) to support the Request for Reimbursement (A19) amounts and provide to Commerce, upon request.

b. Final Contract Closeout Report

- (1) Local Agencies shall submit a Final Contract Closeout Report for each funding source that accurately reflects the work completed and funds expended during the program year.
- (2) Local Agencies shall submit electronic reports to Commerce no later than 45 days after the program year closes.

Exception: Instead of electronic reports, local agencies may submit hard copy reports.
- (3) Local Agencies shall submit the complete list of WIDS project numbers the contract funded.

4. Reporting Requirement Waivers

- a. Commerce may consider waivers for situations such as delayed reporting or to allow local agencies on a cash accounting system to claim documented unpaid obligations on their request for reimbursement form.

Waivers that allow delayed reporting will not affect the working capital advance payment limit.

- b. Local Agencies shall request reporting requirement waivers in writing in accordance with Commerce *General Terms and Conditions*.

5. Evaluation Data Collection and Reporting

Commerce will, from time to time, conduct an evaluation of its low-income weatherization program to determine the extent to which it is accomplishing its objectives and at what cost.

For example, Commerce will assist DOE in its national evaluation. In preparation for the evaluation, DOE requests that Commerce work with its local agencies during the evaluation period to ensure that signed client waivers are acquired enabling program access to utility and other energy vendor billing records and that account information, including account number, the name to which the account is billed and the billing address, for all energy vendors, both electric and the primary heating source, is accurately recorded for all clients. Account information shall include both consumption and expenditure data. See **Exhibit 1.3.1E, *Sample Weatherization Program Utility Information Release Waiver***, for a sample client waiver.

- a. Whenever possible, local agencies are encouraged to obtain 12 months pre-weatherization billing data (usage and cost).
- b. Additional evaluation data collection responsibilities will be defined as needed.

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See also:

[Exhibit 8.8A, Sample Final Contract Closeout Report \(Forms 1-6\)](#)

[Exhibit 8.8B, Sample Weatherization Contract Closeout Checklist](#)

[Section 8.9, Counting Year-End Unit Completions](#)

[Section 8.10, Refunds](#)

[Section 8.11, Program Income](#)

[Section 8.12.2, Weatherization Materials Transfer and Inventory](#)

Replaces: Section 8.8 – April 2009

POLICY 8.8 FINAL CONTRACT CLOSEOUT REPORT

- Submitting Final Contract Closeout Reports:** Local Agencies shall submit a final report for each funding source that accurately reflects the work completed and funds expended during the program year. See [Exhibit 8.8A, Sample Final Contract Closeout Report \(Forms 1-6\)](#) and [Exhibit 8.8B, Sample Weatherization Contract Closeout Checklist](#).
- Submitting Timely Reports:** Local Agencies shall submit reports to Commerce 45 days after the program year closes.

Failure to provide timely closeout reports in accordance with Commerce requirements may result in penalties which may include, but not be limited to, Commerce denying or delaying local agency applications in future funding rounds.
- Requiring Reports:** Local Agencies shall submit closeout reports after the close of the contract period, during the transfer of obligations to another local agency, or upon termination of the contract for any reason.
- Returning Funds:** Unexpended funds returned to Commerce at the end of a contract period shall be returned with Administrative and Program Support funds in proportion to contract awards.

Effective Date: July 2017

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Weatherization Policy

Replaces: Section 8.9 – April 2009

See also:

[Policy 8.8, Final Contract Closeout Report](#)

POLICY 8.9 COUNTING YEAR-END CLOSED UNITS

1. At the close of a contract period, local agencies shall claim as unit production only units which are final inspected by a Quality Control Inspector (QCI) and closed.
 - a. Units shall be counted in the contract period in which they are closed.
 - b. Units partially weatherized but not completed, inspected, and closed cannot be counted in the total production of that contract period.
2. DOE's overall investment cannot exceed the average annual cost per unit.
3. Local Agencies may use their 45-day closeout period to complete commitments initiated before the end of their contract period.

Commitments may include unit inspection and file closure to count them in program year production.

4. All goods, services, and equipment shall be received by the last day of the contract to be charged to that contract.

SECTION 8.10 REFUNDS

A. Policy

1. Local Agencies may receive and re-spend refunds from property owners who choose to sell their property to non-low-income purchasers after the weatherization work has been completed by the local agency with funds awarded under prior year contracts. See exhibits [1.4.1A, Weatherization Program Property Owner/Agency Agreement](#), and [1.4.1B, Weatherization Program Property Owner/Agency Agreement for Multifamily Buildings](#), for conditions.
2. Refunds shall be used first to weatherize units in the current contract period.
3. Units weatherized with refunds shall be included in the total unit count for the contract period in which they were spent. Units shall be reported monthly on the [Monthly Weatherization Report for Completed Units \(Exhibit 8.7B\)](#).
4. Do not include refund dollar amounts in monthly requests for reimbursement. Refund dollar amounts will be accounted for in the [Final Contract Closeout Report \(Section 8.8\)](#).

B. Procedure

1. Local Agency files shall include the following documentation:
 - a. Applicable property owner/agency agreements (exhibits [1.4.1A, Weatherization Program Property Owner/Agency Agreement](#), and [1.4.1B, Weatherization Program Property Owner/Agency Agreement for Multifamily Buildings](#)).
 - b. [Monthly Weatherization Report for Completed Units \(Exhibit 8.7B\)](#).
 - c. [Final Contract Closeout Report \(Exhibit 8.8A\)](#).
2. See [Section 1.3.3, Using Property Owner/Agency Agreements](#).

SECTION 8.11 PROGRAM INCOME

A. Policy

1. Local Agencies shall track program income and expend it first to avoid reporting at year's end.
2. Local Agencies shall report program income if left unexpended in final contract closeout reports (See [Section 8.8, Final Contract Closeout Report](#)) to account for general program income earned from the following:
 - a. Activities supported by a contract award.
 - b. Income resulting from grants.
3. Unless restricted by contract, local agencies may retain program income received from services provided and usage or rental fees.
4. Local Agencies may use program income as follows:
 - a. To pay all or part of the local agency share of allowable project costs during the same budget period.
 - b. To pay for costs not included in the total approved budget if Commerce determines that such costs are directly related to the objectives of the Federal statute under which the grant was awarded (weatherization related activities for low-income clients).
5. Commerce and its funding sources have no right to any portion of general program income earned or accrued after the project ends or the contract is terminated.

B. Procedure

1. Local Agencies shall have in place a system for tracking all program income.
2. Local Agencies shall report all program income at the end of each contract period. See [Section 8.8, Final Contract Closeout Report](#), for policies and forms.

Effective Date: January 1, 2021

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Replaces: Section 8.12.– November 1, 2018

See also:
[2 CFR Part 200.313\(d\), Uniform Guidance – Equipment Management Requirements](#)
[Section 8.8, Final Contract Closeout Report](#)

POLICY 8.12 INVENTORY CONTROL

6. **Written Inventory Policy:** Local Agencies shall establish a written inventory policy to coordinate all functions, including but not limited to scheduling, completions, purchasing, storage, and cash flow.
7. **Preventing Loss, Damage, or Theft:** Local Agencies shall maintain records, perform inventories, and maintain control systems to prevent loss, damage, or theft of equipment, tools, materials, and supplies. Any loss, damage, or theft shall be investigated.
8. **Tracking Inventories:** Local Agencies shall use a [Master Control System](#).
 - a. **Reconciliation Requirements:** Local Agencies shall conduct quarterly physical counts to verify book records. Local Agencies shall reconcile their records with Commerce records annually with contract closeout procedures.
 - b. **Daily Usage:** A daily usage system shall be a central feature of the inventory system.
 - c. **Automatic Ordering:** Local Agencies' inventory systems shall include an automatic ordering system for frequently used materials.
 - d. **Tracking Non-Expendable Purchases:** All non-expendable (Equipment or Vehicle) purchases with a current fair market value of \$5000 or more, and which have a useful life of more than a year, or a Vehicle of any value shall be tagged with a unique number to reflect funding sources and shall be logged into property control records for identification purposes. At a minimum, Local Agencies tracking shall include:
 - (1) A description of the property
 - (2) A serial number, vehicle identification number (VIN), or other identification number
 - (3) The source of funding for the property (including the FAIN)
 - (4) Who holds the title
 - (5) The acquisition date
 - (6) The cost of the property
 - (7) The percentage of the Federal participation in the project costs for the Federal award under which the property was acquired

- (8) The status of the property
 - (a) Location
 - (b) Use, and
 - (c) Condition
 - (9) Any ultimate disposition data including but not limited to, the:
 - (a) Date of disposal, and
 - (b) Value at time of disposition (fair market value, sale price of the property, or trade-in value).
 - (c) Method of Disposition and associated information.
9. **Documentation Required:** Local Agencies shall document all materials received and account for purchases with invoices from vendors which describe the material(s), number of units, unit cost, total costs, shipping charges, if any, and sales tax.

Effective Date: July 2021

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Weatherization Policy

See also:

[OMB 2 CFR Part 200, Uniform Guidance](#)
[WPN 17-6: Property Acquired Under the WAP Including Vehicle and Equipment Purchases](#)
[Attachment 1: Frequently Asked Questions 17-6](#)
[Policy 8.8, Final Contract Closeout Report](#)
[Section 8.11, Program Income](#)
[Policy 8.12, Inventory Control](#)
[Exhibit 8.12.1A, Vehicle or Equipment Disposition Form](#)
[Exhibit 8.12.1B, Final Disposition Report Form](#)

Replaces: Section 8.12.1 – January 1, 2021

POLICY 8.12.1 DISPOSITION OF VEHICLE OR EQUIPMENT (NON-EXPENDABLE)

1. **Vehicle or Equipment Disposition:** Disposal of a vehicle or equipment shall comply with **OMB 2CFR Part 200, Uniform Guidance** and the State of Washington Weatherization Manual (Wx Manual) Policy.
2. **Submitting the Disposition Form:** To dispose of a vehicle or equipment no longer needed in their Weatherization (Wx) Program, the Local Agency shall submit an **Exhibit 8.12.1A, Vehicle or Equipment Disposition Form (Disposition Form)**, via email to Commerce.

Exception: Only equipment whose acquisition cost was and current fair market value is less than \$5000 is exempt from submitting the **Disposition Form**.

- a. **Required Disposition Procedure:** The required disposition procedure is dependent on the acquisition cost and current fair market value and applies to a vehicle (of any value) or equipment (acquisition cost was \$5000 or more).

If current Fair Market Value (FMV) is:

- (1) **\$5,000 or More:** Prior written approval from Commerce is required.
 - (a) **DOE Approval Required** in addition to Commerce approval, if Local Agency used DOE funds to purchase vehicle or equipment.
- (2) **Less than \$5,000:** Prior written notification to Commerce is required:
 - (a) To offer to transfer vehicle or equipment within Wx Network for no compensation, for use in the Wx program
 - (b) To align Local Agency and Commerce inventories and confirm disposition method priority.
 - (c) Although, DOE has no interest in a vehicle or equipment with a current per-unit FMV less than \$5000.

- b. **Priority Order of Disposition Methods:** The Local Agency shall prioritize the method of disposition to achieve the maximum value and benefit for the Wx Program, in the following order:

Exception: Any vehicle or equipment that is deemed to be dangerous, which is beyond repair. See Section (5) **Destruction** (below) for requirements.

- (1) **Transfer within Wx Network** for no compensation, offer vehicle or equipment for use in the Wx program. Commerce will use the information the initiating Local Agency provides with the **Disposition Form** to offer vehicle or equipment to other Wx Network Local Agencies for use in the Wx Program.

After the required fourteen (14) day period, Commerce will provide initiating Local Agency with:

- (a) The contact person's information at the interested Local Agency to accept the transfer, or
- (b) Approval for disposal, if no other Local Agency expressed interest within the fourteen (14) period, in the following priority order:
- (2) **Trade-in** if replacing, use value of existing vehicle or equipment on replacement.
- (3) **Sell** in a formal sales bid process. Sale shall:
- (a) Be a public sale and publically posted.
- (b) Follow Local Agency's policies regarding sales and shall be documented.
- (c) Select and notify highest bidder, following proper procurement practices.
- (4) **Transfer within Local Agency** to Federally Funded Program (other than Wx) for fair market rate compensation, if vehicle or equipment current FMV is \$5000 or more.

Exception: No compensation is required if vehicle or equipment current FMV is less than \$5000.

Offer transfer of vehicle or equipment, for activities under federal program other than Wx with:

- (a) Same federal funder.
- (b) Different federal funder.
- (5) **Destruction:** Any vehicle or equipment that a Local Agency determines to be beyond repair, dangerous, or they are unable to transfer or sell may be destroyed or sold for scrap value. Document determination that vehicle or equipment needs to be destroyed and submit with **Disposition Form**.

Exception: The option of **Destruction** is NOT available for vehicles or equipment whose current FMV is \$5,000 or more.

3. **Determining Current Fair Market Value (FMV):** Fair market value (FMV) means the best estimate of the gross proceeds if the property were to be sold in a public sale, in the area of the Local Agency. Acceptable methods to determine current FMV include, but are not limited to, the following: using an existing Local Agency depreciation policy; using used retail value Kelley Blue Book, NADA guides values, or equivalent; or obtaining a dealer or vendor quote. Document valuation and attach to *Disposition Form*.
4. **Proceeds from Disposition:** The Local Agency shall use any disposition proceeds as Wx program income returning it to the funding source that originally purchased the vehicle or equipment. See **Section 8.11, Program Income** for more information.
5. **No Longer Providing Weatherization Services:** Regardless of current FMV, if the Local Agency is no longer providing Wx Services, the Local Agency shall transfer the Wx Program inventory: vehicle, equipment, or supplies in the following priority:
 - (1) Transfer to another Local Agency Wx Program,
 - (2) Sell items in a public sale and funds returned to the federal funder, via Commerce or directly to Commerce.
 - (3) Transfer within Local Agency to federally funded program (other than Wx) for fair market rate compensation, if vehicle or equipment current FMV is \$5000 or more. Funds returned to the federal funder, via Commerce or directly to Commerce.

Exception: No compensation is required if vehicle or equipment current FMV is less than \$5000.

Offer transfer of vehicle or equipment, for activities under federal program other than Wx with:
 - (a) Same federal funder.
 - (b) Different federal funder.
6. **Reporting Final Disposition Method:** Local Agencies shall submit **Exhibit 8.12.1B, Final Disposition Report Form** to report to Commerce the final disposition method and help align the inventory records.
7. **Documentation Required:** Local Agency files shall include all the following that apply:
 - j. Copy of completed **Exhibit 8.12.1A, Vehicle or Equipment Disposition Form, Exhibit 8.12.1B, Final Disposition Report Form**, and supporting documentation, including but not limited to:
 - (1) Copy of Current Fair Market Value (FMV) determinations,
 - (2) Photos,

- (3) Determination documentation that vehicle or equipment beyond repair or dangerous and needs to be destroyed,
 - (4) Copy of Commerce's email notice offering transfer of vehicle or equipment to WxNetwork, and
 - (5) Commerce's response to initiating Local Agency and authorized signature.
- k. Copy of public posting for sale.
- l. Vehicle or Equipment sales receipt.
- m. Program Income documentation.
- n. Copies of paperwork from salvage sale.
6. **Inventory Requirements:** Local Agencies shall account for disposition of vehicles or equipment in their Inventory records. See **Policy 8.12, *Inventory Control*** for more information.
7. **Record Retention Requirements:** Record retention limit dates start from the date of disposition.
8. **Income Reporting & Close-out Requirements:** See [Section 8.11, *Program Income*](#) and [Policy 8.8, *Final Contract Closeout Report*](#), for policies pertaining to reporting program income during contract closeout.

SECTION 8.12.2 WEATHERIZATION MATERIALS TRANSFER AND INVENTORY

A. Policy

1. Local Agencies may transfer materials inventory from one contract to another, within the same program, and between different programs.

Transfers within the Same Program

- a. At the close of a program contract period, unused materials may be purchased by the same program in the next contract period.
 - b. Local Agencies shall report the value of materials as a receipt and expenditure to the new contract for the program purchasing them, and as a credit to the program which is selling them. The credit is shown on the Final Contract Closeout Report as a reduction in expenditures to date for materials. See [Section 8.8, Final Contract Closeout Report](#), for additional information and forms.
2. Materials inventory transfers may be made at any time during a contract period, as well as at the close of a contract when there is a remainder of unused materials on hand.
 3. Local Agencies shall document the receipt and transfer of materials.
 4. Transfers shall be reported in the month the transfer takes place on the monthly request for reimbursement form ([Exhibit 8.7A, Sample Weatherization Program Request for Reimbursement](#)).
 5. In the case of a transfer at the end of a contract, the transfer shall be reported in the [Final Contract Closeout Report \(Section 8.8\)](#).

B. Procedure

1. Local Agency files shall include the following documentation:
 - a. Copies of requests for reimbursement forms ([Exhibit 8.7A](#)).
 - b. Copies of applicable forms in the [Final Contract Closeout Report \(Exhibit 8.8A\)](#).
2. See [Section 8.8, Final Contract Closeout Report](#)

Effective Date: May 17, 2022

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Weatherization Policy

See also:

[Chapter 39.12 RCW, *Prevailing Wages on Public Works*](#)

[Labor & Industries, *Prevailing Wage Rates*](#)

[Contractors not allowed to bid – Debarred contractor list](#)

[ESSB 5035, *Certified Payroll*](#)

Replaces: Section 8.13 – July 2015

POLICY 8.13 PREVAILING WAGES ON PUBLIC WORKS

POLICY PURPOSE

It is the responsibility of Low-Income Weatherization Assistance Program funded agencies (further known as Local Agencies) to comply with *Prevailing Wages on Public Works* (Chapter 39.12 RCW) by ensuring laborers performing work on low-income weatherization projects are paid the prevailing rate of wage for each county when applicable.

POLICY

To ensure correct state prevailing wages are paid to employees, contractors, and subcontractors who perform labor work on weatherization projects, Local Agencies shall follow all applicable laws when bidding, contracting, and paying for weatherization work. Local Agencies shall review all Washington State Department of Labor and Industries (L&I) approved “*Statements of Intent to Pay Prevailing Wage*” (Intent) and “*Affidavits of Wages Paid*” (Affidavit) to ensure reasonable worker classifications were applied based on the scope of work. Local Agencies may not release final payment to contractors until all Affidavits for the project are submitted to L&I.

POLICY DISCLAIMER

This policy is intended as a guide in the interpretation and application of the relevant statutes and regulations and may not be applicable to all situations. This policy does not replace applicable RCW or WAC standards.

This policy is effective as of the date of approval and supersedes all previous interpretations and guidelines. Changes may occur after the date of approval due to subsequent legislation, administrative rule, or judicial proceedings.

PROCEDURE

The following is a list of general procedures Local Agencies, their contractors, and subcontractors who perform labor on low-income weatherization projects shall follow to comply with the law. This list is not intended to address all situations and/or circumstances. Local Agencies who employ workers performing labor on a weatherization job site are required to fulfill both the Local Agency and Contractor duties listed in this procedure.

1. **Bidding and Contracting:** Local Agencies shall:

a. Post bid specification and contracts that state the following:

- (1) Laborers shall be paid according to their worker classification and list the applicable state prevailing wage rates in effect at the time of the bid.
- (2) Ensure all contractors and subcontractors (including owner/operators and sole proprietors) file Intents and Affidavits with L&I.
- (3) Any dispute in connection with prevailing wages and weatherization contracts which the parties cannot resolve among themselves shall be referred to the director of L&I for arbitration, and that the director's decision shall be final, conclusive and binding on all parties to the dispute.

Note: For contracts where the award was delayed more than six months after the bid was received, the prevailing wage rate in effect on the date of the award shall apply for the duration of the contract.

2. **Bid Documentation and Intent:** Contractors and Subcontractors shall:

a. Include the following documentation in all bids:

- (1) List of potential worker classifications as provided by L&I that could reasonably be utilized on the low-income weatherization project.
- (2) List current state prevailing wage rates for applicable worker classifications in the county(ies) where the work will be performed.

b. Once a contract (or subcontract) is awarded:

- (1) File Intent with L&I and if applicable, verify subcontractors have also filed Intents with L&I.
- (2) Provide Intent ID # or a copy of the L&I approved Intent for all laborers, including subcontractors to Local Agency.

3. **Verifying Contractor Eligibility:** Local Agencies shall:

a. Verify all contractors and subcontractors are:

- (1) Registered and licensed as contractors, as required by Washington law.
- (2) Not identified on the current *Debarred Contractor List* maintained by L&I.

Note: if a contractor is identified on the Debarred Contractor List, they cannot perform work on federal or state funded projects.

4. **Begin Work:** Local Agencies, Contractors, and Subcontractors shall:

- a. Perform work on a low-income weatherization project only after they have submitted their Intent to L&I, per RCW 39.12.040(1)(a).

Exception: Emergency work. Submit Intent after addressing emergency.

- b. The Intent does not need to be approved by L&I to start the work.

5. **Payroll Records:** Local Agencies (with crews), Contractors, and Subcontractors shall:

- a. Provide laborers performing work on a low-income weatherization project, an itemized statement detailing prevailing wage hours worked, rates of pay, classification of work performed, gross wages, and list of all deductions, included with each paycheck.
- b. Maintain Payroll Records for three (3) years for any laborers performing work on a low-income weatherization project. Payroll records shall show the following items: employee's name, address, Social Security number, worker classification, hourly rate of usual benefits, any overtime hours worked each day and week, including agreements to work up to 10-hour days, and the actual rate of wages paid.

Note: Employees who perform labor work in multiple counties should have the county where the work was performed included on their paycheck documentation.

6. **Paying Subcontractors:** Contractors, if applicable shall:

- a. Verify all vouchers/invoices submitted by subcontractors include language stating prevailing wages for projects identified were paid in accordance with the approved Intents and submitted Affidavits as filed with L&I, per RCW 39.12.040(1)(b).
- b. Issue progress (partial) payments to subcontractors only after they have provided proof of approved Intent from L&I for all laborers performing work on weatherization projects.
- c. Issue final payment* to subcontractors only after they ensure reasonable worker classifications were applied based on the scope of work submit their Affidavits to L&I, per RCW 39.12.040(1)(b).

**If no progress payment is issued, Contractors shall complete steps a.-c. before submitting invoices to Local Agencies.*

7. **Paying Contractors:** Local Agencies shall:

- a. Verify all vouchers/invoices submitted by contractors and subcontractors include language stating prevailing wages for projects identified were paid in accordance with the approved Intents and submitted Affidavits as filed with L&I, per RCW 39.12.040(1)(b).

- b. Issue progress (partial) payments to contractors only under the following circumstances:
 - (1) Contractors and subcontractors have provided proof of approved Intents for all laborers performing work on weatherization projects.
 - (2) Approved Intents provided by contractors and their subcontractors are reviewed by the Local Agency. The worker classification(s) used are expected to reasonably align with those utilized on weatherization projects and with contractor and subcontractor original bid documentation.
- c. Issue Final Payment* to contractors only under the following circumstances:
 - (1) Contractors and subcontractors have provided proof of approved Intents for all laborers performing work on weatherization projects.
 - (2) Verify contractors and subcontractors have submitted their Affidavits to L&I, per RCW 39.12.040(1)(b).
 - (3) Verify the work classifications listed on the Affidavit aligns with the work classification(s) included in the contractors and subcontractors bid.

**If no progress payment is issued, Local Agency shall complete all steps above.*

- 8. **Proof of Payroll:** Local Agencies (with crews), Contractors, and Subcontractors shall: Refer to ESSB 5035, *Certified Payroll*
 - a. Comply with L&I's requirement to file certified payroll, as required in ESSB 5035, *Certified Payroll*.

[2020 Standard Work Specifications \(SWS\)](#)

[Multifamily Weatherization Specification](#)

CHAPTER 9

HEALTH AND SAFETY

See also
[Policies and Procedures – P](#)
[Multifamily Policies – M](#)
[Specifications – S](#)
[Exhibits – E](#)
[Definitions – D](#)

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Weatherization Policy

See also:

[Specifications](#)
[Multifamily Weatherization Specification](#)
[OSHA 29 CFR 1910](#)
[OSHA 29 CFR 1926 Sub-Part AA](#)
[General Safety and Health Standards - Chapter 296-24 WAC](#)
[General Occupational Health Standards - Chapter 296-62](#)
[Policy 9.1.4, Confined Spaces](#)
[Policy 5.1.3, Deferral Standards](#)
[Policy 5.5.6, Ductless Heat Pumps \(DHP\)](#)
[Policy 5.7.3, Refrigerator Replacement](#)
[Policy 9.9, Asbestos](#)
[Policy 9.8, Lead-Based Paint](#)
[Policy 5.5.8, Thermostats](#)
[Policy 5.7.4, Energy Efficient Lighting](#)

Replaces: Section 9.1 - July 2016

[WAP Memorandum 013, Updated OSHA requirements for Confined Space Entry](#)

POLICY 9.1 WORKER HEALTH AND SAFETY

1. Minimizing Risk to Workers:

Local Agencies and Subcontractors in the Weatherization Assistance Program (WAP) shall provide weatherization services in a manner that minimizes risk to workers.

2. Remedying Energy-Related Health and Safety Hazards:

Local Agencies shall remedy energy-related health and safety hazards, which are necessary before or because of, the installation of weatherization materials.

3. Providing General Health and Safety Guidelines: The standards included here provide only general guidelines for health and safety concerns. Also see Field Guide.

Detailed specifications regarding worker health and safety are found in OSHA Safety and Health Standards (29 CFR 1926\1910) published by the U.S. Department of Labor; and corresponding WISHA Rule WAC 296-62. Worker safety rules of general application are also contained in State of Washington General Safety and Health Standards, Chapter 296-24 WAC, published by the Department of Labor and Industries. These standards are applicable to all workers providing services using funding under the DOE WAP program.

- a. **Taking Reasonable Precautions:** Workers shall take all reasonable precautions against performing work on homes that will subject workers or occupants to health and safety risks. Minor repairs and installation may be conducted only when necessary to effectively weatherize the home; otherwise these measures are not allowed.

The prevention of occupationally induced injuries and illnesses will be given precedence over production activities. To the greatest degree possible, the contractor will ensure that all equipment and facilities are in compliance with the Washington

Industrial Safety and Health Act (WISHA) standards. Weatherization personnel are required to exhibit caution and care during the course of the workday.

- b. **Identifying the Crew Leader/Foreman as the Responsible Party:** The crew leader/foreman is responsible for being in compliance with any instructions pertaining to health or safety as they apply to crew production activities:
- (1) Contact client before performing work. Provide the opportunity for discussing crew activities that will occur and occupant safety while work is in progress. When subcontractors are used, the program manager will be responsible for client contact.
 - (2) Ensure each crewmember is reasonably protected when production activities are being conducted.
 - (3) For pre-1978 buildings: Satisfy Section L. Lead-Based Paint Hazard Control. Inform the client of the nature of the work to be done, and encourage that children be off-site while the work is taking place.
- c. **Enforcing the Use of Personal Protective Equipment:** The use of personal protective equipment will be strictly enforced. Hearing and ear protection are required for individuals working around high decibel equipment. Each crew person will wear a respirator, protective eyewear, and protective clothing when necessary. Respiratory protection is required for individuals working in high-dust environments, including when using loose fill insulation blowing equipment, installing materials in attic and floor areas, and during prolonged use of grinding or power saw equipment. When working in an environment in which lead-based paint dust will be generated, each employee within the work area may be required to wear a properly-fitted National Institute of Occupational Safety and Health (NIOSH)-approved HEPA respirator and protective clothing which will be removed upon vacating the work area. (See OSHA and WISHA rules, Section L.3, Other Federal Government Regulations.)
- d. **Maintaining Hand and Power Tools:** All hand and power tools and similar equipment shall be maintained in a safe condition. This equipment will be inspected daily, and any equipment found defective shall be tagged and removed from service until it has been repaired or replaced. Protective guards are to be in place and functioning properly while a power tool is in use.

All electrical equipment, tools, and extension cords shall be grounded properly. All electrical power for 120-volt or greater will be protected by a ground fault circuit interrupter (GFCI). Any extension cords found defective (insulation worn or cut, or frayed wires) are to be removed from the job site and disposed of properly. It is recommended that, when using power tools on surfaces that contain lead-based paint, a HEPA dust collection attachment be used. Tools shall be cleaned after use.

- e. **Instituting General Fall Protection:** Portable ladders shall be placed on a substantial base at a four-to-one pitch. Extension ladders are to be extended a minimum of 36 inches above the landing (i.e., where roof access occurs), or where not practical, be provided with grab rails and be secured against movement while in use. Portable metal ladders shall not be used where they may contact electrical conductors.

The use of ladders with broken or missing rungs or steps, broken or split side rails, or with other faulty or defective construction is prohibited. When ladders with such defects are discovered, they shall immediately be withdrawn from service.

Extra precaution is required while weatherization activities are conducted on the roof area. When an individual is above 16 feet or adequate stability cannot be maintained, safety gear, such as harness or safety straps, is required.

- f. **Performing Housekeeping Activities:** All scrap lumber, waste material, and debris shall be removed from the immediate area as work progresses. An area outside the home should be designated for storing such material, which should be removed from the premises at the end of each workday or when the job is completed. (Local Agencies and subcontractors are encouraged to recycle materials whenever possible.)

Equipment shall be removed from the immediate work area and properly stored when no longer required or when each phase of the weatherization process is completed. Individuals shall be equipped with a tool belt or vest, in which hand tools not in use are then properly stored and readily accessible when required.

When lead-based paint dust is generated during the course of work, the area shall be cleaned no later than the end of each workday. All materials used in the debris collection system removed in a lead-safe manner, the area thoroughly vacuumed using a HEPA vacuum, and wash and wipe down the area with a detergent solution.

- g. **Working in Confined Spaces (Attic/Crawl):** When possible, cut out holes required for venting before work is started, installing vents after weatherization activities are completed. This procedure provides both additional ventilation and light.

Precaution shall be taken when working in areas with low clearance. Work in areas with less than 18-inch clearance may be waived. See **Policy 9.1.4, *Confined Spaces*** for more information.

Before weatherization activities are conducted, the following is required:

- (1) The Competent Person – Confined Spaces shall determine if the area is a permit-required or a non-permit confined space.

- (2) Health and safety corrective action documented on the Job Order Sheet is to be completed.
 - (3) Specific instructions are read and understood. Further clarification may be required from the Energy Analyst.
 - (4) An adequate and safe means of access is provided.
 - (5) Each individual has accessed the area and become familiar with existing conditions.
- h. **Removing Pollutants:** Removal of pollutants is allowed and is required if they pose a risk to workers. If pollutants pose a risk to workers and removal cannot be performed or is not allowed by the client, the unit shall be deferred. See **Policy 5.1.3, *Deferral Standards*** for requirements.
- (1) **Hazardous Materials Disposal -- Refrigerant, Asbestos, Lead, Mercury, including CFLs/Fluorecents:** Hazardous Waste Materials generated in the course of weatherization work shall be disposed of according to all local laws, regulations and/or Federal guidelines, as applicable. See specific policies for more information:
 - (a) **Refrigerants:**
 - i. **Policy 5.5.6, *Ductless Heat Pumps (DHP)*** for proper refrigerant disposal, and
 - ii. **Policy 5.7.3, *Refrigerator Replacement***, Section 7 for proper refrigerant disposal.
 - (b) **Asbestos: Policy 9.9, *Asbestos*** for proper asbestos disposal.
 - (c) **Lead: Policy 9.8, *Lead-Based Paint*** for proper lead disposal.
 - (d) **Mercury:**
 - i. **Policy 5.5.8, *Thermostats*** for proper thermostat (mercury) disposal.
 - ii. **Policy 5.7.4, *Energy Efficient Lighting*** for proper CFL and Fluorecents (mercury) disposal.

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Weatherization Policy

See also:

[WAC 296-155-120](#)

[Policy 9.1.4, Confined Spaces](#)

[L&I-DOSH Asbestos Awareness Training: Asbestos – Overview of Hazards and Regulations](#)

[Weatherization Program Notice \(WPN\) 22-7 Weatherization Health and Safety Guidance](#)

Replaces: Policy 9.1.1 - July 2018

POLICY 9.1.1 FIELD SAFETY TRAINING

1. **Maintaining Weatherization Health and Safety Program:** The Local Agency Weatherization Program Manager is responsible for maintaining the local agency's weatherization health and safety program. Specific responsibilities may be delegated to adequately trained and competent personnel.
2. **Training Field Safety:**
 - a. **Local Agency Field Safety Training Requirements:** All Local Agency weatherization field employees (including but not limited to auditors, inspectors, crew leads, crew members, and weatherization workers) shall receive the following Field Safety Training safety training prior to conducting field work.
 - (1) **OSHA 10 training** – an OSHA 10 card.

Exception: OSHA 30 training and certification may be substituted for OSHA 10.
 - (2) **Current First Aid and CPR training** - valid first-aid certificate and CPR proficiency cards. (Per *WAC 296-155-120*)
 - (3) **Confined Spaces training** – valid *Competent Person-Confined Space* certification
 - (4) **Mold Training** - Local Agency shall provide training in the mold inspection and documentation protocols established by the Department of Energy for all staff charged with assessing projects for weatherization. Procedures for worker protection are found in U.S. Department of Labor Occupational Safety and Health (OSHA) "*A Brief Guide to Mold in the Workplace.*"
 - (5) **Asbestos Awareness Training** – Washington State Department of Labor & Industries (L&I) Division of Occupational Safety & Health (DOSH) has an Asbestos Awareness Training: *Asbestos – Overview of Hazards and Regulations* available online. See *link* above.

Exception: Newly hired or reassigned field employees shall receive safety training within three (3) months of starting field work. Until training is complete, employees shall work with a trained employee.

- b. **Subcontractor Field Safety Training Requirements:** General Contractors, Subcontractors, and Subcontractors conducting specialty work such as electrical, plumbing, heating, ventilation and air conditioning under the Weatherization Program are themselves responsible for ensuring that they and their employees are in compliance with any local, state and national worker safety training requirements applicable to their work.
3. **Documenting Field Safety Training:** Local Agencies shall document all required Local Agency weatherization field safety training completed and ensure training certificate or other documentation is available for monitor review and verification.

Effective Date: July 1, 2016

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Weatherization Policy

Replaces: Section 9.1(partial) - July 2015

See also:
[L&I Safety Meetings and Committees](#)
[Sample Safety Meeting Topics](#)

POLICY 9.1.2 SAFETY MEETINGS

1. **Conducting Safety Meetings:** Local Agencies shall conduct safety meetings monthly.
2. **Attending Safety Meetings:** Local Agencies Weatherization staff, especially field staff shall attend monthly safety meetings.
3. **Content and Purpose of Safety Meetings:** The content of meetings should focus primarily on issues of current importance, for example, OSHA requirements, new information on safety procedures, or product-related information Safety Data Sheets (SDS). During the meeting, employees should be encouraged to ask questions.
 - a. The main purpose will be to ensure employees retain and understand information covered during the meeting.
 - (1) Limit the amount of information covered to just one issue, when possible, such as lifting, tool maintenance, electrical equipment, or understanding of Safety Data Sheets (SDS).
 - (2) Posters relating to such matters are available and should be displayed during the month that particular issue is discussed.
4. **Documenting Safety Meetings:** Local Agencies shall document each safety meeting with recorded minutes kept on file. Minutes shall include:
 - a. List of employee attendance; and
 - b. Topics discussed and concerns.

Effective Date: July 1, 2016 (*retroactive*)

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Weatherization Policy

Replaces: Policy 9.1.3 - July 2016

See also:
[OSHA's Hazard Communication Standard \(HCS\)](#)

POLICY 9.1.3 INSPECTING ON-SITE HEALTH AND SAFETY WORK PRACTICES

1. **Inspecting On-Site H&S Work Practices:** The Local Agency shall conduct an announced, on-site inspection of each crew monthly, including:
 - a. Ascertaining the extent of the client's understanding of weatherization activities being performed. If health and safety issues are documented, this information shall also be included in the discussion.
 - b. Inspecting condition of personal safety equipment and confirming that all crew members are adequately supplied. Crew members shall wear prescribed equipment if warranted by the activities being conducted.
 - c. Checking each crew vehicle (as required by OSHA for all jobsites) is supplied with a:
 - (1) Complete first aid kit designed to provide basic first aid;
 - (2) Adequately charged hand-operated fire extinguisher, designed for all three types of fire (electrical, wood, and liquid). Ensure service date has not expired; and
 - (3) Binder containing the local agency's Hazard Communication Plan including a list of hazardous chemicals (common and chemical name), location where they are used, usage and hazardous information (signs/symptoms of exposure and required first aid), and list of Safety Data Sheets. (Note: Copies of SDS are not required if master files are accessible by all crew members.) For more information and for Hazard Communication Plan templates, see OSHA's Hazard Communication Standard (HCS).
 - d. Inspecting hand and power tools and similar equipment. Any found to be defective should be tagged and removed from service. Equipment not in use shall be properly stored.
 - e. Inspecting work area to ensure activities are conducted in a safe manner, including provision of adequate light, proper disposal of debris, connection of power equipment to a ground fault circuit interrupter, and resolution of health and safety issues.
2. **Documenting Inspections:** Local Agencies shall document each inspection performed including: Date; Concerns discovered, and Actions required or taken to correct concerns.

Effective Date: October 1, 2020

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Weatherization Policy

See also:

[Safety in Confined Spaces](#) (OSHA Confined Space 11 05 17 recording)

[OSHA's Confined Spaces FAQs](#)

[OSHA FactSheet: Confined Spaces in Residential Constructions](#)

[Competent Person Attestation Form](#)

[Exhibit 9.1.4, Confined Space Evaluation Form](#), example

[OSHA 29 CFR 1926 Sub-Part AA](#)

[Protecting Construction Workers in Confined Spaces: Small Entity Compliance Guide](#)

[L&I Confined Spaces – Chapter 296-809, WAC](#)

[WAC 296-809](#)

Replaces: Policy 9.1.4 - Nov 15, 2017

[WAP Memorandum 013, Updated OSHA requirements for Confined Space Entry](#)

POLICY 9.1.4 CONFINED SPACES

- 1. Complying with Confined Spaces Requirements:** Local Agencies shall comply with Washington Industrial Safety and Health Act of 1973 (WISHA) requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces (e.g. Attics, Crawlspace, etc.). See Occupational Safety and Health Administration (OSHA) 29 CFR 1926 Sub-Part AA and Division of Occupational Safety and Health (DOSH) part of Department of Labor and Industries (L&I) Confined Spaces – Chapter 296-809, WAC.
- 2. Adopting and Implementing a Confined Spaces Program:** Local Agencies and their subcontractors shall adopt and implement a Confined Space Program based on WAC 296-809.
- 3. Requiring Competent Person-Confined Space Training and Certification:** All Local Agency Weatherization field staff (including but not limited to auditors, inspectors, crew leads, crew members, and weatherization workers) shall receive “Confined Space” training and a *Competent Person-Confined Space* certification. Online video training is available for self-training (See Section 4b, below).

For Contractor and Subcontractor field safety training requirements, see **Policy 9.1.1 Field Safety Training**, Section 2b, *Subcontractor Field Safety Training Requirements*.

- 4. Certifying a Competent Person-Confined Space:** At a minimum, each [Competent Person-Confined Space](#) shall meet all the following requirements:
 - Complete OSHA 10 or OSHA 30 training and receive certification.
 - Complete Confined Space Training. To meet this requirement view the prerecorded confined space presentation: *Safety in Confined Spaces - Implications for Weatherization*, (OSHA Confined Space 11 05 17 recording) presented by the Building Performance Center (BPC).
 - Read two OSHA documents: Confined Space FAQ's and OSHA FactSheet: *Confined Spaces in Residential Construction*

- d. Complete and send the formalized Competent Person Attestation Form to the BPC.
The BPC will issue a Competent Person-Confined Space certificate.
5. **Documenting Confined Space compliance:** Local Agencies shall document in the client file (project file) the name of “Competent Person-Confined Space,” each [Confined Space](#) assessed, determination of whether each space was permit-required or a non-permit confined space, and required documentation for any permit-required confined spaces.

Effective Date: January 1, 2021

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Weatherization Policy

See also:

[Weatherization Program Notice \(WPN\) 22-7 Weatherization Health and Safety Guidance](#)

[Policy 5.2.1, Energy Audit](#)

[Exhibit 5.1.4A Client Health and Safety Packet](#)

[Policy 9.2.1, Weatherization Plus Health](#)

[Policy 5.1.3, Deferral Standards](#)

Replaces: Section 9.2 – July 1, 2019

POLICY 9.2 CLIENT HEALTH AND SAFETY

1. **Minimizing Risk to Clients:** The Weatherization Assistance Program provides weatherization (Wx) services in a manner that minimizes risk to clients. The Weatherization Assistance Program remedies energy-related health and safety (H&S) hazards, which are necessary before, or because of, the installation of weatherization materials. Agency crews and contractors will be aware that some individuals' health problems could be exacerbated by weatherization activities. For example, some clients can be sensitive to dust generated from the installation of cellulose insulation
2. **Occupant Avoiding Hazards:** When a person's health may be at risk or WAP work activities could constitute an H&S hazard, the occupant will be required to take appropriate action based on severity of risk. Alternatively, the work may be deferred until such time that the conditions or circumstances are more favorable. Costs associated with temporary relocation of at-risk occupants may be allowed on a case by case basis with Commerce approval
3. **Awareness:** Awareness of potential hazards is essential to providing quality services. DOE's preferred approaches to common hazards are provided in *Weatherization Program Notice (WPN) 22-7*. Other energy-related hazards are considered on a case-by-case basis.
4. **Prevention:** Prevention is the best solution to any health and safety hazard. The Weatherization Assistance Program takes all reasonable precautions when performing work on homes that will subject clients to health and safety risks.
 - a. **Health and Safety Assessment:** Before beginning work on the residence, the agency shall take into consideration the health concerns of each occupant, the condition of the dwelling, and the possible effect of work to be performed on any particular health or medical condition of the occupants.

Each Energy Audit includes a health and safety assessment including, but not limited to: combustion safety, indoor air quality, mold assessment, and pollution source survey. See **Policy 5.2.1, Energy Audit** for requirements.

Also see **Exhibit 5.1.4A, *Client Health and Safety Packet – Part 1: Client Informed Consent Form- Mold Assessment and Release Section*** and ***Part 3: Pollution Source Survey***.

- b. **Weatherization Plus Health:** Subject to Wx+H Work Plan submittal and approval, Local Agencies shall integrate weatherization and healthy homes improvements to reduce respiratory symptoms of eligible low-income clients. See **Policy 9.2.1, *Weatherization Plus Health*** for requirements
5. **Deferral:** The Weatherization Assistance Program defers work on dwellings without providing weatherization services when problems are encountered that are beyond the scope of the Weatherization Assistance Program. See **Policy 5.1.3, *Deferral Standards*** for requirements.

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Weatherization Policy

See also:

[Policy 1.4.2, Owner Contributions](#)
[Exhibit 9.2.1B, Self-Declaration of Qualifying Condition for Weatherization Plus Health Project Form](#)
[Exhibit 6.9A, Funding Over-Limit Request Form](#)
[Department of Ecology, Recipes for Safer Household Cleaners](#)
[Exhibit 5.1.4A Client Health and Safety Packet](#)
[Exhibit 5.1.4B, Client Education Guide](#)
[HB 1720 – Matchmakers \(State Wx+H\) Legislation](#)
[Overview of the Healthy Home Rating System \(HHR\)](#)
[Healthy Home Rating System – Operating Guidance](#)
[Healthy Home Rating System – Scoring Sheet](#)

Replaces: Policy 9.2.1 – November 6, 2020

POLICY 9.2.1 WEATHERIZATION PLUS HEALTH (WX+H)

The Weatherization Plus Health (Wx+H) Program purpose is to integrate Healthy Homes improvements (Plus Health (+H) Measures) into Weatherization (Wx) projects for eligible low-income clients, to:

- Reduce household hazards to make homes safer, prevent injury, and reduce illness,
 - Prevent slip, trip, and fall hazards, and
 - Mitigate triggers for respiratory issues including asthma and COPD, with the goal of reducing avoidable hospitalization and emergency department visits.
1. **Weatherization Program is Basis:** Local Agencies shall conduct the Wx+H Program in conjunction with the Wx Program.
 - a. **Wx+H Work Plan:** Local Agencies shall complete the Plus Health (+H) section within their annual *Local Agencies Annual Weatherization Work Plan*.
 - b. **Wx Requirements:** Local Agencies shall serve homes in accordance with the State of Washington Weatherization Manual (Policies and Procedures and Supporting Documents) and Field Guide (Specifications). Follow general Weatherization policies as a basis however; specific Wx+H requirements will take precedence.
 - c. **Wx+H Assessment:** Local Agencies shall perform a Wx+H Assessment (using the standardized forms **Exhibit 5.1.4A, Client Health and Safety Packet** (including the *Informed Consent, Observed Conditions, and the Pollution Source Survey*).
 - d. **Plus Health Measures:** The Wx+H Program adds limited Plus Health (+H) Measures (Healthy Homes Improvements) to the existing suite of approved Wx activities. Local Agencies' Auditor shall establish need for correcting household health hazards or addressing medical needs in the Assessment/Audit.
 - (1) **Household Health Hazards:** Correcting hazards to prevent injury or illness such as slip, trip, or fall hazards. Document household health hazards justifications in project file.

(2) **Medical needs:** Addressing medical needs such as respiratory illness by eliminating respiratory trigger issues including removing carpet and replacing with solid surface flooring. Local Agency staff shall verify medical need and document with an attestation they witnessed any of the following: medical records, medical diagnosis, referral by a medical professional or health agency, or documentation client received health services (i.e. emergency room visit, DSHS services, use of medical equipment such as an oxygen tank (NOT including over-the-counter diffuser), etc.). Document medical need, not medical records in project file.

2. **Training and Certification Requirements:** Wx workers including Local Agencies' staff, contractors, and partners providing Wx+H services shall acquire Wx+H specific training or certification as required for the following responsibilities:

a. **Assessor and Client Educator:** Wx Workers performing the Wx+H Assessment or providing the Wx+H Client Education may assist the BPI certified Auditor with the Wx+H assessment and make recommendations for +H Measures. Local Agencies' Wx+H Assessor and Wx+H Client Educator shall, at a minimum receive:

(1) Healthy Homes Evaluator Training.

b. **Auditor:** Wx Workers performing the Wx+H Audit (may also include the Wx+H Assessment) shall make determination to either provide or defer +H Measures and establish the Wx+H Scope of Work. Local Agency's Wx+H Auditor shall, at a minimum receive:

(1) BPI Healthy Homes Evaluator Certification

Exception: An Auditor with a Building Analyst (BA), Energy Auditor (EA), or Quality Control Inspector (QCI) Certification may meet the intent of this requirement by taking the Healthy Homes Evaluator Training.

c. **Installer - Crews, Contractors, and Subcontractors:** Wx workers only installing +H measures, do not need specific Wx+H training or certification.

d. **Inspector:** Wx Workers performing the Wx+H Quality Control Inspection (someone other than the Auditor or the Installer(s)) shall conduct final inspections for installed +H Measures. Local Agencies' Wx+H Inspector shall, at a minimum receive:

(1) Quality Control Inspector (QCI) Certification, and

(2) BPI Healthy Homes Evaluator Certification

Exception: An Inspector with a Quality Control Inspector (QCI) Certification may meet the intent of this requirement by taking the Healthy Homes Evaluator Training.

For +H Measures not-Installed: Wx workers or clients may verify delivery or receipt of +H Measures that do not require installation, including but not limited to dust mite covers and HEPA vacuum cleaners.

3. **Funding Wx+H:**

- a. **Allowable Fund Sources:** Local Agencies may use Commerce administered Washington State Weatherization Plus Health (State) funding.
- b. **Budget Categories:** For a measure allowed in multiple budget categories, the funding guidance recommendation is to fund the measure in the following priority order:
 - (1) Weatherization - Health and Safety (H&S) Measures
 - (2) Weatherization Plus Health - Plus Health (+H) Measures
- c. **Owner Contributions for Rentals:** Local Agencies shall make every effort to leverage owner contributions wherever possible for all Weatherization Plus Health projects. See **Policy 1.4.2, Owner Contributions** for more information. Document efforts in the project file.
- d. **Wx+H Project Funding Limits:**
 - (1) **\$4000 or Less:** For all Wx clients with **Exhibit 9.2.1B, Self-Declaration of Qualifying Condition for Weatherization Plus Health Project**, the budget of \$4,000 or less per unit is available to provide Plus Health (+H) Installed Measure Costs (IMC). Document measure justifications in project file.
 - (2) **Greater than \$4000 to \$8000:** For verified severe household health hazards and verified medical respiratory issues, Local Agencies shall not exceed \$8,000 per unit Installed Measure Costs (IMC).

Exception: Local Agencies may request spending approval in excess of the set maximum by submitting **Exhibit 6.9A, Funding Over-Limit Request Form** providing appropriate written justification. To exceed the set \$8000 maximum, Local Agencies shall receive prior written approval from the Commerce Washington State Weatherization Plus Health (State) Program Manager.

4. **Wx+H Project Types:**

- a. **Wx+H Comprehensive Projects:** Wx+H Comprehensive Projects shall receive all appropriate Wx Measures with Wx funding and Plus Health (+H) Measures with Wx+H funding, ensuring each home's scope of work results in quality cost-effective energy efficiency and healthy home measures.
- b. **Plus Health Stand-Alone Projects:** Local Agencies may perform Plus Health Stand-Alone projects (+H Measures, without Wx) in the following situations:

- (1) **No Weatherization Opportunities:** Local Agencies shall conduct a Wx Energy Audit/Assessment to confirm there are no Wx opportunities. Document in project file why there are no Wx opportunities (e.g. Wx project already performed, no need for any Wx Measures, or Wx project shall be deferred and why).

Exception: A new Wx Energy Audit is not required if a Wx project final inspection date is within one year prior to the date client is verified income eligible for Wx+H.

- (2) **Multifamily Projects:** If a multifamily building does not qualify for Wx, specific units with income eligible clients may receive +H Measures in a Plus Health Stand-Alone project.

5. **Wx+H Measures:**

- a. **Materials:** Local Agencies shall install products that are not harmful to the health of the tenants. Use products that are innocuous, non-toxic, and rated with low volatile organic compound (low-VOC) content or low-VOC emissions. When installing new products and materials, consider using the least toxic product or material feasible to do the job effectively.

- b. **Plus Health (+H) Program Measures:** The following are allowable +H Measures using Washington State Weatherization Plus Health (State) funding for the Wx+H Program funding, only:

- (1) **Dust Mite Covers:** Provide dust mite covers including mattress, box spring, and pillow rated at 10 microns or less to protect bedding from respiratory triggers such as: dust mites, pollen, mold spores, animal dander, bed bugs, and fleas.

- (2) **HEPA Vacuum Cleaner:** With a HEPA rated filter, a vacuum to control and eliminate respiratory triggers including but not limited to: dirt, dust particles, allergens, hair, debris, pet hair, and dander.

- (3) **Slip, Trip, and Fall Hazards Prevention:**

- (c) Ramps and fixing irregular steps

- (4) **Flooring:**

- (a) **Carpet removal procedure:**

- i. Flooring replacement is limited to two rooms.

Exception: Local Agencies may exceed two rooms with written request and recommendation from medical professional and prior written approval from the Commerce Washington State Weatherization Plus Health (State) Program Manager.

- ii. Remove Carpeting: Local Agencies shall recycle carpeting if possible and not too soiled.

Exception: Local Agencies exempt from carpet recycling requirement, if no carpet recycling service is available in their area or if the recycler rejects the carpet.

- iii. Address any condition in need of correction (e.g. repair subfloor, seal subfloor-allowing extra time for application/drying, exterminate pests, and repair pest damage.)

- iv. Install low-VOC, solid surface flooring.

(5) **Comprehensive Cleaning:** Local Agencies are allowed to perform a one-time comprehensive cleaning to enable Wx, +H, or Repair Measures.

(6) **Establishing Community-Service Delivery Partnership:** While not a requirement, establishing partnerships with health providers and other community partners is encouraged.

(a) **Client Behavior and Health:** Health care providers are more able to address client and client health, whereas Wx focuses on building improvements.

(b) **Leveraged Funds:** Ideally, use partner leveraged funds to improve client health, preserving Wx funds for building improvements.

(c) **Health Care Follow-up and Client Education:** Local Agencies may use Wx+H funding to conduct a maximum of three (3) follow-up visits (consider appropriate time-frame such as: a 30 day, three-month, six-month, nine-month, or one-year) to provide continued client education after the Wx+H project final inspection. To qualify for reimbursement, Community Partners shall receive Local Agencies' approval of activities prior to expenditures. Specific to client medical need, the intent of this follow-up visit and client education is to affect behavioral change (rather than installing building measures) to improve health needs.

c. **Weatherization (Wx) Program Measures:** The following are allowable measures that can be justified through either the Wx+H Program or the Wx Program.

If measures are justified as Plus Health (+H) Measures through the Wx+H Program, then Local Agency shall use Washington State Weatherization Plus Health (State) funding, only.

If measures are justified as Wx Measures (WxM), Health and Safety (H&S) Measures, or Weatherization-Related Repair (WRR) Measures through the Wx Program, then other Wx Program funding can be used.

- (1) **Client Education:**
 - (a) **Basic Health and Safety Client Education:** At a minimum, Local Agencies shall review with the client and provide them a written copy of the **Exhibit 5.1.4B, Client Education Guide, Exhibit 5.1.4A Part (2), Client Health and Safety Observed Conditions Form**, and the **8 Keep It Principles**.
 - (a) **Equipment Instructions and Maintenance:** Local Agencies shall also provide client with instructions and maintenance on Wx+H Measures installed or provided.
 - (b) **If Local Agency has a partnership with Healthcare provider:**
 - i. Advanced Medical Need Client Education, including health information and behavioral recommendations.
 - ii. Pre and post Medical Community Healthcare Worker Follow-up Visits.
- (2) **Green Cleaning Kit:**
 - (a) Recipes for non-toxic cleaning solutions.
 - (b) Basic cleaning supplies including but not limited to: Bucket, Vinegar, Baking Soda, Castile Soap, Micro fiber dust cloth, and Sponges.
- (3) **Walk-off Door Mat:** Provide up to four (4) door mats (front, back, interior, and exterior) to minimize outside dirt and pollutants tracked into interior.
- (4) **Water heater Temperature Adjustment:** Adjust water temperature to 120°F.
- (5) **CO Detector:** See **Policy 9.5, Smoke Detectors, Carbon Monoxide (CO) Detectors, & Fire Extinguishers**.
- (6) **Smoke Detector:** See **Policy 9.5, Smoke Detector, Carbon Monoxide (CO) Detectors, & Fire Extinguishers**.
- (7) **Toxic Household Chemicals:** Local Agencies, in cooperation with the client will assure proper disposal (e.g. HazoHouse and no special permit required) and safe handling of any toxic household chemicals, if discarding.
- (8) **Furnace Filter:** Provide up to six (6) disposable or two (2) washable and reusable furnace filters.
- (9) **Slip, Trip, and Fall Hazards Prevention:**
 - (a) Handrails
 - (b) Grab bars
 - (c) Shower mat
 - (d) Fixing soft spots
- (10) **Pest Mitigation:** See **Policy 9.11, Pests**.

(11) **Mold and Moisture Reduction:** See **Policy 9.6, *Biologicals and Unsanitary Conditions, including Mold and Moisture.***

- (a) Dehumidifier
- (b) Dehumidistat
- (c) Leak repair
- (d) Sump Pump
- (e) Drainage system
- (f) Mold Remediation: Suspected mold clean up, mold mitigation, and source control (i.e. correction of moisture and mold creating conditions.)
- (g) Ground Cover

(12) **Mechanical Ventilation:** See **Policy 9.3, *Indoor Air Quality – Mechanical Ventilation.***

- (a) Exhaust only
- (b) Supply system
- (c) ERV or HRV
- (d) Other Advanced System

(13) **Roofing Repair:** Limited roofing repair is allowable.

(14) **Plumbing Repair:** Limited plumbing repair is allowable.

(15) **Gutter and Downspout:** Local Agencies shall repair or install gutters and downspouts to correct issues and prevent mold, rot, or other moisture problems.

(16) **HVAC System Cleaning:**

(17) **Air Filter:** Local Agencies are allowed to install air filter with a MERV rating of 8 or higher.

(18) **Lead Remediation:** *To be developed*

6. Reporting and Evaluation

a. Weatherization Information Data System (WIDS) Data:

- (1) Please enter all applicable information required by WIDS. As needed, Commerce may request additional information.
- (2) Local Agencies shall document Wx+H projects in WIDS using the existing Wx project numbers if the project is not closed in WIDS.

Exception: Local Agencies may enter Wx+H projects into WIDS with a new project number if the project is closed in WIDS. Changing project closed dates for reported jobs will result in inaccurate reporting by Commerce.

7. **Documentation:** The Local Agency shall document all Wx+H information. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.

Effective Date: July 2018

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See also:

[Weatherization Program Notice \(WPN\) 22-7 Weatherization Health and Safety Guidance](#)
[Exhibit 9.3, Mechanical Ventilation Worksheet](#)
[ASHRAE 62.2-2016 – Residential Energy Dynamics \(RED\) Calc Tool](#)
[Exhibit 5.S3A, Diagnostic Test Report](#)
[Policy 5.1.4, Client Education](#)
[Policy 5.1.2, Weatherization Project Documentation](#)

Replaces: Policy 9.3 – July 2017

POLICY 9.3-SF INDOOR AIR QUALITY – MECHANICAL VENTILATION

Purpose: The ASHRAE Standards, *Ventilation and Acceptable Indoor Air Quality* define the roles of, and minimum requirements for, mechanical and natural ventilation systems and the building envelope intended to provide [Acceptable Indoor Air Quality](#) (IAQ) in residential buildings.

1. **Ventilating Dwelling Units:** The Local Agency shall comply with ASHRAE *Standard 62.2 – 2016* including *Appendix A: Existing Buildings* to provide mechanical ventilation to alleviate excess moisture and the buildup of indoor pollutants for single-family dwellings, when performing weatherization activity.
2. **Calculating Dwelling Unit Ventilation (Blower Door Test Required):** Local Agency shall ensure completion of Mechanical Ventilation Worksheet, pre- and post-weatherization, documenting compliance with ASHRAE *Standard 62.2 – 2016 Ventilation and Acceptable Indoor Air Quality in Low-Rise Buildings (Appendix A: Existing Buildings)*. See **Exhibit 9.3, Mechanical Ventilation Worksheet**

Exceptions:

- (1) ASHRAE *Standard 62.2 – 2016 – Residential Energy Dynamics (RED) Calc Tool:* If RED is used, Commerce may ask Local Agencies for calibration to assure consistent results with **Exhibit 9.3, Mechanical Ventilation Worksheet**.

- (2) **ASHRAE Standard 62.2 – 2016 – Table 4.1a (I-P) Ventilation Air Requirements, cfm:** Using this table will result in higher ventilation levels as it is more general approach and relies on more conservative values, than calculating ventilation for specific units.

TABLE 4.1a (I-P) Ventilation Air Requirements, cfm

Floor Area, ft ²	Bedrooms				
	1	2	3	4	5
<500	30	38	45	53	60
501–1000	45	53	60	68	75
1001–1500	60	68	75	83	90
1501–2000	75	83	90	98	105
2001–2500	90	98	105	113	120
2501–3000	105	113	120	128	135
3001–3500	120	128	135	143	150
3501–4000	135	143	150	158	165
4001–4500	150	158	165	173	180
4501–5000	165	173	180	188	195

- (3) **ASHRAE Standard 62.2 – 2016 – Formula**

$$Q_{tot} = 0.03A_{floor} + 7.5(N_{br} + 1)$$

3. **Calculating Dwelling Unit Ventilation (No Blower Door Test Performed):** The Mechanical Ventilation Worksheet is prohibited if the blower door testing is not performed (e.g. vermiculite, asbestos tape, etc.) The infiltration credit is not allowed without the blower door test results.

When no blower door test is performed, Local Agencies shall use the **ASHRAE TABLE 4.1a (I-P) Ventilation Air Requirements, cfm** or the ASHRAE calculation formula, as noted in **Section 2, Exceptions b and c** (above).

4. **Dwelling Unit Mechanical Ventilation Required:** Dwelling Unit mechanical ventilation is required to comply with **ASHRAE Standard 62.2 - 2016** including *Appendix A: Existing Buildings*.

Exception: Dwelling Unit ventilation is not required when Q_{fan} is less than or equal to 15 cfm.

- a. **Dwelling Unit Ventilation System Types:**

A mechanical exhaust system, supply system, or combination thereof shall be installed for each dwelling unit to provide Dwelling Unit ventilation.

- (1) The Dwelling Unit ventilation system shall consist of one or more supply or exhaust fans and associated ducts and controls.
- (2) Local exhaust fans shall be permitted to be part of a mechanical exhaust system.
- (3) Outdoor air ducts connected to the return side of an air handler shall be permitted as supply ventilation if manufacturer's requirements for return air temperature are met.

b. Dwelling Unit Fan Requirements:

(1) Existing fans:

Existing fans providing Dwelling Unit ventilation (in part or in whole) are exempt from any sound rating (*ASHRAE Standard 62.2, Appendix A, Section 4.1*).

(2) Newly installed fans:

Fans installed to provide Dwelling Unit ventilation shall have a sound rating of 1.0 sones or less as determined by the Home Ventilation Institute (www.hvi.org/)

Exception: Air handlers, HRV/ERVs, inline fans and remote mounted fans are exempt from sound rating requirements if mounted a minimum of four (4) feet from the grill.

c. Controls of Dwelling Unit Mechanical Ventilation:

A readily accessible manual ON-OFF control, including but not limited to a fan switch or a dedicated branch-circuit overcurrent device, shall be provided for either intermittent or continuous systems. Controls shall include text or an icon indicating the system's function.

5. Local Exhaust in Kitchens: A working exhaust fan shall be present in kitchens where a gas combustion range, cooktop, or oven is present.

a. Ventilation level

A kitchen exhaust fan installed by the local agency shall be Heating Ventilation Institute (www.hvi.org/) rated to deliver a minimum of 100 cfm intermittent at 0.25 inches water gauge or 5 air changes per hour continuous. Kitchen exhaust fans shall be rated for sound at a maximum of 3.0 sones, unless their maximum rated airflow exceeds 400 cfm. When existing equipment does not meet this requirement the Dwelling Unit ventilation rate may be adjusted to overcome the deficit.

b. Fan rating

Exhaust fans installed directly over a range or oven shall be rated for installation in this location.

c. Kitchen fan control

Kitchen fans shall be controlled by the manufacturer's switch or a wall mounted switch.

- 6. Local Exhaust in Bathrooms:** A bathroom exhaust fan installed by the Local Agency shall be rated to deliver a minimum of 50 cfm intermittent at 0.25 inches water gauge or 20 cfm continuous. When existing equipment does not meet this requirement the Dwelling Unit ventilation rate may be adjusted to overcome the deficit.

a. Sound rating:

Exhaust fans installed by local agency:

(1) Intermittent: 3.0 sones or less

(2) Continuous: 1.0 sone or less

b. Energy use

Exhaust fans installed to provide local bathroom exhaust shall have an operating watt draw of 50 watts or less.

c. Bathroom fan control

A readily accessible manual ON-OFF control shall be provided for each demand controlled mechanical exhaust system. Automatic control devices such as but not limited to the following shall be permitted provided they do not impede manual ON-OFF control: humidity sensors, shut-off timers, occupancy sensors, multiple-speed fans, combined switching, IAQ sensors, etc.

- 7. Crawlspace and Garage Ventilation:** Exhaust fans may be installed for operation in crawlspaces or garages to exhaust pollutants and maintain a pressure boundary relative to the dwelling unit. Fans installed shall be rated for continuous use. Ventilation flows shall not be included in the *ASHRAE Standard 62.2 – 2016* mechanical ventilation calculation. Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum 26-gauge sheet steel and shall have no openings into the garage.

a. **Sizing crawlspace and garage fans**

Local Agency shall size the fan to maintain negative pressure relative to the dwelling unit during normal operating conditions.

b. **Crawlspace and garage fan controls**

Exhaust fans installed in crawlspaces shall be wired to exhaust continuously with a switch near the fan to allow shut down of fan for maintenance.

c. **Verification of fan performance**

Local Agency shall verify that fan performance during normal operating conditions creates a negative pressure with reference to the dwelling unit.

d. **Fan rating**

Fans installed for the purpose of maintaining a pressure boundary shall be rated for continuous operation.

e. **Fan termination point**

Fans installed for the purpose of maintaining a pressure boundary shall not terminate within five (5) feet of a door, window, combustion appliance air-intakes, or fresh air intakes.

8. **Ventilation System Performance Testing and Setting:**

- a. **Airflow Measurement:** Testing shall be performed with a flow hood, flow grid, exhaust fan flow meter, or other airflow measuring device used in conjunction with a digital manometer.

Exceptions:

- (1) When performance testing of the kitchen hood is not practical or possible, one of the following methods may be used to estimate flow:
 - (a) The airflow rating at a pressure of 0.25 inch wc (62.5 Pa) may be used, provided the duct sizing meets the prescriptive requirements of **ASHRAE Standard 62.2 Table 5.3**. If airflow ratings for the existing equipment are available at 0.1 inches wc (25 Pa) but not at 0.25 inch wc (62.5 Pa), those values may be used, provided they are reduced by 25%.
 - (b) Use the Air Leakage Chart on **Exhibit 5.S3A, Diagnostic Test Report** in conjunction with blower door measurement, (Tooley chart), or
- (2) Clothes dryer fans are not required to be tested.

b. **Testing Requirements:**

- (1) **Audit - Pre-Wx Project Assessment:** All existing and accessible exhaust, supply, and combination systems shall be performance tested.
- (2) **Testing Out – After Installation:** All newly installed or modified ventilation systems shall be performance tested and documented in the client file (project file).
- (3) **Inspection – Post Wx Project:** Local Agencies' quality control inspector (QCI) shall measure airflow of resultant ventilation system, including existing, modified, and newly installed ventilation equipment during the final inspection.

Exception: If qualified QCI performs Functional Performance Testing for 100% of the ventilation system, this in-progress inspection suffices. Ventilation system testing does not need to be repeated at final inspection.

- c. **Setting Requirements:** At completion of Weatherization work, all mechanical ventilation rates shall be set (adjusted) for run time and CFM to achieve minimum ACH required by **ASHRAE Standard 62.2**.

9. **Client Education:** Local Agencies shall provide ventilation system information to all clients. See **Policy 5.1.4, Client Education** for requirements.
10. **Documentation:** Local Agencies shall document ventilation strategy, calculations (MVW, RED, Table 4.1a, or formula), performance testing, and client education delivered in the client file (project file). See **Policy 5.1.2, Wx Project Documentation** for requirements.

Effective Date: July 2018

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See also:

[Weatherization Program Notice \(WPN\) 22-7 Weatherization Health and Safety Guidance](#)
[Exhibit 9.3. Mechanical Ventilation Worksheet](#)
[Policy 9.3, Indoor Air Quality - Mechanical Ventilation](#)
[Policy 5.2.6-MF, Multifamily Representative Sample](#)
[ASHRAE 62.2-2016 – Residential Energy Dynamics \(RED\) Calc Tool](#)
[Policy 5.1.4, Client Education](#)
[Policy 5.1.2, Weatherization Project Documentation](#)

Replaces: Policy 9.3 – July 2017

POLICY 9.3-MF MULTIFAMILY INDOOR AIR QUALITY - MECHANICAL VENTILATION

Purpose: The ASHRAE Standards, *Ventilation and Acceptable Indoor Air Quality* define the roles of, and minimum requirements for, mechanical and natural ventilation systems and the building envelope intended to provide [Acceptable Indoor Air Quality](#) (IAQ) in residential buildings.

1. Ventilating Multifamily Buildings:

- a. **Ventilating Dwelling Units:** The Local Agency shall comply with *ASHRAE Standard 62.2 – 2016* including *Appendix A: Existing Buildings* to provide mechanical ventilation to alleviate excess moisture and the buildup of indoor pollutants for dwelling units within multifamily buildings, when performing weatherization activity.

Exceptions:

- (1) Multifamily dwelling unit ventilation on/off switches do not have to be readily accessible to the occupant.
 - (2) Rooftop exhaust fans may use more than 50 watts.
 - (3) Garage ventilation requirements do not apply to multifamily buildings. Parking garage ventilation systems should be operated on a demand basis controlled by a CO detector.
- b. **Ventilating Common Areas:** The Local Agency Auditor shall evaluate the need for common area ventilation (e.g. stale air, odors, poor indoor air quality, mold, etc.) within multifamily buildings, when performing weatherization activity.
 - (1) **Existing Common Area Ventilation System:** The auditor shall evaluate the existing system for adequate ventilation. When in the opinion of the Auditor ventilation is not adequate, then repairs or replacement shall be part of the scope of work.

(2) **No Existing Common Area Ventilation System:** If the auditor deems adding a ventilation system is needed, physically possible due to building construction or design, and financially feasible a common area ventilation system shall be installed.

(a) **Installing:** When common area ventilation systems are designed or installed, compliance with *ASHRAE 62.1-2016* is recommended.

Exceptions:

- i. Ventilation systems designed by a professional licensed engineer.
- ii. Ventilation systems using a pressurized or depressurized strategy with undercut doors;
- iii. Historic preservation and maintaining the property on the historic register.

(b) **Not Installing:** When an Auditor deems a common area ventilation system is not required or not feasible then the reason for not installing the system shall be documented in the project file.

2. Calculating Multifamily Ventilation:

a. **Calculating Dwelling Unit Ventilation(Blower Door Test Required):** The Local Agency shall ensure completion of Mechanical Ventilation Worksheet, pre- and post-weatherization, documenting compliance with *ASHRAE Standard 62.2 – 2016 Ventilation and Acceptable Indoor Air Quality in Low-Rise Buildings (Appendix A: Existing Buildings)*. See **Exhibit 9.3, Mechanical Ventilation Worksheet**. Representative Sample technique per **Policy 5.2.6-MF, Multifamily Representative Sample** is allowed.

Exceptions:

(1) *ASHRAE Standard 62.2 – 2016 – Residential Energy Dynamics (RED) Calc Tool:* If RED is used, Commerce may ask Local Agencies for calibration to assure consistent results with **Exhibit 9.3, Mechanical Ventilation Worksheet**.

- (2) **ASHRAE Standard 62.2 – 2016 – Table 4.1a (I-P) Ventilation Air Requirements, cfm:** Using this table will result in higher ventilation levels as it is a more general approach and relies on more conservative values, than calculating ventilation for specific units.

TABLE 4.1a (I-P) Ventilation Air Requirements, cfm

Floor Area, ft ²	Bedrooms				
	1	2	3	4	5
<500	30	38	45	53	60
501–1000	45	53	60	68	75
1001–1500	60	68	75	83	90
1501–2000	75	83	90	98	105
2001–2500	90	98	105	113	120
2501–3000	105	113	120	128	135
3001–3500	120	128	135	143	150
3501–4000	135	143	150	158	165
4001–4500	150	158	165	173	180
4501–5000	165	173	180	188	195

- (3) **ASHRAE Standard 62.2 – 2016 – Formula**

$$Q_{tot} = 0.03A_{floor} + 7.5(N_{br} + 1)$$

- b. **Calculating Dwelling Unit Ventilation (No Blower Door Test Performed):** The Mechanical Ventilation Worksheet is prohibited if the blower door testing is not performed (e.g. vermiculite, asbestos tape, etc.) The infiltration credit is not allowed without the blower door test results.
When no blower door test is performed, Local Agencies shall use the **ASHRAE TABLE 4.1a (I-P) Ventilation Air Requirements, cfm** or the ASHRAE calculation formula, as noted in **Section 2a Exceptions (2) and (3)** (above).
- c. **Calculating Common Area Ventilation:** When local agencies are adding or upgrading common area ventilation, the following are recommended:
- (1) Adhere to the standards of **ASHRAE Standard 62.1 – 2016**.
 - (2) Consult a licensed mechanical engineer for ventilation strategies and design. Engineer's expenses for evaluating and designing ventilation systems is an allowable expense.

3. **Dwelling Unit Mechanical Ventilation Required:** Dwelling Unit mechanical ventilation is required to comply with *ASHRAE Standard 62.2-2016* including *Appendix A: Existing Buildings*.

Exception: Dwelling Unit ventilation is not required when Q_{fan} is less than or equal to 15 cfm.

a. **Dwelling Unit Ventilation System Types**

A mechanical exhaust system, supply system, or combination thereof shall be installed for each dwelling unit to provide Dwelling Unit ventilation.

- (1) The Dwelling Unit ventilation system shall consist of one or more supply or exhaust fans and associated ducts and controls.
- (2) Local exhaust fans shall be permitted to be part of a mechanical exhaust system.
- (3) Outdoor air ducts connected to the return side of an air handler shall be permitted as supply ventilation if manufacturer's requirements for return air temperature are met.

b. **Dwelling Unit Fan Requirements**

(1) **Existing fans:**

Existing fans providing Dwelling Unit ventilation (in part or in whole) are exempt from any sound rating (*ASHRAE Standard 62.2 – 2016*, Appendix A, Section 4.1).

(2) **Newly installed fans:**

Fans installed to provide Dwelling Unit ventilation shall have a sound rating of 1.0 sones or less as determined by the Home Ventilation Institute (www.hvi.org/)

Exception: Air handlers, HRV/ERVs, inline fans and remote mounted fans are exempt from sound rating requirements if mounted a minimum of four (4) feet from the grill.

c. **Control of Dwelling Unit Mechanical Ventilation**

For multifamily dwelling units, the manual ON-OFF control is not required to be readily accessible. Controls shall include text or an icon indicating the system's function.

4. **Local Exhaust in Kitchens:** A working exhaust fan shall be present in kitchens where a gas combustion range, cooktop, or oven is present.

a. **Ventilation level**

A kitchen exhaust fan installed by the local agency shall be Heating Ventilation Institute (www.hvi.org/) rated to deliver a minimum of 100 cfm intermittent at 0.25 inches water gauge or five (5) air changes per hour continuous. Kitchen exhaust fans shall be rated for sound at a maximum of 3.0 sones, unless their maximum rated airflow exceeds 400 cfm. When existing equipment does not meet this requirement the Dwelling Unit ventilation rate may be adjusted to overcome the deficit.

b. **Fan rating**

Exhaust fans installed directly over a range or oven shall be rated for installation in this location.

c. **Kitchen fan control**

Kitchen fans shall be controlled by the manufacturer's switch or a wall mounted switch.

5. **Local Exhaust in Bathrooms:** A bathroom exhaust fan installed by the Local Agency shall be rated to deliver a minimum of 50 cfm intermittent at 0.25 inches water gauge or 20 cfm continuous. When existing equipment does not meet this requirement the Dwelling Unit ventilation rate may be adjusted to overcome the deficit.

a. **Sound rating:**

Exhaust fans installed by local agency:

(3) Intermittent: 3.0 sones or less

(4) Continuous: 1.0 sone or less

b. **Energy use**

Exhaust fans installed to provide local bathroom exhaust shall have an operating watt draw of 50 watts or less.

c. **Bathroom fan control**

A readily accessible manual ON-OFF control shall be provided for each demand controlled mechanical exhaust system. For multifamily dwelling units, an automatic control device shall be permitted to override manual OFF control, provided that it does not override manual ON control. Examples include, but are not limited to: humidity sensors, shut-off timers, occupancy sensors, multiple-speed fans, combined switching, IAQ sensors, etc.

6. **Crawlspace and Garage Ventilation:** Exhaust fans may be installed for operation in crawlspaces or garages to exhaust pollutants and maintain a pressure boundary relative to the dwelling unit(s). Fans installed shall be rated for continuous use. Ventilation flows shall not be included in the ASHRAE 62.2 mechanical ventilation calculation. Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum 26-gauge sheet steel and shall have no openings into the garage.

a. **Sizing crawlspace and garage fans**

Local Agency shall size the fan to maintain negative pressure relative to the dwelling unit during normal operating conditions.

b. **Crawlspace and garage fan controls**

Exhaust fans installed in crawlspaces shall be wired to exhaust continuously with a switch near the fan to allow shut down of fan for maintenance.

c. **Verification of fan performance**

Local Agency shall verify that fan performance during normal operating conditions creates a negative pressure with reference to the dwelling unit.

d. **Fan rating**

Fans installed for the purpose of maintaining a pressure boundary shall be rated for continuous operation.

e. **Fan termination point**

Fans installed for the purpose of maintaining a pressure boundary shall not terminate within five (5) feet of a door, window, combustion appliance air-intakes, or fresh air intakes.

7. **Ventilation System Performance Testing:**

a. **Airflow Measurement:** The airflow required is the quantity of indoor air exhausted or supplied by the ventilation system as installed and shall be measured according to the ventilation equipment manufacturer's instructions, or by using a flow hood, flow grid, or other airflow measuring devices at the fan's inlet terminals, outlet terminals, or in the connected ventilation duct.

Exceptions:

(1) When performance testing of the kitchen hood is not practical or possible, one of the following methods may be used to estimate flow:

- (a) The airflow rating at a pressure of 0.25 inch wc (62.5 Pa) may be used, provided the duct sizing meets the prescriptive requirements of *ASHRAE Standard 62.2 – 2016 Table 5.3*. If airflow ratings for the existing equipment are available at 0.1 inches wc (25 Pa) but not at 0.25 inch wc (62.5 Pa), those values may be used, provided they are reduced by 25%.

- (2) Clothes dryer fans are not required to be tested.

b. Testing Requirements:

(1) Audit - Pre-Wx Project Assessment – Retro Commissioning Test:

- (a) Local Agencies' auditor shall measure airflow of existing exhaust fans during the energy audit.
- (b) Representative Sample technique per **Policy 5.2.6-MF, Multifamily Representative Sample** is allowed.

(2) Testing Out – After Installation – Functional Performance Test:

- (a) All newly installed or modified ventilation systems shall be performance tested and documented in the project file.
- (b) Representative Sample technique per **Policy 5.2.6-MF, Multifamily Representative Sample** is not allowed.
- (c) Performance testing can be completed by either:
 - i. MF Quality Control Inspector: An additional final inspection in accordance with **(3) Inspection – Post-Wx Project** is not required.
 - ii. BPI certified professional (Building Analyst, Energy Auditor, or Quality Control Inspector).
 - iii. Commissioning Agent, agents will be approved by Commerce.
 - iv. Wx professional in-training to become a Commissioning Agent.

(3) Inspection - Post-Wx Project – System Verification Test:

- (a) Local Agencies' multifamily quality control inspector (MF QCI) shall measure airflow of resultant ventilation system, including existing, modified, and newly installed ventilation equipment during the final inspection.

Exception: If qualified MF QCI performs Functional Performance Testing for 100% of the ventilation system, this in-progress inspection suffices. Ventilation system testing does not need to be repeated at final inspection.

- (b) Representative Sample technique per **Policy 5.2.6-MF, Multifamily Representative Sample** to verify Functional Performance Testing is allowed. Local Agency Inspector shall do due diligence. Any variance between inspection testing results and test out report requires inspecting a higher Representative Sample percentage to verify correct installation.
- 8. **Client Education:** Local Agencies shall provide ventilation system information to all clients. See **Policy 5.1.4, Client Education** for requirements.
- 9. **Documentation:** Local Agencies shall document ventilation strategy, calculations (MVW, RED, Table 4.1a, or formula), performance testing, and client education delivered in the project file. See **Policy 5.1.2, Wx Project Documentation** for requirements.

Effective Date: November 1, 2018

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See also:

[Exhibit 9.4A, Combustion Safety Test Form \(CSTF\)](#)

[Exhibit 9.4A \(2\), Daily In-Progress Combustion Safety Test Form \(CSTF\)](#)

Replaces: Policy 9.4 – July 2016

[Exhibit 9.41B, Combustion Safety Test Form \(CSTF\) - Technical Support Document \(TSD\)](#)

POLICY 9.4 COMBUSTION SAFETY TESTING

1. **Testing for Combustion Safety:** All homes with combustion appliances shall be tested for combustion safety both pre- and post-weatherization work. See **Exhibit 9.4A, Combustion Safety Test Form (CSTF)** and **Exhibit 9.4B, Combustion Safety Test Form (CSTF) Technical Support Document (TSD)**, for required form and supporting material.

- a. **Pre-Weatherization Combustion Safety Testing**

Local Agency certified auditor (BPI Building Analyst (BA) or BPI Energy Auditor (EA)) shall perform a Combustion Safety Test for every combustion appliance prior to installing any conservation measures that alter the building shell, HVAC system, or interior configuration (including comfort air sealing or altering of interior doors) of the dwelling.

- b. **Post-Weatherization Combustion Safety Testing**

Local Agency certified inspector (BPI Quality Control Inspector (QCI)) shall perform a Combustion Safety Test for every combustion appliance at the conclusion of the weatherization project.

- c. **Daily In-progress Combustion Safety Testing**

Local Agency or Subcontractor, trained in combustion safety testing shall perform a worst-case depressurization test **Exhibit 9.4A(2), Daily In-Progress Combustion Safety Test Form (CSTF)** at the end of the work day when work has been done that alters the building shell, HVAC system, or interior configuration (including comfort air sealing, altering of interior doors) of the dwelling unit. If the system fails, the Local Agency shall take immediate action before leaving the dwelling unit to ensure that the occupant's health and safety is not compromised.

Exception: In-progress testing of residential heating appliances during seasonal times of high outdoor temperatures may be deferred as long as all the following conditions are documented and met:

- (1) The heating appliance is turned off and client subscribes they have been informed why they are not to use it.
- (2) Local Agency shall perform a final and complete Combustion Safety Test for every combustion appliance at the conclusion of the weatherization project.

2. **Vents:**

- a. **Single Vent Chimney:** When a vent is used for one combustion appliance.
- b. **Common Vent with Multiple Appliances:** When a vent is shared by multiple appliances, the appliance with the smallest Btu input rating shall be tested first, and remaining appliances shall be tested in order of increasing input rate.
- c. **Multiple Fuel Sources Vented into a Single Chimney:** Multiple fuel sources vented into a single chimney are cause for deferral of services until the situation is corrected.

3. **Spillage Tests:** Local Agency shall test for spillage on all open combustion atmospheric (natural) draft and induced draft appliances sharing a chimney with an open combustion (natural) draft appliance, including but not limited to space-heating systems and water heaters.

Exceptions: Testing for spillage is not required for the following appliances:

1. Stand-alone induced draft appliance
2. Wood stoves and fireplaces

a. **Spillage Testing Conditions:**

- (1) **Worst-Case:** Spillage shall be tested under worst-case conditions.
- (2) **Induced Draft Testing Location:** Induced draft heating systems shall be checked for spillage at the base of the chimney liner or flue. If a vent is shared between an induced draft heating system and a natural draft water heater, spillage shall be checked at the water heater draft diverter.

- b. **Spillage Test Fails:** Any appliance that continues to spill flue gases beyond the maximum established time limits fails the spillage test.

- (1) If the unit fails see Test Results and Action Required in **Exhibit 9.4A, CSTF: Annex D (BPI-1200) Action Levels for Spillage and CO in Combustion Appliances** Table on page 2.
- (2) The local agency shall make appropriate repairs or defer the project until the problem is corrected.

4. **Carbon Monoxide (CO) Tests:** Local Agency shall perform a CO test in all combustion appliances.

Exception: CO testing of wood burning appliances flue gases is not required.

a. **CO Testing Conditions:**

- (1) **Ambient Carbon Monoxide:** Local Agency shall monitor ambient CO Action Levels (see **Exhibit 9.4A, CSTF: CO Action Levels** Table on page 2) upon entering the combustion appliance zone and during the test period for all appliances. If ambient levels exceed 9 ppm at any time, turn off the appliance immediately and make appropriate repairs. The maximum allowable ambient CO level in a dwelling where weatherization work has been completed is 9 ppm.
- (2) **Appliance Flue:** Local Agency shall measure CO in the AIR FREE of the undiluted flue gases in the flue of the appliance, using a digital gauge that measures in parts per million (ppm).
- (3) **Operating Conditions:** For all combustion appliances, CO shall be measured at steady-state operating conditions.
- (4) **Record and Take Action:** CO levels shall be recorded and appropriate actions taken, as detailed in **Exhibit 9.4A, CSTF: 1.) CO Thresholds for Fossil-Fuel Fired Combustion Appliances** and **2.) CO Action Levels** Tables on page 2.
 - (a) **Atmospheric or Natural Draft (70%):** LAs shall measure AIR FREE CO of the undiluted flue gas
 - (b) **Induced Draft (80%):** CO testing can be done anywhere in the vent connector or at the vent termination if the appliance is vented by itself. Holes made for CO testing shall be drilled using a 5/16th bit. Once test is complete seal the inner liner with High Temperature RTV silicone caulk and a 3/8 inch tap bolt made of stainless steel or nylon or seal interior hole with RTV silicone and cover exterior hole with Aluminum tape.
 - (c) **Sealed-Combustion or Power-Vented (90% +):** CO shall be tested, preferably at the termination. If it is unsafe to access termination point for testing due to the height of the roof or weather conditions, an alternative is to access flue products by disconnecting the drain line. Local Agency shall not drill holes in flues for power-vented or sealed-combustion units. CO shall be measured at the exterior outlet of the flue.

- b. **CO Test Fails:** If CO is above acceptable levels, weatherization funds may be used to clean and repair appliances owned by low-income occupants. In rentals, if the tenant does not own the appliance, weatherization funds can be used for cleaning, but not for repair.
5. **Combustible Fuel Gas Testing:** If any measured concentrations of combustible fuel gas exceed 10% of the *Lower Explosive Limit (LEL)*, the auditor shall inform the homeowner and occupants of the unsafe condition and advise evacuation of the home. The auditor shall leave the home and the appropriate emergency services and fuel gas providers shall be notified from outside the home. The auditor shall contact the appropriate emergency services only if the homeowner or occupant is unable to do so.
6. **Gas Ovens:**
 - a. Gas ovens CO (as measured) shall be tested in accordance with the **Exhibit 9.4B, CSTF Technical Support Document**.
 - b. For Action Levels see **Exhibit 9.4A, CSTF: 1.) CO Thresholds for Fossil-Fuel Fired Combustion Appliances** and 2.) **CO Action Levels** Tables (on page 2 of form).
 - c. Visually Assess Range Burners for cleanliness and flame quality
7. **After Appliance Replacement or Service:** Appliance replacement is not allowed using DOE funding. After combustion appliance replacement or service, no additional weatherization work can be done unless the CO levels are within acceptable ranges.

Exception: Ovens and Ranges – For actions to provide Wx services, see **Exhibit 9.4A, CSTF: 1.) CO Thresholds for Fossil-Fuel Fired Combustion Appliances** and 2.) **CO Action Levels** Tables on page 2.
8. **Woodstove and Fireplace Inserts Combustion Appliance Zone Depressurization:** Local Agency shall perform a worst-case depressurization test in each combustion appliance zone. When combustion appliance zone (CAZ) depressurization limits are exceeded under worst-case conditions, the depressurization shall be brought within acceptable limits as detailed in **Exhibit 9.4A, CSTF: CAZ Depressurization Limits** Table on page 2.

Exception: If local agency is unable to meet CAZ Depressurization Limits or standards, the reasonable efforts attempted, the actions taken, and the education provided to the client shall be documented in the client file (project file).

9. Documenting Combustion Safety Testing:

- a. Local Agency shall document in the client file (project file) repairs and the actions taken to correct all combustion safety failures.
 - b. Results of pre- and post-weatherization combustion safety report for every appliance tested. See **Exhibit 9.4A, *Combustion Safety Test Form***.
 - c. Receipts or invoices for any corrective work.
 - d. Documentation of installation, location, and model type.
10. **Deferral:** If deferral is required, the local agency shall notify the owner and occupants in writing of the health and safety issue.
11. **Unvented fuel burning space-heating appliances:** Local Agency shall not proceed with weatherization of dwellings that have existing unvented fuel burning space-heating appliances until they are removed. Local Agency shall notify the owners and the occupants of any hazards that exist with unvented space-heaters, and of the program requirements that unvented space-heaters be removed before weatherization services can be delivered.

12. Equipment:

- a. **Required equipment:** Local Agency shall use:
 - (1) **Digital Manometer** to perform all pressure diagnostic-testing measurements.
 - (2) **Digital CO Measurement Device** capable of measuring 1ppm to 1000 ppm.
 - (3) **Combustibles Gas Detector (CGD)**, also known as gas sniffer, to check for leaks at the tank or meter, gas lines, pipe fittings, supply lines connecting to the appliance, appliance gas valve and regulator.
 - (4) **Four (4) Gas Monitor** to confirm working environment is safe.
- b. **Calibration and Maintenance:** Local Agency shall:
 - (1) Calibrate and maintain diagnostic testing equipment as recommended by the manufacturer.
 - (2) Keep on file a record of maintenance and calibration for all diagnostic equipment.

Effective Date: July 2018

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Replaces: Section 9.5 – July 2015

See also:
[Policy 5.1.4, Client Education](#)
[Policy 5.1.2, Weatherization Project Documentation](#)

POLICY 9.5 SMOKE DETECTORS, CARBON MONOXIDE (CO) DETECTORS, AND FIRE EXTINGUISHERS

1. **Smoke Detectors:** Installation of smoke detectors is allowed where detectors are not present or are inoperable. Replacement of operable smoke detectors is not an allowable cost. When installed, smoke detectors shall be installed in accordance with manufacturer's requirements.
 - a. **Detector standards:** Detectors installed by the local agency shall have a minimum ten-year operating life, and shall be clearly marked as "UL approved."
 - b. **Detector power options:** Detector shall be powered by one of the following methods:
 - (1) **Hardwired:** Hardwired detectors are allowable only when the installation is approved in advance by Commerce. Hardwired detectors shall have a lithium battery back-up.
 - (2) **Battery-operated:** Battery-operated detectors shall have a lithium battery. They shall make an audible alarm when the battery is at the end of its life cycle.

Exceptions:

 - (a) Existing hardwired smoke detectors that are not working may be replaced with a new hardwired smoke alarm.
 - (b) Smoke alarms with a visual alarm for hearing impaired individuals shall be installed in addition to a standard smoke alarm.- c. **Labeling devices:** All installed detectors shall be labeled in a permanent fashion with a visible date of installation while detector is mounted on the wall.
- d. **Installation location(s) for smoke detectors:** Smoke detectors shall be installed on walls or ceilings per manufacturer's requirements.
- e. **Testing:** Local Agency shall test each detector for proper operation after installation.

2. **Carbon Monoxide (CO) Detectors:** Local Agencies shall install a minimum of one carbon monoxide (CO) detector in every dwelling unit where detectors are not present or are inoperable. Replacement of operable CO detectors is not an allowable cost. CO detectors shall be installed in accordance with manufacturer's requirements.

a. **Detector standards:** Detectors shall have:

- (1) A 5-year warranty for residential models or 1-year warranty for commercial low-level models.
- (2) An electrochemical sensor.
- (3) A digital display that indicates CO levels in Parts Per Million (ppm).
- (4) The capability to accurately detect and display low levels of carbon monoxide to 15 ppm.
- (5) A label to verify testing and listing to the UL 2034 Standard.

Exception: CO Detectors need not be UL listed if a low level detector is desired. To comply with this exception, these commercial low-level detectors shall meet or exceed all of the following:

- (a) (1) through (4) above.
- (b) ACGIH and NIOSH Standards.

b. **Detector power options:**

- (1) **Hardwired detectors:** Hardwired detectors are allowable. Hardwired detectors shall have a 9-volt, lithium battery back-up.
- (2) **Battery-operated detectors:** Battery-operated detectors shall have a lithium battery. They shall make an audible alarm when the battery is at the end of its life cycle.
- (3) **Plug-in detectors:** Plug-in detectors shall have a tamper-resistant connection to a continuously energized 120-v AC power source. They shall not be on a switched plug or on a GFCI protected circuit. Plug-in detectors shall have a battery back-up.

c. **Labeling devices:** All installed detectors shall be labeled in a permanent fashion with the date of installation or replace-by-date as per manufacture's specification is visible while detector is mounted on the wall.

|

d. Installation location(s) for CO detectors

In dwelling units with combustion appliances or attached garages a minimum of one operable carbon monoxide detector shall be installed in the vicinity of each sleeping area and on each level with a combustion appliance.

Detectors shall not be located contrary to manufacturer's specifications. Where practical, detectors shall be mounted:

- (1) In a visible location.
- (2) On walls between five (5) and six (6) feet from the floor.
- (3) No closer than five (5) feet from combustion appliances, chimneys, flues, or inside corners.

e. Installation in sleeping rooms: A CO detector shall be installed inside any closable sleeping room that contains a combustion appliance.

f. Testing: Local Agency shall test each detector for proper operation after installation as per test procedures in the owner's manual provided by the manufacturer.

3. Fire Extinguishers: Providing Fire Extinguishers is allowed only when solid fuel is present.

4. Client Education: Local Agencies shall provide smoke detector and carbon monoxide (CO) detectors information to all clients. See **Policy 5.1.4, Client Education** for requirements.

5. Documentation: The Local Agency shall document all smoke detector and carbon monoxide (CO) detector requirements. See **Policy 5.1.2, Weatherization Project Documentation** for requirements.

Allowable Costs

Smoke detector, carbon monoxide detector, and fire extinguisher installation is an allowable health and safety cost under DOE, HHS, BPA, and State funds. This measure falls within the total health and safety measures and repairs limits. These measures do not need to be included in the SIR calculation for all fund sources or in the DOE per home expenditure average. See [Chapter 6, Allowable Costs](#), for allowable expenditures

Specific fund source limitations or allowances are as follows:

BPA: Units shall be electrically heated in BPA service territory.

Effective Date: April 1, 2019

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See also:

[Exhibit 5.1.4A Client Health and Safety Packet](#)
[EPA Booklet, A Brief Guide to Mold, Moisture and Your Home](#)
<http://www.epa.gov/mold/moldresources.html>

[EPA Booklet, Brief Guide to Mold in the Workplace](#)
[Policy 5.1.3, Deferral Standards](#)

[Exhibit 5.5A, Weatherization Deferral Form example](#)
[RCW 59.18.060](#)

[Policy 9.1, Worker Health and Safety](#)
[Policy 5.1.1, General Requirements](#)

[Policy 5.4.2, Attic Insulation](#)
[Policy 5.4.4, Floor Insulation](#)

[Policy 9.3, Indoor Air Quality - Mechanical Ventilation](#)
www.AHAM.org

[Policy 9.1.1, Field Safety Training](#)
[Policy 5.1.4, Client Education](#)

[Policy 5.1.2, Weatherization Project Documentation](#)
[Variance #7 - SWS Section 2.0402.1b](#)

Replaces: Policy 9.6 – July 2018

POLICY 9.6 BIOLOGICALS AND UNSANITARY CONDITIONS, INCLUDING MOLD AND MOISTURE

Remediation or repair of conditions leading to, or promoting, biologicals, chemicals, pollutants, and unsanitary conditions, including mold and moisture related problems is allowed within the guidelines as detailed in this section.

1. **Biological Concerns and Unsanitary Conditions** (odors, mustiness, bacteria, viruses, raw sewage, rotting wood, etc.): Remediation of conditions that may lead to or promote biological concerns and unsanitary conditions is allowed. Remediation does not include septic system repair or replacement. Addressing bacteria and viruses is not an allowable cost. Deferral may be necessary in cases where a known agent is present in a home that may create a serious risk to occupants or weatherization workers. See **Policy 5.1.3, Deferral Standards**. For rentals, sanitary conditions are the landlord's responsibility. Local Agency shall inform the owner of their legal responsibilities and liabilities under RCW 59.18.060.
2. **Chemical and Other Pollutants** (formaldehyde, volatile organic compounds (VOCs), flammable liquids, and other air pollutants): See **Policy 9.1, Worker Health and Safety**, Section 3h.
3. **Mold**: Local Agency shall perform a mold assessment as part of the energy audit. See **Exhibit 5.1.4A, Client Health and Safety Packet – Part 1: Client Informed Consent Form- Mold Assessment and Release Section**. Source control (i.e. correction of moisture and mold creating conditions) is allowed when necessary in order to weatherize the home and to ensure the long-term stability and durability of the measures. Source control is independent of latent damage and related repairs. Mold cleanup is not an allowable H&S cost. See **5.1.1, General Requirements**, Section 11 Surface Preparation for requirements. Mold testing is not allowable Wx cost.

4. **Moisture Related Problems:** Limited water damage repairs that 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.

Local Agency shall identify and document in the client file (project file) problems in the dwelling unit resulting from high moisture levels. The cause or source of the high moisture levels shall be alleviated prior to the completion of weatherization services. Where remediation cannot be accomplished with available funds, weatherization services shall be deferred until the cause or source of the problem(s) has been alleviated. See **Policy 5.1.3, Deferral Standards**. See also **Exhibit 5.5A, Weatherization Deferral Form example**.

- a. **Plumbing:** Prior to completion of weatherization services the local agency or Property Owner shall repair any plumbing leak found to be wetting insulation and/or floor, wall, or ceiling components of the dwelling.
- b. **Roof:** Local Agency shall inspect the roof, flashing details, and penetrations for indications of leaks prior to insulating. Attics or ceiling cavities may be insulated when, in the judgment of the local agency, the roof in its current or repaired condition following a weatherization repair is expected to last, without leaking, a minimum of five (5) years. Attics covered by roofs that do not meet this standard shall not be insulated. Refer to **Policy 5.4.2, Attic Insulation**.
- c. **Inside surfaces of roof framing/sheathing:** Local Agency shall inspect the inside surfaces of the roof framing and sheathing for indicators such as mold, rot, water damage, condensation, etc., that pose heat loss, indoor air quality, health, safety and/or durability problems. If these problems exist, the cause of the problem shall be corrected before completion of weatherization.
- d. **Drainage, gutters, down spouts, extensions, flashings, sump pumps, landscape, and related items:** If necessary to prevent rainwater from entering the crawlspace or basement, missing or faulty gutter or downspout components shall be repaired or installed.

Major drainage issues are beyond the scope of the Weatherization Assistance Program. Homes with conditions that require more than incidental repair shall be deferred.

~~Variance #7: DOE granted a variance from SWS Section 2.0402.1b. Moisture and Drainage allowing: WA does NOT require grading, water proofing or foundation wall exterior drain, crawlspace grading, or sump pump install.~~

- e. **Below grade vents and penetrations in foundation walls:** When crawlspace vents and other penetrations are found to be installed below grade they shall be inspected to determine whether water from outside is entering the crawlspace through the vents or penetrations. Local Agency shall eliminate the path of water into crawlspace through the vents or penetrations.
- f. **Ground cover:** All crawlspaces shall have ground cover installed as outlined in **Policy 5.4.4, Floor Insulation, #3 Ground Cover.**
- g. **Sump pumps:** A sump pump may be repaired or replaced to prevent water from accumulating under a dwelling.
- h. **Mechanical crawlspace ventilation:** In crawlspaces with seasonal standing water an exhaust fan may be installed.
- i. **Source specific ventilation:** See **Policy 9.3, Indoor Air Quality - Mechanical Ventilation.** A working exhaust fan shall be present in:
 - a. Kitchens with gas combustion appliances.
 - b. Any bathroom with a working shower or bathtub.

Exceptions:

- (a) Bath exhaust may not be required where occupancy and usage patterns indicate infrequent use and there is no evidence of moisture problems. The reason for not installing a fan shall be documented in the client file (project file).
 - (b) Bath exhaust may not be required when whole building ventilation is functioning as designed.
- j. **Whole building ventilation:** A whole building ventilation system may be installed to alleviate high moisture conditions. See **Policy 9.3, Indoor Air Quality - Mechanical Ventilation.**
 - k. **Client controlled conditions:** Local Agency shall inform the client of any observed client controlled conditions contributing to high moisture levels in the dwelling. Local Agency shall document in the client file (project file) those recommendations that would help lower moisture levels.
 - l. **Dehumidifiers:** A dehumidifier may be replaced, repaired, or installed to prevent water damage to a dwelling unit having persistent and unresolved high moisture levels. **Post-weatherization dehumidifier installation:** Local Agencies made aware of a moisture problem developing as a result of, or still remaining after, installation of weatherization measures may return to a closed weatherization job. Local Agency may install a dehumidifier, if it is determined to be the most effective and cost-efficient method for reducing moisture buildup.

5. **Dehumidifier:** The installation of a dehumidifier is allowable, provided it is determined to be the most effective and cost-efficient method of reducing moisture problems or high moisture buildup in a home. Dehumidifiers shall be installed only after other measures with less of an energy penalty have been found ineffective at reducing moisture problems.
- a. **Energy Star rated and AHAM certified:** The dehumidifier installed shall be Energy Star rated and certified by the Association of Home Appliance Manufacturers (AHAM) Specification DH-1 (www.AHAM.org).
 - b. **Sizing:** Local Agency shall size dehumidifiers for installation according to the general guidelines below. Dehumidifier shall be controlled by a humidistat to automatically maintain the desired humidity level. Dehumidifier capacity shall be determined by the rated capacity test contained in AHAM Specification DH-1.

Floor Area of House (sq. ft.)	Dehumidifier Capacity (Pints/24 hours)
Up to 1,000	25
1,000-2,000	30
2,000-3,000	35

- c. **Low temperature location:** When the dehumidifier is to be located in a basement or other area where the normal operating temperatures are expected to be below 65 degrees Fahrenheit, the local agency shall install a dehumidifier rated to operate in “low temperature” conditions.
 - d. **Electrical safety:** Local Agency shall observe all manufacturer warnings regarding electrical safety. Local Agency shall not allow drain hoses, water drainage, or disposal near electrical circuits, cords, or devices.
 - e. **Hose to drain required:** Local Agency shall install a hose to drain the dehumidifier's water bucket. Hose shall be mechanically attached to the water bucket outlet and terminate at a drain or sump. Hose installed shall not create a tripping hazard.
6. **Defer Work:** Where severe mold and moisture issues cannot be addressed, deferral is required. See **Policy 5.1.3, *Deferral Standards***.
7. **Worker training:** See **Policy 9.1.1, *Field Safety Training***, for requirements.

8. **Client Education:** Local Agencies shall provide mold information to all clients. See **Policy 5.1.4, *Client Education*** for requirements.
9. **Documentation:** The Local Agency shall document all biological and unsanitary conditions, including mold and moisture requirements. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.

Effective Date: July 2018

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Replaces: Policy 9.7– July 2012

See also:
[Variance #8 – SWS 2.0601.1c & d and 4.1001.2c](#)
[Policy 5.1.2, Weatherization Project Documentation](#)
<http://apps.leg.wa.gov/WAC/default.aspx?cite=296-46B-394>

POLICY 9.7 ELECTRICAL

1. Electrical, other than Knob-and-Tube Wiring

- a. Minor electrical repairs are allowed where health or safety of the occupant or worker is at risk.
- b. Upgrades and repairs are allowed when necessary to perform specific weatherization measures.

2. Electrical, Knob-and-Tube Wiring

- a. Minor upgrades and repairs necessary for weatherization measures and where the health or safety of the occupant is at risk are allowed.
- b. Local Agency shall provide sufficient over-current protection prior to insulating over knob-and-tube wiring.

***Variance #8:** DOE granted a variance from SWS Sections 2.0601.1c and d and 4.1001.2c Knob-and-Tube allowing: WA to cover K&T wiring with insulation if LA has licensed electrician inspection and written certification, overcurrent protection.*

3. **Documentation:** The Local Agency shall document all electrical requirements. See **Policy 5.1.2, Weatherization Project Documentation** for requirements.

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See also:

[Final Rule, 40 CFR Part 745, Subpart E, Residential Property Renovation, Pre-Renovation Lead Information Rule](#)

[EPA - Renovate Right: Important Lead Hazard Information for Families, Child Care Providers, and Schools](#)

[EPA - Small Entity Compliance Guide to Renovate Right](#)

[Exhibit 9.8A, Pre-Renovation Form](#)

[Exhibit 9.8B, Test Kit Documentation Form](#)

[Exhibit 9.8C, Renovation Recordkeeping Checklist](#)

[Policy 5.1.3, Deferral Standards](#)

[Policy 5.1.4, Client Education](#)

[Policy 5.1.2, Weatherization Project Documentation](#)

[Specification 21, Lead-Based Paint](#)

Replaces: Policy 9.8 - July 2018

[Weatherization Program Notice \(WPN\) 22-7 Weatherization Health and Safety Guidance](#)

POLICY 9.8 LEAD-BASED PAINT

1. **Lead Compliance:** All weatherization Local Agencies shall:
Refer to Specification 21.0, *Lead Based Paint*
 - a. Comply with the requirements of the Environmental Protection Administration's (EPA) Renovation, Repair, and Painting (RRP) protocol (*WAC 365-230*) as administered by Department of Commerce and (*40CFR 745, Subpart E*) as administered by EPA.
2. **RRP Protocols** apply to dwelling units:
 - a. Constructed before 1978; presumed lead-based paint.
Exception: Dwelling unit tested and determined to be free of lead-based paint.
 - b. Tested positive for lead.
3. **Testing for Lead:** The Local Agency shall:
Refer to Policy 5.1.2, *Weatherization Project Documentation*
4. **Following RRP Protocols:** The Local Agency shall:
Refer to Specification 21.0, *Lead Based Paint*
 - a. **Cleaning:** After all lead work, cleaning is required.
 - b. **Lead Disposal:** Hazardous Waste Materials generated in the course of weatherization work shall be disposed of according to all local laws, regulations and/or Federal guidelines, as applicable.
 - c. **Lead Documentation:** The Local Agency shall:
Refer to Policy 5.1.2, *Weatherization Project Documentation*

- d. **Lead Levels:** As a result of the work, the OSHA/DOSH airborne lead level will not exceed 30 micrograms per cubic meter.
5. **Training and Certification:** The Local Agency shall:
Refer to Specification 21, *Lead-Based Paint*
6. **RRP Costs:**
 - a. The cost of RRP (labor, material, and related costs) is a health and safety cost (H&S)
 - b. Equipment purchases used specifically for testing for lead or other health risks are a health and safety cost.
7. **Deferral:**
Refer to Policy 5.1.3, *Deferral Standards*
 - a. Deferral is required when the extent and condition of lead-based paint in the house would potentially create further health and safety hazards.
8. **Client Education:** The Local Agency shall:
Refer to Policy 5.1.4, *Client Education*
 - a. Provide lead information and RRP pre-renovation education to all clients.

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Weatherization Policy

See also:

[Competent Person-Asbestos \(per WAC 296-62-07728\)](#)

[WA State Certified Asbestos Supervisor \(per WAC 296-62-07703\)](#)

[Exhibit 9.9, Asbestos Standard Operating Procedures \(SOP\)](#)

[Policy 9.1.1, Field Safety Training](#)

<https://www.epa.gov/asbestos>

[An Introduction to Indoor Air Quality \(IAQ\) Asbestos](#)

[Policy 5.1.3, Deferral Standards](#)

[Policy 5.1.4, Client Education](#)

[Policy 5.1.2, Weatherization Project Documentation](#)

Replaces: Section 9.9 – July 2018

POLICY 9.9 ASBESTOS

1. Disturbing [Asbestos Containing Material \(ACM\)](#) in the course of performing weatherization work is allowed by properly trained and certified workers.
2. **Asbestos Training and Certification:**
 - a. **Competent Person – Asbestos Required:** When ACM is present or assumed, and will be disturbed during the course of work, a Local Agency shall contract with a Certified Asbestos Firm or utilize properly trained and certified workers [Competent Person - Asbestos](#) (per WAC 296-62-07728). For examples, see **Exhibit 9.9, Asbestos Standard Operating Procedures (SOP)** specific to the materials being disturbed. These SOP examples were prepared by a WA State Certified Asbestos Supervisor (per WAC 296-62-07703).
 - b. **Minimum Field Worker Training:** At a minimum, Auditors, Inspectors, and all Wx workers who are likely to come in contact with Asbestos, but do not disturb ACM shall learn how to identify suspected ACM, and vermiculite with the Asbestos Awareness Training. See **Policy 9.1.1, Field Safety Training** for requirements.
3. **Complete Removal of Asbestos Prohibited:** Complete removal of asbestos (general abatement of asbestos) is not approved as a health and safety weatherization cost. However, limited asbestos removal or remediation is allowed when installing weatherization measures.
4. **Diagnostic Testing Restricted:** When friable ACM is present or assumed a blower door test shall not be performed.

5. **Asbestos Testing:** Testing material(s) for ACM is allowable. All testing shall be performed by a certified Asbestos Hazard Emergency Response Act (AHERA) Building Inspector. If a Local Agency tests for ACM, test results shall be provided to the client. Include in client file (project file), test results and client signature of the receipt of test results.

6. **Building Surfaces:**
 - a. Removal of siding is allowed to perform energy conservation measures. All precautions shall be taken not to damage siding. Asbestos siding should never be cut or drilled. Where possible, insulate through home interior.
 - b. For incidental removal or disturbance of acoustical ceiling texture (ACT) sometimes referred to as “popcorn” the local agency [Competent Person-Asbestos](#) shall follow a Standard Operating Procedure (SOP). For example, see **Exhibit 9.9, Asbestos Standard Operating Procedures (SOP)**.

7. **Vermiculite:**
 - a. Once vermiculite is observed, do not disturb the vermiculite or any surfaces supporting or enclosing it. Examples: Do not enter attic. Do not cut hole for fan. If vermiculite is observed in wall (evident in crawlspaces or around outlets or junction boxes) do not cut into wall.

Exception: In situations where protection of the client living area can be established, weatherization work may continue by workers with the proper training, certification, and a Standard Operating Procedure.
 - b. Commerce does not recommend asbestos testing on vermiculite as it is not a homogenous material and the results are not conclusive.
 - c. Complete removal is not allowed.
 - d. When vermiculite insulation is observed in walls or attic, do not perform blower door testing.

8. **Asbestos tape and covering materials on pipes, ducts, furnaces, and other small covered surfaces:**
 - a. Assume asbestos is present in covering materials.
 - b. Encapsulation is allowed by a **Competent Person-Asbestos**. The Local Agency shall follow a Standard Operating Procedure (SOP).

- c. Removal may be allowed by a **Competent Person-Asbestos** on a case-by-case basis. The Local Agency shall receive Commerce prior written approval. The criteria Commerce will use to allow removal includes, but is not be limited to:
 - (1) Assess the hazard and potential danger of not removing,
 - (2) Determine if the area removed is limited and necessary,
 - (3) Weigh options for resolving issue, and
 - (4) Identify a funding source which allows removal.
 - d. If asbestos tape is observed inside the duct, no diagnostic testing shall be performed prior to encapsulation.
9. **Deferral:** The Local Agency may:
Refer to Policy 5.1.3, *Deferral Standards*.
- a. Defer specific measure(s) or the entire weatherization project due to ACM. When deferral is necessary due to asbestos, occupant shall provide documentation that a certified professional performed the remediation before work continues.
10. **Client Education:** The Local Agency shall:
Refer to Policy 5.1.4, *Client Education* for requirements.
- a. Provide asbestos information to all clients.
11. **Documentation:** The Local Agency shall:
Refer to Policy 5.1.2, *Wx Project Documentation* for requirements.
- a. Document in the project file
 - (1) Any client receipt of asbestos information, ACM test results, paid invoices for all contractor billing, including AHERA inspector.
 - (2) Contractor and crew asbestos training and certifications.

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Weatherization Policy

See also:

[EPA - A Citizen's Guide to Radon](https://www.epa.gov/radon)

<https://www.epa.gov/radon>

[EPA - Healthy Indoor Environment Protocols for Home Energy Upgrades](#)

[EPA – Consumer's Guide to Radon Reduction: How to Fix your Home](#)

[Policy 5.1.3, Deferral Standards](#)

[Policy 5.1.4, Client Education](#)

Replaces: Policy 9.10 – July 2016

More Radon information: <https://www.epa.gov/radon/publications-about-radon>

POLICY 9.10 RADON

1. **Ground Cover:** Whenever site conditions permit, Local Agencies shall cover exposed dirt with a vapor barrier.
2. **Radon Testing:** Local Agencies are allowed to test for radon in locations with high radon potential.
3. **Complete Removal of Radon Prohibited:** Complete removal of radon (general abatement of radon) is not an allowable activity under the Weatherization Program. However, those costs associated with taking precautions in a dwelling known to have radon problems are allowable weatherization expenditures. These costs are allowable if an energy audit indicates that weatherization techniques would help in radon remediation. Radon mitigation is not an allowable H&S cost.
4. **Establish Radon-Related Strategies:** Local Agencies shall establish sound radon-related strategies in doing weatherization work on homes and taking precautions in homes where there may be a radon concern.
 - a. In homes where radon may be present, work scope should include precautionary measures based on *EPA - Healthy Indoor Environment Protocols for Home Energy Upgrades*, to reduce the possibility of making radon issues worse.
 - b. Other precautions may include, but are not limited to, sealing any observed floor and foundation penetrations, including open sump pits, isolating the basement from the conditioned space, and ensuring crawl space venting is installed.
5. **Radon Mitigation Notification:** If radon levels are found to be present in the home, prior to beginning work installing a mitigation system, the local agency shall provide Commerce with evidence this alteration meets all of the following:
 - a. Allowed by the local authority having jurisdiction (ie: building department),
 - b. Meets all applicable codes, and
 - c. SIR of 1 or greater, other than allowable Health and Safety components.

6. **Deferral:** In homes with identified radon problem, work that would exacerbate this problem shall be deferred. See **Policy 5.1.3, *Deferral Standards*** for requirements.
7. **Client Education:** Local Agencies shall provide radon client education to all clients. See **Policy 5.1.4, *Client Education*** for requirements.
8. **Documentation:** The Local Agency shall document all radon requirements including client receipt documentation verifying client received radon information and informed consent form. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.

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Weatherization Policy

Replaces: Policy 9.11 – July 2012

See also:
[Policy 5.1.3, *Deferral Standards*](#)
[Policy 5.1.4, *Client Education*](#)
[Policy 5.1.2, *Weatherization Project Documentation*](#)

POLICY 9.11 PESTS

1. **Pest Removal:** Pest removal is allowed only where infestation would prevent weatherization. Screening at points of access is allowed to prevent intrusion.
2. **Deferral:** Infestation of pests may be cause for deferral where it cannot be reasonably removed or poses health and safety concern for workers. See **Policy 5.1.3, *Deferral Standards***.
3. **Client Education:** Local Agencies shall inform the client in writing of observed pest conditions and associated risks. See **Policy 5.1.4, *Client Education*** for requirements.
4. **Documentation:** The Local Agency shall document all pest related requirements, including the observed pest conditions given to the client in writing. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.



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for
United States Department of Energy (DOE)
United States Department of Health and Human Services (HHS-LIHEAP)
Bonneville Power Administration (BPA)
and
Washington State Weatherization Plus Health (State)**

**Prepared By:
Washington State Department of Commerce
Energy Division**

2022 Edition

July 2022 Version



WEATHERIZATION WORKS

July 2022

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See also:

<https://sws.nrel.gov/>
[Washington State Department of Labor and Industries- Contractor Licensing & Permits](#)
[Chapter 296-65 WAC, Safety Standards for Asbestos Removal and Encapsulation](#)
[Exhibit 5.S10, Standards for Wx Material Specifications](#)

Refer to: Policy 5.1.1, *General Requirements*



SPEC 1.0 GENERAL REQUIREMENTS

The Local Agency shall meet program requirements for insurance, licensing, labor standards, warranties and guarantees, applicable permit compliance, applicable code and regulation compliance, applicable training and certifications for staff and subcontractors, prevailing wage requirements, site clean-up and salvage, and documentation. Perform all work in a professional manner following standard residential construction practices.

1. **Precedence:** The Local Agency shall weatherize projects in accordance with the State of Washington Weatherization (Wx) Manual (Policies and Procedures, Specifications (Spec), and Exhibits). The more specific requirements take precedence over the general requirements. In an instance when:
 - a. **Unable to comply:** A requirement cannot be met, document in the project file why, and what actions were taken.
 - b. **Specs silent:** The Wx Specs do not address the work to perform, then at a minimum meet the NREL Standard Work Specifications (SWS).
2. **Subcontractors:**
Refer to Policy 8.4, *Subcontracting* for service dealer requirements to work in weatherized units.
3. **Warranties:**
Refer to Policy 8.4.1, *Warranties & Owner Release*, for requirements.
4. **Code compliance:** The Local Agency shall require all Local Agency crews and Subcontractors installing all materials, equipment, or products to comply with all applicable federal, state, and local laws and code regulations.
 - a. **Permits:** Include a record of ALL permits obtained for a job, whether by the Local Agency or by a Subcontractor in the project file. A paper copy or electronic file will satisfy the documentation requirement.
 - b. **Installed Work:** Comply with code for work performed in Weatherization Program. Local Agencies are not required to bring all non-compliant situations up to code.

5. **Health and Safety:**

Refer to Wx Manual Chapter 9, *Health and Safety*

a. **Asbestos:**

Refer Policy 9.9, *Asbestos* for more information.

Refer to Washington Administrative Code, Chapter 296-65, *Safety Standards for Asbestos Removal and Encapsulation*

(1) When the presence of asbestos is suspected and likely to be disturbed during the installation, modification or replacement of any materials, equipment or products, all health and building regulations and codes requirements shall be followed.

(2) As required, an asbestos abatement work permit shall be obtained from the local building department, or from the state of Washington, Department of Labor and Industries prior to performing work that would result in disturbing the asbestos material.

6. **Materials and equipment:**

Refer Exhibit 5.S10, *Standards for Weatherization Material Specifications*

a. All materials used shall meet the specifications found in Exhibit 5.S10, *Standards for Weatherization Material Specifications*.

b. All products installed shall be UL listed (and labelled) when appropriate.

c. Windows and doors shall be NFRC rated and labelled.

Exception - Alternate materials: The Local Agency shall get written approval to use alternate materials from Commerce prior to the use of such materials.

7. **Manufacturer's requirements:** The Local Agency and Subcontractors shall conform to all manufacturer's requirements regarding installation, use and maintenance of all materials, equipment, or products installed or supplied through the weatherization program.

8. **Insulation Requirements:**

Refer Spec 6, *General Insulation*

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See also:

Refer to: Policy 5.2.1-SF, *Energy Audit*

[Policy 5.2.1, Energy Audit](#)
[Policy 5.1.2, Wx Project Documentation](#)



SPEC 2.0 ENERGY AUDIT

All single family and multi-family dwellings shall receive a comprehensive, on-site, energy audit prior to receiving weatherization services.

1. **Scope of energy audit:** The Local Agency shall evaluate the dwelling for the following:
 - a. **Health and safety:** Health and safety issues that may negatively affect occupants.
 - b. **Durability:** Building durability issues that may negatively affect or prohibit installation of energy efficiency measures.
 - c. **Comfort:** Comfort issues that may cause increased energy use.
 - d. **Energy efficiency:** Cost effective energy efficiency improvements.
2. **Components of energy audit:** All single family energy audits shall include:
 - a. **Energy Audit Assessment** (visual inspection): The Local Agency shall inspect all accessible areas and systems as follows:

(1) Attics	(10) Appliances
(2) Crawlspace	(11) Lighting
(3) Building envelope	(12) Home energy bills
(4) Air sealing opportunities	(13) Stairs, ramps, landings, handrails
(5) Roofs	(14) Other structural elements
(6) Insulation levels	(15) Plumbing and electrical: <ol style="list-style-type: none">a. where insulation may be installedb. where humans may contact
(7) Heating systems	
(8) Ventilation systems	
(9) Interior surfaces	(16) Smoke alarms and CO detectors

- b. **Diagnostic testing**
Refer to Spec 4, *Diagnostic Testing*
 - c. **Combustion safety testing, when combustion appliances are present.**
Refer to Spec 3, *Combustion Safety Testing*
 - d. **ASHRAE 62.2 mechanical ventilation calculation**
Refer to Spec 10, *Mechanical Ventilation*
 - e. **Health and Safety Assessment**
Refer to Exhibit 5.1.4A, *Client Health and Safety Packet*
 - (1) **Client Informed Consent**
 - (a) Mold Assessment and Release Section
 - (b) Asbestos Section
 - (c) Lead Pre-Renovation Section
 - (d) Radon Section
 - (2) **Client Health and Safety Observed Conditions**
 - (3) **Pollution Source Survey**
 - f. **Historical preservation considerations:** All energy audits shall note any historical preservation requirements. The auditor shall consider these requirements when determining the scope of work for weatherization work on the dwelling unit.
 - g. **Analysis of base load costs:** The Local Agency shall analyze base load costs for each dwelling unit when fuel histories are available. Use base load cost data to determine cost-effective energy conservation and energy education opportunities.
3. **Requirements of energy audit:** All single family energy audits shall include:
- a. **Review with client** (energy audit and scope of work): The Local Agency shall review the findings of the energy audit and anticipated scope of work with the occupants of the dwelling. Documentation of the audit findings and anticipated scope of work shall be retained in the client file (project file).
 - b. **Energy audit tool:** Local Agencies shall choose one energy audit tool for each Wx project. Use either the computerized energy modeling tool or the deemed measures priority list to build Wx project scope of work (SOW). Do not combine tools or use more than one tool, on a single Wx project.

TREAT is the current state approved computerized energy modeling tool for the Wx Program. Washington state is transitioning from TREAT to ECOS as the official state approved computerized energy modeling tool. Until the date we receive DOE approval to use ECOS, Local Agencies shall use TREAT as the computerized energy modeling tool.

- (1) **Computerized energy modeling tool:** Local Agencies shall:
See Policy 5.2.5, *Targeted Residential Energy Analysis Tool (TREAT)*
See Policy 5.2.4, *Energy Community Online System (ECOS)*
- Use the state approved computerized energy modeling tool for the Weatherization (Wx) program. Failure to use approved computerized energy modeling tool, will result in disallowed costs. The computerized energy modeling tool is required, if any of the following apply:
- (a) Determine cost effective measures with a Savings-to-Investment (SIR) calculation.
 - (b) Justify any single family dwelling unit Wx project with DOE funded Installed Measure Costs (IMC).
 - (c) Justify any Wx project if the scope of work includes an installed measure which is not included on the Deemed Measures Priority List (DMPL).
- (2) **Deemed Measures Priority List (DMPL)**
See Policy 5.2.7, *Deemed Measures Priority List (DMPL)*
- Use the Deemed Measures Priority List (DMPL) for the Weatherization (Wx) program. The DMPL is required to:
- (a) Determine cost effective measures without a Savings-to-Investment (SIR) calculation, or
 - (b) Justify a single family dwelling unit Wx project if either of the following apply:
 - i. The state approved computerized energy modeling tool is not used, and
 - ii. DOE funding is not used for any Installed Measure Costs (IMC).
 - c. **Client authorization:** The Local Agency shall obtain a signature from the client (occupant of the dwelling unit), and if the home is a rental dwelling, also obtain a signature from the owner authorizing installation of the measures to be performed on the eligible dwelling prior to work commencing. A copy of the signed authorization shall be retained in the client file (project file).
- Exception:** Low-cost/No-cost and General Heat Waste Reduction measures may be installed before audit findings are reviewed with the occupants and owners.

4. Energy audit documentation

Refer to Policy 5.1.2, *Weatherization Project Documentation*

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See also:

[SWS Topic 5.05, Combustion Safety](#)
[Exhibit 9.4A, Combustion Safety Test Report](#)
[Exhibit 9.4A\(2\), Daily In-Progress Combustion Safety Test Report](#)
[Exhibit 9.4B, Combustion Safety Technical Support Document](#)

Refer to: Policy 9.4, *Combustion Safety Testing*



SPEC 3.0 COMBUSTION SAFETY TESTING

The Local Agency shall perform a State of Washington approved combustion safety test procedure as detailed in the Exhibit 9.4B, *Combustion Safety Technical Support Document* in all dwellings that have a functioning [Combustion Appliance](#).

1. Timing of combustion safety testing

- a. **Pre-weatherization combustion safety testing:** The Local Agency shall:
 - (1) Perform a *Combustion Safety Test* for every combustion appliance prior to installing any conservation measures that alter the building shell, HVAC system, or interior configuration (including comfort air sealing or altering of interior doors) of the dwelling.
 - (2) Use Exhibit 9.4A, *Combustion Safety Test Report* for each appliance.
 - (3) Document test results in the project file.
- b. **In-progress combustion safety testing:** The Local Agency, subcontractor, or technician shall:
 - (1) Perform a *Daily In-Progress Test-Out* at the end of the work day when work has been done that alters the building shell, HVAC system, or interior configuration (including comfort air sealing, altering of interior doors) of the dwelling unit.
 - (2) Install a Carbon Monoxide detector in the home on Day One.
 - (3) Use Exhibit 9.4A(2), *Daily In-Progress Combustion Safety Test Report* results records for daily in-progress testing shall be present in the project file.
 - (4) Qualify to perform the daily test by holding one or more of the following: BPI certification, which includes combustion safety testing, Combustion Safety Testing certificate of training, or Daily In-progress Combustion Safety Testing certificate of training.
 - (5) Take immediate action, if the system fails the daily test. Before leaving the dwelling unit, ensure that the occupant's health and safety is not compromised.

- c. **Post-weatherization combustion safety testing:** The Local Agency shall:
 - (1) Perform a *Combustion Safety Test* for every combustion appliance at the conclusion of the weatherization project.
 - (2) Use Exhibit 9.4A, *Combustion Safety Test Report* for each appliance.
 - (3) Document test results in the project file.

2. **Spillage tests:**

- a. **Single chimney with multiple appliances:** When multiple appliances share a single chimney, Local Agency shall
 - (1) Test the appliance with the smallest Btu input rating first.
 - (2) Test the remaining appliances in order of increasing input rate.
- b. **Multiple fuel sources vented into a single chimney:** Multiple fuel sources vented into a single chimney is cause for deferral of services until the situation is corrected.
- c. **Spillage:** The Local Agency shall:
 - (1) Perform a spillage test for:
 - (a) Combustion appliances with a draft hood or barometric damper, or
 - (b) An appliance that shares a chimney with another appliance that has a draft hood or barometric damper. If a chimney is shared between an induced draft heating system and a natural draft water heater, spillage shall be checked at the water heater draft diverter.
 - (2) Test spillage under worst-case conditions. See Exhibit 9.4B, *Combustion Safety Technical Support Document*, page 3, for more information.
 - (3) Make appropriate repairs or defer the project until the problem is corrected, for any appliance that continues to spill flue gases beyond the maximum established time limits identified in Table 2 fails the spillage test.

Table 2: Maximum Acceptable Appliance Spillage Periods*

Vent Temperature	Spillage Test Period (minutes)
Cold	5.0
Warm	2.0

*Building Performance Institute Standard

Exception: Wood stoves and wood fireplaces shall not be tested for spillage.

3. **Heat rise tests:** The Local Agency shall:

- a. Test all forced air heating systems for heat rise.
- b. Fail systems if the heat rise is outside the manufacturer's acceptable range (located on furnace label).
- c. Make appropriate repairs or defer the project until the problem is corrected, if the heating unit fails the heat rise test.

Exception: If manufacturer's acceptable heat rise range is unavailable, use the default acceptable heat rise range of greater than 40° and less than 70° Fahrenheit.

4. **Carbon monoxide tests:** The Local Agency shall:

- a. **Perform a CO test** in all combustion appliances in the home.
- b. **Measure CO:**
 - (1) In the undiluted flue gasses in the flue of the appliance,
 - (2) Using a digital gauge that measures in parts per million (ppm), and
 - (3) At steady-state operating conditions.
- c. **Record CO levels** and appropriate actions taken, as detailed in Exhibit 9.4A, *Combustion Safety Test Form*, pg 2 Table: *CO Thresholds for Fossil Fired Combustion Appliances*.
- d. **Appliances:**
 - (1) **Atmospheric or Natural Draft (70%) appliances:** Test for CO in the undiluted flue products at the heat exchanger outlets before the draft hood.
 - (2) **Induced Draft (80%) appliances:** Test for CO anywhere in the vent connector or at the vent termination if the appliance is vented by itself. If Local Agency drills a hole in the vent in the combustion appliance zone once the test is completed, seal hole with High Temperature silicone at both inner and outer layers and a bolt made of stainless steel long enough to go through both layers.
 - (3) **Sealed Combustion or Power Vented (90% +) appliances:** Test for CO, preferably at the exterior termination. Local Agencies may drill plastic vents on vertical run or upper side of a horizontal run. Once the test is completed, seal hole using a non-corrosive bolt (plastic plug or stainless steel) sealed with high temperature silicone caulk.
 - (4) **Solid fuel burning appliances:** Do not drill solid fuel burning vents. Carbon monoxide testing of solid fuel burning appliances flue gases is not required.

(5) **Gas ovens:**

Refer to Spec 10.4, *Mechanical Ventilation* for exhaust ventilation information

Refer to Exhibit 9.4A, *Combustion Safety Test Form*, pg 2

Table: *CO Thresholds for Fossil Fired Combustion Appliances*, for Action Levels

(a) Test for CO in accordance with Exhibit 9.4A, *Combustion Safety Test Form*.

e. **Ambient Carbon Monoxide Monitoring:** The Local Agency shall:

Refer to Exhibit 9.4A, *Combustion Safety Test Form*, pg 2

Table: *CO Action Levels (&LEL) Thresholds for Fossil Fired Combustion Appliances*, for acceptable Ambient Level of CO

(1) Monitor ambient CO levels:

(a) Upon entering the combustion appliance zone, and

(b) During the test period for all appliances.

(2) The maximum allowable ambient CO level in a dwelling where weatherization work has been completed is 9 ppm.

5. **Combustion Appliance Zone (CAZ) depressurization:** The Local Agency shall:

a. **Perform a worst-case depressurization test:**

(1) In each combustion appliance zone (CAZ) where spillage testing is required, and

(2) In fireplace and wood stove zones (FPWSZ).

b. **Document** the reasonable efforts attempted, actions taken, and education provided to the client in regards to the depressurization of the solid fuel fired combustion appliance, if fireplace and woodstove zone depressurization limits are exceeded under worst-case conditions.

6. **Documentation:** The Local Agency shall document in the project file repairs and the actions taken to correct all combustion safety failures.

7. **Un-vented fuel burning space-heating appliances:** The Local Agency shall not proceed with weatherization of dwellings that have existing un-vented fuel burning space-heating appliances until they are removed. The Local Agency shall notify the owners and the occupants of any hazards that exist with un-vented space heaters, and of the program requirements that un-vented space heaters be removed before weatherization services can be delivered.

8. **Required equipment:** The Local Agency shall:
- a. Use a digital manometer to perform all pressure diagnostic-testing measurements.
 - b. Use a digital combustion analyzer capable of measuring 0 ppm to 2000 ppm, and have an oxygen sensor, CO sensor, and a thermocouple in order to measure efficiency and air-free CO.
 - c. Have diagnostic testing equipment calibrated and maintained as recommended by the manufacturer.
 - d. Keep on file a record of maintenance and calibration for all diagnostic equipment.
 - e. Use a four gas confined space monitor to test for ambient CO, while conducting combustion tests.
 - f. Use manometer, smoke pencil, or mirror for spillage assessment.

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Refer to: Policy 5.2.3-SF, *Diagnostic Testing*

See also:
[Exhibit 5.S3A, Diagnostic Test Report](#)
[Exhibit 5.S3B, Diagnostic Test Report Technical Support Document](#)



SPEC 4.0 DIAGNOSTIC TESTING

The Local Agency shall perform diagnostic testing on all dwelling units prior to weatherization measures being installed and upon completion of each project. Pre and Post Diagnostic Testing shall be in project file or recorded as applicable in the ECOS program. An Exhibit 5.S3, *Diagnostic Test Report* is allowable.

1. **Single point blower door test:** The Local Agency shall perform a single point blower door test at 50pa before any weatherization measures are installed, and at the conclusion of any project where air sealing, building shell alteration, duct sealing, insulation, or any other measure that may alter the natural or mechanical air changes of the home is performed.
 - a. **Location:** The Local Agency shall install the blower door in a doorway that provides for the most accurate test. The location of the doorway where the tests are taken shall be documented in the project file.
 - b. **Baseline data:** The Local Agency shall document baseline information, such as wind speed, temperature, etc, using a diagnostic test report or recorded as applicable in the ECOS program. See Exhibit 5.S3, Diagnostic Test Report.
2. **Zonal pressure testing:** The Local Agency shall:
 - a. **Perform zonal pressure testing** in all zones (e.g., attics, crawlspaces, garages, unconditioned crawlspaces, etc) with more than 50 sf of common surface with the intended thermal boundary of the dwelling.
 - (1) Perform test prior to the installation of weatherization measures that alter the shell of the dwelling.
 - (2) Record zonal pressures with reference to (WRT) the living space of the home.
 - (3) Perform the post zonal pressure testing after air sealing and before the installation of insulation and attic or crawlspace ventilation, while project is “in-progress.”
 - (4) Record zonal pressure measurements in the project file.

3. **Duct system testing:** The Local Agency shall:
Refer to Spec 13, *Heating and Cooling Duct*, Section 6, *Duct Sealing*
- a. Perform pressure pan (or pressure block) testing of all forced air duct systems.
 - (1) Standard for duct system tightness is:
 - (a) 1pa or less at each supply register
 - (b) 5pa or less at return plenums
 - b. Perform post testing of ducts in enclosed cavities, such as wall bays, dropped ceilings, floor joists, mobile home bellies, etc., prior to insulating those cavities.
 - c. Record pre- and post-duct pressure pan measurements in the project file.

Exceptions to Duct system testing:

- Ea. Duct systems that are entirely within the heated building envelope and not connected to any exterior wall, attic or ceiling building component or buffered zone, are not required to be tested.
 - Eb. The Local Agency may use a duct tester to perform duct tightness testing. The standard for tightness is 100 cfm leakage to outside at 25pa.
 - Ec. If asbestos tape is observed inside the duct, no diagnostic testing shall be performed prior to encapsulation.
4. **Dominant duct leak testing:** The Local Agency shall:
Refer to Exhibit 5.S3A, *Diagnostic Test Report*, Air Leakage Chart
- a. Perform dominant duct leakage testing on all homes with ducted forced air heating distribution systems.
 - (1) Standard for dominant duct leakage is:
 - (a) No more than (+/-) 1.5pa or 100cfm of leakage to outside.
 - b. Record pre- and post-dominant duct leakage measurements in the project file.
5. **Room-to room pressure (under door) differential testing:** The Local Agency shall:
- a. With all doors closed, test and record the pressure differential between rooms with supply, return, or both ducts and the main body of the dwelling.
 - b. Correct pressure differentials of more than 5pa.
 - c. Record pre- and post-pressure differential measurements in the project file.
6. **Mechanical Ventilation:**
See Spec 10, *Mechanical Ventilation*

7. **Diagnostic testing equipment:** The Local Agency shall:
- a. Use a digital manometer to perform all pressure diagnostic testing measurements.
 - b. Maintain blower door(s) and calibrate digital manometer(s) as recommended by the manufacturer.
 - c. Keep on file a record of maintenance and calibration for all diagnostic equipment.

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Weatherization Specification

See also:

Refer to: Policy 5.3.1-SF, *Air Sealing – Stand-Alone Buildings*

[SWS Topic 3.01, General Pressure Boundary](#)



SPEC 5.0 BUILDING ENVELOPE AIR SEALING

The Local Agencies shall perform air sealing on all weatherization projects.

1. **Effective air sealing:** The Local Agency shall:

- a. Perform both priority air sealing and blower door guided air sealing are required.

Exceptions: Air Sealing methods and amount performed can be limited if:

(E1)It creates a Combustion Appliance Zone (CAZ) issue, or

(E2)There is Asbestos Containing Material (ACM) or assumed ACM issues.

- b. **Air sealing locations:** Air seal the building envelope including the heating or cooling duct system, at the pressure boundary and align it with the thermal boundary as defined by a competent energy auditor.

- c. **Priority air sealing:** All weatherization projects shall include priority air sealing. Priority air seal all seams, cracks, joints, and holes in locations including, but not limited to:

Attic		
Top plates of all walls	Plumbing vent pipes	Stairwells
Tongue & Groove ceilings	Chases – open bypasses	Exhaust fans
Chimney/Flue	Soffits	Missing wall cavity top plates
Ductwork	Attic hatches	Drop Ceilings
Can Lights	Skylight wells	Electrical
Floor		
Chases	Plumbing	Electrical
Blocking all floor cavities	Ductwork	Mobile home marriage lines
Wall		
Missing wall cavity top plates	Missing knee wall cavity bottom plates	Bottom plates of knee walls
Holes in walls		

Mobile Homes		
Marriage lines	Single-wide additions	Double-wide marriage lines
Triple-wide marriage lines	Tip outs	

- d. **Blower door guided air sealing:** The Local Agency shall use Blower door diagnostics known as *Blower Door Guided Air Sealing* to assist in determining appropriate air sealing measures.

Once the contractor or the crew finishes all priority air sealing,

- (1) Proceed with blower door guided air sealing under the cost effective guideline of 100 CFM50 reduction per-hour, per-person to identify any additional cost effective air sealing.
- (2) Check CFM50 reading at least each person-hour to ensure work is still cost effective.
- (3) When 100 CFM50 reduction per person-hour can no longer be achieved, blower door guided air sealing is complete.
- (4) Record all blower door guided air sealing on Exhibit 5.S9, *Cost Effective Guidelines Worksheet*.
- (5) Document pre- and post-blower door test results (CFM50) and air sealing time and efforts in the project file.

- e. **Use of pressure diagnostics and blower door:** The Local Agency shall:

- (1) Perform a pre-, in-progress, and post-retrofit blower door test on all homes.
- (2) Use blower-door guided air sealing to assist in determining appropriate air sealing measures.
- (3) Document pre-, in-progress, and post-blower door test results (CFM50) shall be recorded in the project file.

2. **Preferred installation method:** The preferred method for installing air sealing materials is from the attic side, not living space side, of ceilings and attics, from the inside surface of walls, and from the underside of floors.

- a. **Surface Preparation:** Remove any material from the sealing area that will prevent full adhesion of the selected air sealing material.
- b. **Depth of sealant:** Install sealant according to manufacturer's recommendations.

- c. **Material Selection:** Install filler materials that will adequately support the sealant, such as polyurethane foam, backer rod or other suitable materials in cracks deeper than 1/2 inch to a depth of 3/8 inch below adjacent surfaces to support the sealant when necessary.
- d. **Backing, Infill, and Support:** If installing backing or infill, it will not bend, sag, or move once installed, and will adequately support any insulation installed on the surface.
 - (1) **For small holes (less than 1/4"):** If using, install backing or infill material at least 1/8" below the surface where sealant is applied.
 - (2) **For medium holes (1/4" to 3"):** Install backing or infill in or over all holes to be sealed.
 - (3) **For large holes (greater than 3"):** install rigid backing or infill in or over all holes to be sealed.
 - (4) **Install support material for spans wider than 24"**, except when air barrier material is rated to span greater distance under load (e.g., wind, insulation).
 - (5) **Support material installed for any walking/working surface** (attics or floors) will support the weight of a worker and any insulation applied in the area.
 - (6) **Mechanically fasten** backing or infill materials sufficient to prevent movement.
- 3. **Sealing bypasses around chimneys, flues and stovepipes:** Install only noncombustible materials and sealants with an *ASTM E136* listing in contact with any device producing 200 degrees F or more (chimneys, vents, flues, etc.)
 - a. **Fireplaces with broken or missing dampers:** Installation of chimney top dampers or an inflatable draft stopping device is allowable.
- 4. **Sealing non IC-rated fixtures**
Refer to Spec 6.1, *Attic/Ceiling Insulation, Section 8a Insulating over recessed lighting fixtures and other heat-producing fixtures*
- 5. **Sealing cavity under knee wall:** The Local Agency shall:
 - a. **Top and bottom plates:** Install blocks at all knee wall top and bottom plates to prevent air movement.
 - b. **Air seal:** Air seal floor cavity immediately below the knee wall prior to insulation.

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Refer to: Policy 5.4.1, *General Insulation Requirements*

See also:
[SWS Section 4, Insulation](#)
[SWS 4.0104.2e, Knee Wall – Batt Insulation](#)



SPEC 6.0 GENERAL INSULATION

1. **General Insulation Requirements:** The following requirements apply whenever insulation is installed:
 - a. **Existing Insulation:** The Local Agency shall,
 - (1) Repair existing batts, if needed:
 - (a) Install airtight backing material in full contact with the existing cavity insulation
 - (b) Secure backing material using mechanical fasteners that penetrate the sub framing
 - (2) Adjust existing batt insulation in need of repair, to ensure it is in full contact with pressure boundary and sides of existing cavity without gaps, voids, compressions and misalignments.
 - b. **Batt insulation**
Refer to Exhibit 5.S5, *Flame Spread and Smoke Development*
 - (1) Batt insulation shall be tight fitting, but not compressed.
 - (2) Insulation installed on the interior of home shall be covered with a fire-rated material having a flame spread index of 25 or less and smoke developed index of not greater than 450 when tested in accordance with ASTM – E84-01.
 - c. **Vapor barrier:** The Local Agency shall locate vapor barrier on the warm side of the wall being insulated, if batts have a vapor barrier.
 - d. **Human contact:** The Local Agency shall:
Refer to Exhibit 5.S5, *Flame Spread and Smoke Development*
 - (1) Cover any insulation installed which is subject to routine human contact with
 - (a) Weather resistant barrier (WRB),
 - (b) Perforated FSK, or
 - (c) Material having a flame spread index of 25 or less and smoke developed index of not greater than 450 when tested in accordance with ASTM- E84-01,

- e. **Insulation material selection:** The Local Agency shall:
Refer to Exhibit 5.S5, *Flame Spread and Smoke Development*
- (1) Select material having a flame spread index of 25 or less and smoke developed index of not greater than 450 when tested in accordance with ASTM- E84-01.
- f. **Fire rating**
Refer to Exhibit 5.S5, *Flame Spread and Smoke Development*
- Where fire rating is required (i.e. between living space and garage), all exposed faces and edges of insulation that are combustible shall be covered with a non-combustible material with a fire rating of not less than 15 minutes, as tested in accordance with ASTM E-84-01.
- g. **Certification of insulation:**
- (1) **Including information:**
- (a) Address of residence
 - (b) Date of installation
 - (c) Name, address and phone number of installer
 - (d) Insulation type
 - (e) Coverage area
 - (f) R-value
 - (g) Installed thickness and settled thickness (and post chart from bag)
 - (h) Number of bags installed in accordance with manufacturer specifications
- (2) **Completing:** The certificate of insulation shall be completed in ink and signed by the installer, one of the following as applicable:
- (a) Subcontractor, if subcontractor performs the work.
 - (b) Crew chief, if the Local Agency's crew performs the work.
- (3) **Posting:**
- (a) **Certification of insulation:** The Local Agency or Subcontractor shall post a copy of completed certificate of insulation in the interior of the area insulated in a location nearby, and visible, from the access to the area.
- Exception:** If certificate cannot be posted in a visible location near the access to the area of insulation installation, the certificate may be posted near the service panel, electrical panel, or other area easily accessed by service technician. Document the alternate certificate posting location in project file.

- (b) **Manufacturer's insulation coverage chart:** The Local Agency or Subcontractor shall post near the Certificate of Insulation, the coverage chart of the insulating material installed.
- (4) **Delivering:** The Local Agency shall:
Refer to 16 CFR 460.17
- (a) Give a copy of completed certificate to the client.
- (5) **Documenting:** The Local Agency shall:
Refer to Policy 5.1.2 *Weatherization Project Documentation*
Document a copy of completed Certificate of Insulation in the project file.

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See also:

[SWS Topic 4.01 Attics](#)

[SWS 4.0104, Attic Knee Walls](#)

[SWS 6.0306.1, Decommissioning Ventilation Systems](#)

[SWS 3.0102.2, Sealing High-Temperature Devices](#)

Refer to: Policy 5.4.2, *Attic Insulation*

[WAC 296-46B-394, Wiring methods and materials – Concealed knob-and-tube wiring](#)



SPEC 6.1 ATTIC AND CEILING INSULATION

Attics/Ceilings shall be insulated if the cost to insulate is justified using an evaluation of cost-effectiveness where the Savings-to-Investment Ratio (SIR) is 1 or greater, or as allowed in Policy 5.2.7 *Deemed Measures Priority List (DMPL)*.

1. **Insulate attic and ceiling:** The Local Agency shall insulate attic and ceiling.
Refer to Spec 6, *General Insulation*
2. **Insulation material:** The Local Agency shall install in a uniform manner throughout the attic and cover exterior wall plates with a minimum R-7 of insulation.
3. **Thermal and pressure boundary:** The Local Agency shall align the thermal and pressure boundary when insulating attic/ceilings.
4. **Ceiling loading:** The Local Agency shall ensure the ceiling can bear the loads that will be imposed when insulation (new or additional) is installed.
5. **Insulating floored attics:** The Local Agency shall:
 - a. **Sub floor:** Remove sub floor to access cavities as necessary
 - b. **Marking depth:** Adequately mark insulation for depth a minimum of every 300 sq. ft. of attic area with measurement beginning at the air barrier.
 - c. **Floored over insulation level:** Insulate attic spaces which are floored over to the highest R-value approaching R-49, without altering the structure.
6. **Insulating knee walls:** The Local Agency shall:
 - a. **Knee wall insulation level:** Insulate knee walls adjoining attic spaces to a minimum of R-11. Install insulation using one of the following methods:
 - (1) **New batts:** Install batt insulation in accordance with manufacturer's specifications. Install backing material to enclose cavity, including but not limited to vapor open house wrap.

- (2) **Blown-in with vapor open house wrap:** Install air tight backing material to enclose cavity (adding 10 years measure life), then blow-in insulation.
 - b. **Fastening knee wall insulation:** Permanently fasten knee wall insulation. Fastening shall be in accordance with the guidelines for underfloor insulation.
 - c. **Air sealing knee wall:** The Local Agency shall:
Refer to Specification 5 *Building Envelope Air Sealing*, Section 5 *Air sealing cavity under knee wall*
7. **Insulating sloped ceilings:** The Local Agency shall:
- a. **Insulate accessible** sloped ceiling cavities using one of the following methods:
 - (1) **Fiberglass:** Install loose fill fiberglass insulation to prescribed R-value without gaps, voids, misalignments, or wind intrusions.
 - (2) **Cellulose:** Install baffles of the same height as the insulation perpendicular to slope a maximum of every 6' to prevent loose fill insulation from sliding downward. Then, fill each bay with cellulose insulation to prescribed R-value without gaps, voids, misalignments, or wind intrusions.
 - (3) **Air Space:** Insulate with loose fill, batt, or rigid insulation while maintaining a ventilated one (1) inch air space between the insulation and the roof sheathing.
 - b. **Insulate inaccessible** sloped ceiling cavities using one of the following methods:
 - (1) **Dense pack:** Install dense pack insulation. Install airtight, rigid, blocking material at all cavity openings that aligns with the pressure boundary and will not fail under dense pack pressure.
 - (2) **Air Space:** Insulate with batt or rigid insulation while maintaining a ventilated one (1) inch air space between the insulation and the roof sheathing.
8. **Attic/Ceiling damming:** The Local Agency shall comply with the attic/ceiling damming requirements as detailed below:
- a. **Insulating over recessed lighting fixtures and other heat-producing fixtures:** The Local Agency shall:
 - (1) **Type IC-rated:** Replace existing non IC-rated recessed lighting fixtures and other heat-producing fixtures with air tight and Type IC-rated fixtures. Metal recessed lighting fixtures and other heat-producing fixtures shall be:
 - (a) Certified by an independent laboratory as being capable of dissipating fixture heat, and listed for insulation cover (IC) which can be covered with insulation.
 - (b) Marked as UL listed "Recessed fixture Type IC" or manufacturer's instructions allow insulation contact.

(c) When applying sealant directly to IC rated recessed fixture, and sealant and IC rated fixture will be covered with insulation, ASTM E 136 Fire Rated sealant shall be used.

Exceptions: If replacement or retrofit of fixtures is not practical,

E1. Non-IC rated fixtures enclosures: Securely attach a solid, flame-resistant enclosure over or around all recessed lighting fixtures or other heat-producing fixtures not listed for insulation cover (IC), as follows:

Ea. **Clearance:** Keep insulation at least three (3) inches but not more than four (4) inches from the sides of the fixture (e.g. wiring, box, and ballast).

Eb. **Material:** Made from metal or sheetrock, or other material with a flame spread rating of 25 or less, in accordance with ASTM E-84.

Ec. **Seams:** Seal enclosure seams. Sealant exposed to the interior of the enclosure shall meet the same fire rating as the enclosure.

Ed. **Attach:** Securely attach to the ceiling structure to prevent displacement during and after the installation of insulation.

Ee. **Extend:** Extend above the top of insulation. Enclosure lid may not exceed R-value of 0.5. Top of enclosure shall not be insulated.

E2. Doorbell transformers: Doorbell transformers shall remain readily accessible to service. A closed-top enclosure shall not be used. Extend above the top of insulation.

E3. Heat producing equipment: Dam heat producing equipment, if not IC rated. (e.g: heat lamps, radiant heat drywall, etc.)

b. **Exhaust fans:** Exhaust fans in attics or dropped ceilings are not considered heat-producing fixtures.

c. **Powered Attic Ventilator** (Attic Exhaust fans) The Local Agency shall:
Refer to SWS 6.0306.1, *Decommissioning Ventilation Systems*

(1) Decommission attic fans mounted in gable end, roof deck, or ceiling surface which are used to keep the attic cool in summer. Disable or remove attic fans, if possible. If attic fan cannot be disabled, assure insulation is not disturbed when fan is in operation.

d. **Vents and chimneys:** If insulation is added, the Local Agency shall:

(1) **Clearance:** Remove any existing insulation materials or other loose combustible material from the applicable clearance areas described in this section.

(2) Chimneys and Combustion Vents of High-Temp Devices:

Refer to SWS 3.0102.2, *Sealing High-Temperature Devices*

Any portion of a chimney or vent located in the interior of the building or within the exterior wall of the building shall have a minimum air space clearance to combustibles of three inches (3”), unless venting material is listed and labeled for less clearance.

- (a) Air seal chimney penetration with ASTM E136 high temperature caulk.
- (b) Construct and install ridged dam to ensure a 3” clearance between the dam material and the combustion flue or chimney.
- (c) Existing fixed building materials need not be removed.
- (d) Install a ridged fixed dam higher than the insulation.
- (e) A shield of either solid, non-combustible material or fire rated material with a flame spread of 25 or less.
- (f) Damming shall be secured in place to prevent displacement.

Exception: Masonry chimneys equipped with a chimney lining system are permitted to have insulation material in contact with the masonry chimney.

(3) Single wall connectors and pipe: Where these items pass through insulated assemblies, provide shielding and maintain clearances according to state and local codes.

Some common clearances for residential appliances include:

APPLIANCE	MINIMUM DISTANCE FROM COMBUSTIBLE MATERIAL		
	Listed Type B gas vent material	Listed Type L vent material	Single-wall metal pipe
Listed appliances with draft hoods and appliances listed for use with Type B gas vents	As listed and labeled by manufacturer	As listed and labeled by manufacturer	6 inches
Residential boilers and furnaces with listed gas conversion burner and with draft hood	6 inches	6 inches	9 inches
Residential appliances listed for use with Type L vents (Oil is most common)	Not permitted	As listed and labeled by manufacturer	9 inches
Unlisted residential appliances with draft hood	Not permitted	6 inches	9 inches
Residential appliances other than above	Not permitted	9 inches	18 inches

- e. **Mechanical equipment:** If furnaces or water heaters are located in attics, the Local Agency shall:
 - (1) **Dam:** Surround mechanical equipment with a dam extending above the level of surrounding insulation.
 - (2) **Clearance:** The dam shall maintain clearances specified by the mechanical equipment's manufacturer.
 - (3) **Access:** Provide access to allow for equipment maintenance and repairs.
 - (4) **Pathway:** Insulate the pathway from the access hatch to any attic HVAC equipment with batts, rather than loose fill insulation.

9. **Exhaust ducting in attics/ceilings**

Refer to Spec 10, *Mechanical Ventilation*

10. **Heating and cooling ducting in attics/ceilings**

Refer to Spec 13, *Heating and Cooling Ducts*

11. **Wiring**

Refer to WAC 296-46B-358, *Wiring methods and materials – Knob-and-tube wiring*

- a. **Knob-and-tube wiring:** The Local Agency may install insulation over knob-and-tube wiring when the following procedures are followed:
 - (1) **Inspection:** The wiring shall be surveyed by a licensed electrical contractor who shall certify in writing that the wiring is in good condition with no evidence of improper overcurrent protection, conductor insulation failure or deterioration, and with no improper connections or splices. Repairs, alterations or extensions of or to the electrical system shall be inspected by an electrical inspector as defined in WAC 296-46B-394 Wiring methods and materials -- Concealed knob-and-tube wiring. A copy of the electrician's certification shall be present in the project file.
 - (2) **Overcurrent protection:** All knob-and-tube wiring that is to be covered with insulation shall have overcurrent protection in compliance with the National Electrical Code, Table 310-16, 60°C column. Overcurrent protection shall be either circuit breakers or Type S fuses. Type S fuse adaptors shall not accept a fuse of an ampacity greater than is permitted in the above-referenced National Electric Code.

- (3) **Insulation:** After inspection and any subsequent repairs and corrections are made, or over current protection installed, fiberglass or cellulose insulation may be installed. Loose or rolled thermal insulating materials may be installed over knob-and-tube wiring as long as the insulation meets the National Fire Protection Association (NFPA) 101 Life Safety Code, as identified with a flame spread factor of 25 or less as tested using ASTM E-84. See Exhibit 5.S5, ASTM E 84, Flame Spread and Smoke Development. Foam insulation is not allowed for use with knob-and-tube wiring. If repairs or overcurrent protection are not made or provided, then no insulation shall be installed in contact with the knob-and-tube wiring, and the owner of the building will be notified in writing of the areas needing repair, or circuits needing overcurrent protection.
- b. **Other than knob-and-tube wiring:** Local Agency may install insulation over wiring (other than knob-and-tube wiring) when the following procedures are followed:
 - (1) **Wiring:** Local Agency shall inspect all visible wiring to ensure the covering is intact and there is no non-conforming wiring (e.g. extension cords, speaker wiring, automotive wiring, etc. or wiring less than 14 gauge) integrated into the house electrical system.
 - (2) **Splices and connections:** All splices and connections shall be in UL approved junction boxes which have covers attached with screws.
 - (3) **Flags and Markers:** Flag all electrical boxes not accessible from living space and only accessible from attic to be visible above the level of the insulation.

12. **Attic access:** The Local Agency shall:

- a. **Provide access:** Provide access into attic spaces wherever it is practical for a person to reasonably work.
- b. **Access from interior:** Access shall be from the dwelling interior
Exception: If no interior access is practical, provide access through the exterior of the dwelling. Size exterior access to allow for entry into the attic.
- c. **Prevent air leakage:** Attic access hatch from conditioned to unconditioned spaces shall be tight fitting or weather-stripped to prevent air leakage.
- d. **Fasten access hatches:** All installed attic access hatches shall be easily movable, such as on hinges or screwed. No nails can be used to secure attic access hatches.
- e. **Insulate access hatches:** Insulate access hatches to the same R-value as the adjacent insulated assembly.
- f. **Affix Insulation:** Permanently fasten the insulation to access hatches in complete contact with the air barrier.

- g. **Frame new access openings:** Frame attic entry access a minimum size of 14.5 inches by 24 inches (14.5" x 24").
- h. **Knee wall access openings:** If attic access is provided through a knee wall, the access shall be at least 14.5 inches by 24 inches and be insulated to the same R-value as adjacent insulated assembly.

13. **Pull-down stairs and retractable ladders:** The Local Agency shall:

- a. **Insulate:** Attic access doors that incorporate retractable ladders or similar devices shall be insulated to at least R-28 (e.g. 4" poly isocyanate) by installing an insulating cover over the opening of the attic.
- b. **Remove and reinstall:** Design and install cover in a fashion that will allow it to be easily removed and reinstalled by the homeowner when the attic access is used.
- c. **Dam:** Surround the rough opening with durable dam that is higher than the level of the adjacent assembly.

14. **Passive ventilation:** The Local Agency shall:

- a. **Installing ventilation:** Installation of ventilation is allowable. The installation of additional ventilation is not required. If ventilation is installed, the code minimum shall not be exceeded.
- b. **Ventilation baffling:** If soffit venting is installed, mechanically fasten baffles (i.e., soffit chutes) in each truss bay that terminate at least 6" above final insulation level and provide a minimum of 1" clearance between insulation and roof deck material.
- c. **Vent screening:** Cover existing vents which are not screened with non-corroding wire mesh with openings of no greater than one-quarter inch (1/4").

15. **Certificate of insulation**

Refer to Spec 6, *General Insulation*

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See also:

Refer to: Policy 5.4.3, *Wall Insulation*

[SWS Topic 4.02, Walls](#)



SPEC 6.2 WALL INSULATION

Walls shall be insulated if the cost to insulate is justified using an evaluation of cost-effectiveness where the Savings-to-Investment Ratio (SIR) is 1 or greater, or as allowed in Policy 5.2.7, *Deemed Measures Priority List (DMPL)*.

1. **Insulate walls:** The Local Agency shall insulate walls.

Refer to Spec 6, *General Insulation*

Exceptions: If any of the following conditions exist, then the wall cavity should not be insulated:

- Ea. **Knob and tube wiring:** Wall cavities that contain knob and tube wiring that cannot be certified.
 - Eb. **Insulated cavity:** Cavities that are fully insulated.
 - Ec. **Cavities containing ducts/heaters:** Any part of the cavity that is used as, or contains, an HVAC duct, contains a gas wall furnace, or contains an electric wall heater or other heat-producing device.
 - Ed. **Uninsulated soffit next to cavity:** Blown-in insulation is not allowed where cavity is open to an uninsulated soffit with a recessed light fixture or other heat-producing device that cannot be properly dammed.
 - Ee. **Cavity next to pocket door:** Wall cavity is connected to an unprotected pocket door cavity.
 - Ef. **Repairs needed:** Repairs needed beyond scope of Wx Program.
 - Eg. **Substandard materials:** Substandard interior or exterior sheathing is present.
 - Eh. **Solid walls:** Walls are solid masonry, concrete, concrete block, wood, or adobe.
2. **Timing of wall insulation:** Install wall insulation after following activities are complete:
 - a. Knob and tube wiring inspection.
 - b. Minor electrical repairs in walls done by weatherization program.
 - c. Required damming and/or blocking is installed.
 - d. Air sealing of obvious holes and gaps not utilized for application of insulation.

3. **Dense pack wall insulation:** Insulate all closed wall cavities by dense packing loose fill insulation, using a product specifically approved for dense packing of the loose fill insulation, per manufacturer's instructions:
 - a. **Cellulose insulation** used in an enclosed cavity shall be installed at 3.5 pounds per cubic foot or greater density.

Exception: On a project-by-project basis, products other than cellulose may be used, with reasons documented in client file (project file).
 - b. **Blown fiber glass or mineral fiber insulation** used in an enclosed cavity shall be installed at or above the manufacturer's recommended density to limit airflow.
 - c. **Fill tube method:** Install insulation using the fill-tube method.
 - d. **Interior/exterior installation:** Prior to drilling, contractors shall get a signed authorization from the homeowner allowing the contractor to drill holes in the home. Dense pack insulation may be installed from the exterior or interior.
 - e. **Water column (WC) pressure:** Test insulation blowing machines on the date of installation, as per manufacturer's specifications.
 - f. **Balloon-framed walls:** Prior to insulating, install stops in the top and/or bottom of the cavity in walls that do not have a top and/or bottom plate (balloon-framed). Install stops in a manner that will withstand dense-pack insulation installation.
4. **Treatment of interior and exterior surfaces** The following procedures shall be followed when treating exterior or interior surfaces for insulation purposes.
 - a. **Asbestos:** The Local Agency shall:

Refer to Policy 9.9, *Asbestos*

 - (1) Inspect exterior and interior siding prior to any work.
 - (2) Siding that may contain asbestos shall be deferred, presumed to contain asbestos, or tested and, if either presumed to contain asbestos or tested and found to contain asbestos, shall not be disturbed unless work is performed by a trained and licensed asbestos professional.
 - b. **Lead-based paint:** The Local Agency shall:

Refer to Policy 9.8, *Lead-Based Paint*
Refer to Spec 21, *Lead-Based Paint*

 - (1) Inspect exterior and interior siding prior to any work.
 - (2) Test or presume siding surfaces that may be coated with lead-based paint.
 - (3) Follow Lead Safe work, EPA's Renovation, Repair, and Painting protocols.

- c. **Removing exterior siding:** The Local Agency shall:
 - (1) Remove or lift exterior siding to gain access to the exterior wall for drilling.
 - (2) Plug holes with durable materials and seal with weatherproof exterior sealant.
 - (3) Close weather resistant barrier (WRB) and seal seams with compatible sealant tape.
 - (4) Replace siding. Repair or replace any siding that is damaged with matching siding that is primed and painted to match existing siding.
- d. **Drilling exterior siding:** The Local Agency shall:
 - (1) With the owner's written permission, drill through any exterior siding not containing asbestos that cannot be removed or lifted.
 - (2) Drill holes in a level line.
 - (3) Plug holes with durable materials and seal with weatherproof exterior sealant.
 - (4) Apply and smooth exterior-grade spackle, texture to match existing surface(s), allow to cure per manufacturer's specifications.
 - (5) Prime and paint to match existing siding.
- 5. **Open wall cavities:** When insulating open wall cavities, the Local Agency shall:
 - a. **Air tight backing material:** Install an airtight backing material in full contact with the existing cavity insulation and in accordance with manufacturer's installation instructions for the intended application. Secure backing material using mechanical fasteners.
 - b. **Open garage walls:**
Refer to Spec 6, *General Insulation - Section 1d, Human Contact*

When wall insulation is installed in open wall cavities the insulation shall have a covering with a flame spread index of 25 or less and smoke developed index of not greater than 450 when tested in accordance with ASTM - E84-01. If the insulation does not meet this standard, a covering may be applied that does meet standard.
- 6. **Rim joist:** Local Agency shall:
Refer to Spec 6.3, *Crawlspace, Underfloor, and Perimeter Insulation - Section 13, Rim joist area*
- 7. **Cavities containing chimney/flue:** A cavity containing a metal chimney or flue without a solid barrier and a three-inch (3") clearance zone shall not be blown with insulation.
- 8. **Certificate of insulation**
Refer to Spec 6, *General Insulation - Section 1g, Certificate of Insulation*

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Refer to: Policy 5.4.4, *Floor Insulation*

See also:
[SWS Topic 4.03 Floors](#)
[SWS Topic 4.04, Conditioned Subspaces](#)
[SWS 3.0104.2, Installing New Crawlspace Access](#)
[SWS 4.0388.1, Foundation Skirting](#)



SPEC 6.3 CRAWLSPACE, UNDERFLOOR, PERIMETER INSULATION

Floors over unconditioned crawlspaces and basements shall be insulated if the cost to insulate is justified using an evaluation of cost-effectiveness where the Savings to Investment Ratio (SIR) is 1.0 or greater, or as allowed in Policy 5.2.7, *Deemed Measures Priority List (DMPL)*.

1. **Insulate floor:** The Local Agency shall insulate floor over unconditioned space. Refer to Spec 6, *General Insulation*
Exceptions:
 - Ea. **Clearance:** Work in areas with less than 18-inch clearance may be waived.
 - Eb. **Knob-and-tube:** Floor contains knob and tube wiring that cannot be certified safe by a licensed electrician or inspector as defined in RCW 19.28.070.
 - Ec. **Hazard:** There is sewage waste on the ground, or any other condition is present that poses a health or safety hazard that cannot be corrected with available repair funds.
 - Ed. **Structural:** The sub-floor, floor or structural members are wet, rotten or unsound and the problem cannot be corrected with available repair funds.
 - Ee. **Pest:** Insect or rodent infestation is present that cannot be eliminated prior to insulating.
 - Ef. **Clutter:** Extensive debris or household goods or personal belongings are present.
 - Eg. **Confined space:** Underfloor space is determined to be a permit required confined space.
2. **Insulation levels:** Insulation shall fill the cavity and have an SIR of 1.0 or greater, or meet DMPL.
3. **Installation standard:** The Local Agency shall install insulation as follows:
 - a. Be in substantial contact with the sub-floor with no voids or gaps.
 - b. Insulation batts shall not be overly compressed.
 - c. Insulation shall be cut to fit each joist space.

- d. All ends shall fit tight without overlapping.
 - e. Insulation shall fit tight against structural members, rim joist, foundation walls and pipes.
 - f. When foundation vents are not placed so that the top of the vent is below the lower surface of the floor insulation, a permanently attached baffle shall be installed at an angle of 30° from horizontal, to divert air flow below the lower surface of the floor insulation.
4. **Ducts in crawlspaces:**
Refer to Spec 13, *Heating and Cooling Ducts*
5. **Insulation support systems:** The Local Agency shall use the floor support matrix to determine insulation support systems.

FLOOR SUPPORT MATRIX						
Floor Type	Support Material	Material requirements	Maximum Spacing	Acceptable patterns	Minimum fastener type American Wire Gauge (AWG)	Minimum fastener depth
Joist up to 24"	Lath	3/8X1.5"	20" O.C.	Across floor joists	Corrosion resistant 3/8" crown 18AWG	5/8"
Joist up to 24"	Twine	150 LBS. polyester, polypropylene or nylon	12" O.C.	Shoelace/Zigzag (shall be stapled at each joist)	Corrosion resistant 3/8" crown 18AWG	5/8"
Post & Beam over 32" O.C.	Lath	3/8X1.5"	20" O.C.	Across floor beams up to 54". If over 54" need center support	Corrosion resistant 3/8" crown 18AWG	5/8"
Post & Beam over 32" O.C.	Twine	150 LBS. polyester, polypropylene or nylon	12" O.C.	Shoelace up to 54" across. If over 54" need center support	Corrosion resistant 3/8" crown 18AWG	5/8"

- a. **Lath Method:** Materials used for the lath method shall meet the following:
- (1) The lath used shall be dry, a minimum 3/8" inch thick, and not damaged.
 - (2) The lath shall be sized and spaced so insulation does not sag.
 - (3) Space the exterior row of lath no more than 4" inches from the foundation wall and 20" inches on center in the field.
 - (4) Provide lath or other approved support mechanism within 4" inches of the end of any batt.

- (5) Fasten the wood lath to the bottom of beams or joists using galvanized roofing nails which allow 5/8" inch penetration of the joist, or zinc coated, stainless steel or similar corrosion resistant staples with a minimum 3/8" inch crown and 5/8" inch fastener depth.
 - b. **Twine method:** Materials used for the twine method shall meet the following:
 - (1) Twine shall be polyester, polypropylene, or nylon and have a breaking strength of at least 150 pounds.
 - (2) Twine shall be installed in a joist-to-joist shoelace or zigzag pattern across each joist space with anchor points no more than 12" inches apart.
 - (3) Nails used as anchors shall be hot-dipped, galvanized metal, or have similar corrosion resistance, and penetrate the beam/joist at least 5/8" inch.
 - (4) Staples used as anchors shall be made of stainless steel or equivalent material of similar corrosion resistance (such as galvanized metal, nickel, solid bronze, or aluminum). Staples shall be a minimum of 18 gauge, have a minimum of 5/8" inch fastener depth, have at least a 3/8" inch crown width, and be made in a divergent point or modified divergent point style.
 - (5) Shall be anchored to parallel joists or beams spaced up to 54" inches apart.
 - c. **Wire hanger method:** The use of wire hangers or "tiger teeth" shall not be considered an acceptable method of support for underfloor insulation.
 - d. **Blown in method:** Materials used for the blown-in method shall meet the following:
 - (1) When using netting or fabric as support for blown in insulation, place staples according to manufacturer specifications and be no more than 1-1/2" inches apart.
 - (2) Supporting netting or fabric shall meet local fire codes and have a minimum service life of 20 years.
 - (3) Close all access holes with a closure system that prevents insulation loss and lasts the life of the insulation support material.
 - e. **Alternative insulation and methods of support for underfloor insulation:** Other insulation or support methods may be acceptable. Install according to the manufacturer's recommendations. The Local Agency shall receive Commerce prior written approval.
6. **Ground cover:** The Local Agency shall install the ground cover moisture barrier in accordance with the following:
- a. **Install and replace damage:** Install in a crawlspace when no ground cover exists or when an existing ground cover has been extensively damaged.

- b. **Remove debris:** Remove all wood or other cellulose fiber-based debris, where practical, before new ground cover is put in place. Remove any debris that can cause injury or puncture ground covers (e.g. nails, glass, sheet metal screws, etc.) from the crawlspace.
- c. **Material:** The ground cover shall be minimum six (6) mil black polyethylene, or its equivalent in perm-rating (0.1 or less), strength, and resistance to soil-chemical degradation.
- d. **Lap joints:** Lap all joints a minimum of 12 inches with reverse or upslope lapping technique.
- e. **Cover soil:** Cover all exposed soil with poly and extend it at least 6" inches up the foundation wall or pier blocks, but it shall not contact any non-treated wood members.
- f. **Cover existing:** New ground cover may be installed over existing ground cover that is deteriorated or incomplete.
- g. **Cover clear:** When existing ground cover is clear it shall be covered with black.
- h. **Fasteners:** Fasten ground moisture barrier to ground with durable fasteners or ballast(s) to keep it in place.
- i. **Conditioned Closed Crawlspace or Conditioned Basement:** Cover exposed dirt floors within the pressure/thermal boundary with six (6) mil (or greater) polyethylene sheeting, lapped at least 12" and seal with appropriate sealant at all seams, walls, and penetrations through the ground vapor barrier (GVB).
- j. **Drainage:** The ground vapor retarder shall not interfere with an established drainage pattern (e.g., to sump pits, French drains, etc.)

Exception to Ground cover: When underfloor insulation is installed over an unconditioned basement and the basement has no exposed soil (i.e. concrete floor and walls), ground cover is not required.

7. **Crawlspace access:** The Local Agency shall:

- a. **Provide minimum size access:** All crawlspaces shall have an access. If adding new access, Local Agency shall:
 - (1) **Floor:** Provide a minimum access opening through the floor of 18 inches by 24 inches (18" x 24") or as constrained by existing framing members
 - (2) **Perimeter wall:** Provide a minimum access opening through a perimeter wall (at or below grade) of 16 inches by 24 inches (16" x 24") or as constrained by existing framing members

- (3) **Underfloor spaces containing appliances:** For underfloor spaces containing appliances, provide an unobstructed access large enough to remove the largest appliance but not less than 30 inches high and 22 inches wide (30" x 22") and no more than 20 feet away from the appliance measured along the center line of the passageway from the opening to the appliance.

Exception to minimum size access: Smaller access is allowable when dictated by existing framing.

b. **Exterior access:** Exterior access to the crawlspace shall

- (1) **Provide hatch:** Have a cover or door that fills the opening, is tight fitting, and can be securely attached.
- (2) **Fasten access hatches:** Use hand-operable mechanical fasteners. Hand tightening fasteners, butterfly clips, or screws are acceptable. Nails shall not be used to secure access covers to framing.
- (3) **Material selection:** Cover and framing material exposed to weather, or in contact with soil or concrete, shall be rated for ground contact. Other types of wood may be used if they are primed and painted with exterior grade paint.
- (4) **Hardware selection:** Nails, screws, fasteners or other hardware used shall be made of galvanized metal, stainless steel, or similar corrosion resistant material.

Recommendation for exterior access - cover below grade access (doghouse):

Cover crawlspace access wells with a shed roof type cover where bulk moisture is an issue. Construct the cover to conform to well dimensions. Include appropriate roofing material, prime or paint, or use treated plywood. Install handles for ease of removal. Do not install vents.

c. **Interior access:** Interior access to the crawlspace shall:

- (1) **Prevent air leakage:** Crawlspace access hatch from conditioned to unconditioned spaces shall be tight fitting or weather-stripped to prevent air leakage.
- (2) **Insulate access hatches:** Insulate access hatches to the same R-value as the adjacent insulated assembly.
- (3) **Affix Insulation:** Permanently fasten the insulation to access hatches in complete contact with the air barrier.

8. **Installation of passive ventilation:** Installation of passive ventilation is allowable. The installation of additional ventilation is not required. If ventilation is installed, the code minimum shall not be exceeded.

a. **Closeable vents:** Closeable vents are allowable.

b. **Vent opening location:** New vent openings shall not be installed within 12 inches of existing water pipes.

- c. **Vent screening and framing:** All new and existing vents shall be screened with ½ inch or less, corrosion resistant wire mesh to prevent rodent intrusion, secured on all four sides, and trimmed so that no exposed edges of the wire mesh are showing from the outside. Expanded metal covers may be used. Wood framing in contact with concrete or ground shall be pressure treated or cedar.
9. **Pest exclusion:** If there is evidence of pests entering a crawlspace, unintentional exterior perimeter openings may be sealed to help prevent pest intrusion.
- a. When sealing the crawlspace perimeter for pest exclusion, holes larger than 1/4 inch should include a rigid backing material (i.e. metal mesh, steel wool, or other pest resistant materials).
10. **Closed (sealed) crawlspace**
Refer to Policy 9.10, *Radon*
Refer to SWS 2.0401, *Radon Precautionary Measures*
Refer to SWS 3.0104.1, *Closed Crawlspace Air Sealing*
Refer to SWS 4.0402.1 *Closed Crawlspace - Non-Foam Insulation*
Refer to SWS 4.0402.2, *Closed Crawlspace - Rigid Foam Insulation*
Refer to SWS 4.0402.3 *Closed Crawlspace - SPF Insulation - not allowed*
- a. **Converting a crawlspace** with ventilation openings to a sealed crawlspace or “unvented crawlspace” is allowed if in Zones 1 and 2 only, Precautionary Measures are installed as part of Wx and if it meets all of the following:
- (1) Allowed by the local authority having jurisdiction (i.e. building department),
- (2) Meets all applicable codes (including, but not limited to SWS and IRC R408.3), and
- (3) SIR of 1 or greater, other than allowable Health and Safety components.
- b. **Combustion appliances in sealed crawlspaces:** Open combustion appliances shall not be located in sealed crawlspaces. Closed combustion appliances may be located in a sealed crawlspace. All combustion air shall come from the outdoor environment.
11. **Unconditioned basement in combination with crawlspace**
- a. Unconditioned basement shall be treated as an extension of a crawlspace.
12. **Conditioned basement in combination with crawlspace**
- a. Conditioned basement shall be separated from a vented crawlspace.
- b. Conditioned basement shall be treated as an extension of a closed crawlspace.

13. **Rim joist area:** Rim Joist areas shall be air sealed and insulated to a minimum of R-11.
- a. When insulating open cavities, products shall be a Class 2 (0.1-1.0) vapor retarder material according to ASTM E84 (flame spread not to exceed 25, smoke index not to exceed 450) UL 723.
 - (1) **Rigid:** Examples of rigid foam products that meet this requirement are: DOW Thermax Heavy Duty, R-Matte Plus-3, and R-max TSX 8510.
 - (2) **Batt:** Fiberglass batt insulation installed in rim joists shall be covered. Examples of materials to meet the requirement is MBI (metal batt insulation) or batt covered with FSK (foil scrim kraft) or WRB (weather resistive barrier), such as Tyvek.
14. **Exterior perimeter insulation** (foundation wall and slab edge): When exterior perimeter insulation is installed the Local Agency or Subcontractor shall:
Refer to SWS 4.0403.1, *Raised and On-Grade Slab Edge Insulation*
15. **Interior perimeter insulation:** When interior perimeter insulation is installed the Contractor/Installer shall:
Refer to SWS 4.0402.4, *Basements – Without Groundwater Leakage*
Refer to SWS 4.0402.5, *Basements – With Groundwater Leakage*
- a. **Materials:** When insulating open cavities, products shall be a class 1 material according to ASTM E84 (flame spread not to exceed 25, smoke index not to exceed 450). Examples of rigid foam products that meet this requirement are: DOW Thermax and R-max TSX 8500.
 - b. **Minimum R-Value:** Install insulation on existing unvented crawlspace or basement walls to a minimum thermal resistance of R-10.
16. **Cantilevered floors:** Cantilevered floors shall be insulated. Fill cavity. Use one of the following methods:
- a. **Cantilever open through rim:** When the floor joists extend beyond the foundation wall and the rim area is open, extend the insulation batt into the cantilevered area from the crawlspace. Fill cavity with insulation without voids and gaps. Air seal penetrations through sheathing or sub floor.
 - b. **Cantilever open under floor:** Fill cavity with insulation without voids and gaps. Mechanically fasten a continuous airtight rigid air barrier cover suitable to withstand weather, moisture, and pest contact such as a 3/8 inch exterior grade sheathing or similar material shall protect the insulation installed. Wood sheathing shall be primed on all exposed sides or pressure treated plywood used. Air seal penetrations through sheathing or sub floor.

- c. **Cantilever no access:** Drill through existing interior or exterior cover. Blow fiberglass insulation at a density of 1.5 pounds per cubic foot or cellulose insulation at a density of 3.5 pounds per cubic foot. Plug holes with durable materials and seal with weatherproof exterior sealant. Air seal penetrations through sheathing or sub floor.

- 17. **Floor over attached garage no access:** Drill through existing interior or exterior cover. Blow fiberglass insulation at a density of 1.5 pounds per cubic foot or cellulose insulation at a density of 3.5 pounds per cubic foot. Plug exterior holes with durable materials and seal with weatherproof exterior sealant. If the ceiling being drilled for access is drywall or plaster, the holes shall be plugged and skim coated with joint compound ready for light sand.
 - a. **Floor over attached garage open joists**
Refer to Exhibit 5.S5, *ASTM E 84, Flame Spread and Smoke Development*
Underfloor insulation installed in open floor joists over a garage shall be covered with material having a flame spread index of 25 or less, and a smoke developed index of not greater than 450 when tested in accordance with ASTM-E84.

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Refer to: Policy 5.4.5, *Windows and Doors*

See also:
[SWS Subtopic 3.0201, Windows](#)
[National Fenestration Rating Council, NFRC Label for Energy Ratings](#)



SPEC 7.0 WINDOWS

Window replacement or repair is allowable as Weatherization Measures (WxM), Health and Safety (H&S), or Weatherization-Related Repair (WRR) Measures. Refer to Policy 5.4.5, *Windows and Doors*

1. **Replacement windows:** Replacement windows shall have a U-factor rating of 0.30 or less and an air leakage rating of less than 0.3 cfm/sq.ft. An area weighted U-factor calculation may be used to demonstrate compliance. The replacement window shall have a label from the National Fenestration Rating Council that indicates the U-factor rating, the air leakage rating, the appropriate structural performance rating for the geographical area where the window is installed, and the appropriate solar heat gain coefficient (SHGC) of 0.40 or less, appropriate for cooling climates. Verify window opening size and placement of egress windows as required by local codes.
 - a. **Preparation for new windows:** In preparation of new window installation, the rough opening left from removal of the existing window shall be sealed, insulated, and properly prepared for new window installation, as follows:
 - (1) Remove existing window components, such as, stops, sashes, parting strips, pulleys, and weights. Also remove any other items which may prevent full adhesion of sealants for new window installation.
 - (2) Insulate and seal existing window weight pockets if they will not be removed.
 - (3) Ensure that the rough opening can provide a level and firm installation for the new window.
 - (4) Seal the rough opening to the wall system's air and thermal boundary with non-expanding sealants.
 - (5) Install flashing to direct water away from the window opening in accordance with manufacturer's instructions.
 - (6) Do not seal weep holes or intentional drainage locations.
 - b. **Screens:** All replacement windows that are operable shall have a removable insect screen.

- c. **Exterior and interior trim:** The installer shall:
- (1) Replace any missing or damaged weatherproofing on exterior portions of window (flashing, glazing, caulking, sealant, paint, etc.) prior to installing trim.
 - (2) Install trim in a workmanlike manner.
 - (3) Match the existing trim as much as is reasonably practical.
 - (4) For existing or new exterior trim, for replacement windows, set all nails and fill holes with an exterior grade filler. Prime any bare wood surfaces with an exterior grade primer.
Exception: If cedar trim is used in an exterior application, then no primer or sealer is required.
- d. **Window glass replacement**
- (1) Replacement glazing
Refer to Exhibit 5.S10, *Standards for Weatherization Materials*
 - (2) When replacing or installing window glazing the window surface shall be cleared of any material that will prevent full adhesion of sealants or prevent a tight seal. The replacement glazing shall have a comparable tint and coating (color and look) that meets or exceeds the existing glazing for: thickness, number of panes, inert gas, and thermal performance. The replacement glazing shall be sized 1/8" to 3/16" smaller than the opening to account for movement of the frame. Glazing compound or sealant shall be installed at all edges of the glass in accordance with the manufacturer specifications and original installation design to provide a secure fit and seal.
- e. **Window sash replacement:** Window sash replacements shall be installed as per manufacturer's instructions. The rail bevel of the sash shall be matched to the sill. The new sash shall seal against all stops, jambs, existing sashes, ect. with no visible gaps. The sash shall be adjusted to fit the jamb and allow for ease of operation and security. Adjust the window lock so that the rails of the upper and lower sashes are flush and in contact and so that there are no visible gaps between them.
- f. **Safety glass:** Safety glass shall be used in replacement window units or replacement glazing in locations where required by building codes and areas identified in the following sections:
- (1) **Sidelights:** When sidelight windows are replaced or repaired, safety glass is required when all of the following conditions are met:
 - (a) The glazed panel is within 24 inches of the door opening.
 - (b) The glazed panel is within 60 vertical inches of the floor.
 - (c) The window is in the same plane as the door when the door is closed

- (2) **Other safety glass locations:** Safety glass shall be installed when all of these conditions are met:
 - (a) A glazed panel is greater than 9 sq ft when measured from the inside of the sashes.
 - (b) The lowest edge of a glazed panel is less than 18 inches above a walking surface.
 - (c) There is a walking surface within 36 horizontal inches of a glazed panel.
 - (3) **Shower and tub safety glass requirements:** Safety glass is required in shower and bathtub enclosures for exterior windows that are less than 60 inches above the floor of the enclosure.
 - (4) **Safety glass requirements:** Safety glass shall conform to the Safety Glazing Certification Council (SGCC) labeling requirements. Installed safety glass shall have a permanently affixed manufacturer's label or etching.
 - g. **Obscure glass:** Obscure glass shall be installed in windows where privacy is important. The Local Agency shall make the owner aware of locations where obscure glass is to be installed.
2. **Storm windows:** A storm window may only be installed over a prime window that is structurally sound. The prime window shall be free of decay, broken windowpanes, worn or damaged rollers, missing, deteriorated or broken glazing, and broken sashes. The Local Agency shall evaluate the costs to replace a window unit with the costs associated with repairing a prime window and installing a storm window to ensure that the most cost-effective treatment is applied.
 - a. **Fixed storm windows:** Fixed storm windows shall not be installed in egress locations.
 - b. **Operable storm windows:** When installing, operable storm windows shall be installed over existing operable prime windows, and the storm window shall not interfere with the operation of the prime window. If the operation of the prime window is impeded by paint buildup, mechanical fasteners, or other reasons, a storm window can be installed if the window is restored to an operating condition or if the Local Agency and homeowner agree in writing that the non-opening window is not required for egress or ventilation.
 - c. **Storm window removal:** All storm window installations shall provide an easy method of removing the storm sashes so that both the storm and prime windows can be washed.
 - d. **Jalousie prime windows:** Jalousie windows or other window types with a glass-to-glass contact cannot be weatherized using a storm window. Jalousie windows may be replaced (see funding restrictions in policy).

3. **Lead-based paint:** The Local Agency shall:
Refer to Policy 9.8, *Lead-Based Paint*
Refer to Spec 21, *Lead-Based Paint*
 - a. Address painted window components in houses built before 1978 using lead safe work practices, unless testing indicates no lead-based paint is present.

4. **Documentation:** The Local Agency shall:
Refer to Policy 5.1.2, *Weatherization Project Documentation*
 - a. Document all window requirements, in the project file
 - b. Clearly identify the physical reason the window needs replacement, with both:
 - (1) **Photo documentation:** A dated electronic or printed "before" photo, and
 - (2) **Written justification:** Written justification in compliance with Policy 5.4.5, *Windows and Doors*.

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See also:

Refer to: Policy 5.4.5, *Windows and Doors*

[SWS Subtopic 3.0202, Doors](#)



SPEC 8.0 DOORS

Door replacement or repair is allowable as Weatherization Measures (WxM), Health and Safety (H&S), or Weatherization-Related Repair (WRR) Measures. Refer to Policy 5.4.5, *Windows and Doors*

1. **Replacement doors:** Replacement doors shall be metal, insulated, and match the style of the existing doors where practical, and shall be hinged. If a new exterior door and jamb is being installed, the door shall have three hinges. All exterior door replacements shall be exterior grade. All replacement doors shall have an insulated core with a minimum R-6 insulation value.

Exception: Wood, fiberglass, or composite doors are allowable if a metal door cannot be used. Wood doors shall be solid core. Veneers on wood doors shall be a minimum of 1/8 inch thick hardwood. It may be allowable to replace a door like-for-like (e.g. an existing door with a lite), with Commerce prior written approval.

- a. **Exterior and interior trim:** The Local Agency shall
 - (1) Install trim in a workmanlike manner.
 - (2) Match the existing trim as is reasonably practical.
 - (3) For existing or new trim, set all nails and fill holes with an exterior grade filler.
 - (4) For existing or new exterior trim for replacement doors and doorframes, prime any bare wood surfaces with an exterior grade primer.

Exception: If cedar trim is used, then no primer or sealer is required.

- b. **Framing:** The Local Agency shall:
 - (1) Inspect framing for any damage that will prohibit installation of new door.
 - (2) Remove any damaged or rotten framing. Framing surface shall be sound and allow adhesion of approved selected sealant to provide an air tight seal.
 - (3) Install flashing to direct water away from the door opening in accordance with manufacturer's instructions.

- c. **Air Sealing:** The Local Agency shall:
 - (1) Seal gaps between the new door frame and the rough opening with low-expanding foam
 - (2) Adjust door rail (bottom) and threshold to ensure tight but operable fit
 - (3) Final installation will be air and watertight
2. **Replacement doorjamb:** Replacement doorjamb shall have a width that is no greater than the finished wall thickness, and not less than ¼ inch of either interior or exterior the finished wall surface.
3. **Door finishes:** Replacement wood doors shall be primed and painted or sealed on both sides and on all four edges with an exterior grade paint. Replacement metal doors shall have a factory primer.
4. **Locksets and deadbolts:** The Local Agency shall:
 - a. Install a new lockset and deadbolt on new replacement doors.
 - b. Key the lockset and deadbolt alike.
 - c. Provide two keys to the owner or occupant of the dwelling unit.
 - d. When multiple locksets are installed in the same dwelling unit they shall have matching keys.
 - e. Select interior hardware that operates door lock mechanism without the use of a key or any special tools.
5. **Other attached items:** The Local Agency shall:
 - a. Reinstall on new door any address numbers that were present on the existing front door or trim.
 - b. Install peepholes on solid doors, no more than 60" from the bottom of the door.
 - c. If an existing door had a mail slot or mechanical doorbell, provide alternatives that do not require penetration of the door.
6. **Lead-based paint on door components:** The Local Agency shall:

Refer to Policy 9.8, *Lead-Based Paint*
Refer to Spec 21, *Lead-Based Paint*

 - a. Address painted door components in houses built before 1978 using lead safe work practices, unless testing indicates no lead-based paint is present.

7. **Documentation:** The Local Agency shall:
Refer to Policy 5.1.2, *Weatherization Project Documentation*
 - a. Document all door requirements, in the project file
 - b. Clearly identify the physical reason the door needs replacement, with both:
 - (1) **Photo documentation:** A dated electronic or printed "before" photo, and
 - (2) **Written justification:** Written justification in compliance with Policy 5.4.5, *Windows and Doors*.

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See also:

[SWS Topic 2.02, Moisture](#)

[SWS Subtopic 2.0201, Drainage](#)

[Exhibit 5.1.4A, Client Health&Safety Packet](#)

Refer to: Policy 9.6, *Biologicals&Unsanitary Conditions, Including Mold&Moisture*



SPEC 9.0 MOISTURE CONTROL

The Local Agency shall identify and document in the project file problems in the dwelling unit resulting from high moisture levels. Alleviate the cause or source of the high moisture levels prior to the completion of weatherization services. Defer weatherization services until the cause or source of the problem(s) is alleviated, where the Local Agency cannot accomplish remediation with available funds. Refer to Wx Manual *Chapter 5, Providing Weatherization Services* and Policy 5.1.3, *Deferral Standards*.

1. **Plumbing:** The Local Agency or Property Owner shall:
 - a. Repair any plumbing leak found to be wetting insulation or floor, wall, or ceiling components of the dwelling, prior to completion of weatherization services.
2. **Roof:** The Local Agency shall:

Refer to Spec 6, *Attic/Ceiling Insulation*

 - a. Inspect the roof, flashing details, and penetrations for indications of leaks prior to insulating.
 - b. Insulate attics or ceiling cavities when, in the judgment of the Local Agency Auditor, the roof in its current or repaired condition following a weatherization repair is expected to last, without leaking, a minimum of 5 years.
 - c. Do not insulate attics covered by roofs that do not meet this standard.
3. **Inside Surfaces of Roof Framing and Sheathing:** The Local Agency shall:
 - a. Inspect the inside surfaces of the roof framing and sheathing for indicators such as mold, rot, water damage, condensation, etc., that pose heat loss, indoor air quality, health and safety, and durability problems.
 - b. Correct the cause of the problem before completion of weatherization, if these problems exist.

4. **Gutters, downspouts, and runners:** The Local Agency shall:
 - a. Install new or repair missing or faulty gutter or downspout components, if necessary to prevent rainwater from entering the crawlspace or basement.
 - (1) **Gutters:** The Local Agency shall:
 - (a) Properly size gutters for the area drained.
 - (b) Attach gutters using a mechanical fastener.
 - (c) Slope gutters $\frac{1}{4}$ " per ten feet (10') toward the downspout.
 - (d) Seal all seams using a compatible sealant.
 - (2) **Downspouts:** The Local Agency shall:
 - (a) Size and number downspouts for the area drained.
 - (b) Mechanically fasten downspouts every four feet (4').
 - (c) Assemble downspout so the upper section fits inside the lower section.
 - (d) Drain downspout a minimum of six feet (6') away from the structure.
5. **Below Grade Vents and Penetrations in Foundation Walls:** The Local Agency shall:
 - a. Inspect existing below grade crawlspace vents and other penetrations.
 - b. Determine whether water from outside is entering the crawlspace through the vents or penetrations.
 - c. Eliminate the path of water into crawlspace through the vents or penetrations.
6. **Ground Cover:** The Local Agency shall:

Refer to Spec 6.3, *Crawlspace, Underfloor, and Perimeter Insulation - Section 18, Ground Cover*.
7. **Sump pumps:** The Local Agency shall:
 - a. Repair, replace, or install (if applicable) a sump pump to prevent water from accumulating under a dwelling.
 - (1) Size sump pump to meet the flow requirements of the home.
 - (2) Select the most energy efficient pump available. Give preference to Electrically Commutated Motors (ECM) when possible.
 - (3) Install a check valve to prevent water from reentering the sump well.
 - (4) Discharge sump water a minimum of ten feet (10') away from the building.
 - (5) Provide occupant with manufacturer's instructions and all manuals.

8. **Mechanical Crawlspace Ventilation:** The Local Agency may:
- a. Install an exhaust fan in crawlspaces with seasonal standing water, provided the specifications for a sealed crawlspace detailed in Spec 8.6, *Sealed Crawlspace* are met.
9. **Source Specific Ventilation:** The Local Agency shall:
Refer to Spec 10, *Mechanical Ventilation*
- a. Ensure existing exhaust fans are functioning properly or install new exhaust fans in:
 - (1) Kitchens with gas combustion appliances.
 - (2) Any bathroom having a working shower or bathtub.

Exceptions:

- (Ea) Bath exhaust may not be required where occupancy and usage patterns indicate infrequent use and there is no evidence of moisture problems. Document the reason for not installing a fan in the project file.
- (Eb) Bath exhaust may not be required when whole building ventilation is functioning as designed.

10. **Whole Building Ventilation:** The Local Agency may:
Refer to Spec 10, *Mechanical Ventilation*
- a. Install a whole building ventilation system to alleviate high moisture conditions, as an alternative to Source Specific Ventilation.
11. **Dehumidifiers:** The Local Agency may:
Refer to SWS 2.0203.1, *Stand-Alone Dehumidifier Installation*
- a. Repair, replace, or install a dehumidifier to prevent water damage to a dwelling unit having persistent and unresolved high moisture levels, provided:
 - (1) A dehumidifier is determined to be the most effective and cost-efficient method of reducing moisture problems or high moisture buildup in a home.
 - (2) Other measures with less of an energy penalty have been found ineffective at reducing moisture problems.
12. **Client controlled conditions:** The Local Agency shall:
Refer to Exhibit 5.1.4A, *Client Health & Safety Packet – Part (2) Observed Conditions* and Part (3) *Pollution Source Survey*
- a. Inform the client of any observed client controlled conditions contributing to high moisture levels in the dwelling.
 - b. Document recommendations that would help lower moisture levels, in project file.

13. **Mold:** The Local Agency shall:

Refer to Policy 9.6, *Biologicals and Unsanitary Conditions, Including Mold and Moisture*

Refer to Exhibit 5.1.4A, *Client Health & Safety Packet*

- a. Follow Department of Energy and Commerce mold guidelines for all weatherization projects.

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Refer to: Policy 9.3-SF, *Indoor Air Quality – Mechanical Ventilation*

See also:
[SWS Section 6, Ventilation](#)
[Exhibit 9.3, Mechanical Ventilation Worksheet](#)
Home Ventilating Institute (www.hvi.org/)



SPEC 10.0 MECHANICAL VENTILATION

The Local Agency shall comply with **ASHRAE Standard 62.2 –2016** *Ventilation and Acceptable Indoor Air Quality in Low-Rise Buildings* including (Appendix A *Existing Buildings*) to provide mechanical ventilation to alleviate excess moisture and the buildup of indoor pollutants for single family dwellings.

1. **Calculating Mechanical Ventilation:** The Local Agency shall:
Refer to Exhibit 9.3, *Mechanical Ventilation Worksheet* example.
 - a. **Calculating Dwelling Unit Ventilation (Blower Door Test Required):** Calculate Mechanical Ventilation pre- and post-weatherization, in compliance with **ASHRAE Standard 62.2 –2016**, using one of the following calculation methods:
 - (1) **ECOS** Energy Community Online System mechanical ventilation calculation
 - (2) **Exhibit 9.3, Mechanical Ventilation Worksheet**
 - (3) **ASHRAE Standard 62.2 – 2016 – Residential Energy Dynamics (RED) Calc Tool**
 - (4) **ASHRAE Standard 62.2 – 2016 – Table 4.1a (I-P) Ventilation Air Requirements, cfm:** Using this table will result in higher ventilation levels as it is a more general approach and relies on more conservative values, than calculating ventilation for specific units.

TABLE 4.1a (I-P) Ventilation Air Requirements, cfm

Floor Area, ft ²	Bedrooms				
	1	2	3	4	5
<500	30	38	45	53	60
501–1000	45	53	60	68	75
1001–1500	60	68	75	83	90
1501–2000	75	83	90	98	105
2001–2500	90	98	105	113	120
2501–3000	105	113	120	128	135
3001–3500	120	128	135	143	150
3501–4000	135	143	150	158	165
4001–4500	150	158	165	173	180
4501–5000	165	173	180	188	195

(5) **ASHRAE Standard 62.2-2016 - Formula**

$$Q_{tot} = 0.03A_{floor} + 7.5(N_{br} + 1)$$

- b. **Calculating Dwelling Unit Ventilation (No Blower Door Test Performed):** The *Mechanical Ventilation Worksheet* is prohibited if the blower door testing is not performed (e.g. vermiculite, asbestos tape, etc.). The infiltration credit is not allowed without the blower door test results.

When no blower door test is performed, the Local Agency shall use (above)

- (1) the ASHRAE TABLE 4.1a (I-P) Ventilation Air Requirements, cfm or
- (2) the ASHRAE calculation - Formula

2. **Pollution source survey:** The Local Agency shall Refer to Exhibit 5.1.4A, *Client Health & Safety Packet – Part (3) Pollution Source Survey*

- a. Complete a pollution source survey for all households and refer to it when determining ventilation strategy. Conditions requiring higher ventilation rates than indicated by ASHRAE 62.2 shall be documented in the project file.

3. **Ventilation System Performance Testing and Setting:** The Local Agency shall:

- a. Perform performance testing with a flow hood, flow grid, exhaust fan flow meter, or other air flow measuring device used in conjunction with a digital manometer, for:
- (1) All existing and accessible exhaust, supply, and balanced systems.
 - (2) Newly installed or modified ventilation systems shall be performance tested.

Exceptions for performance testing:

(E1)When performance testing of the kitchen hood is not practical or possible, one of the following methods may be used to estimate flow:

(Ea)The airflow rating at a pressure of 0.25 inch wc (62.5 Pa) may be used, provided the duct sizing meets the prescriptive requirements of ASHRAE Standard 62.2 Table 5.3. If airflow ratings for the existing equipment are available at 0.1 inches wc (25 Pa) but not at 0.25 inch wc (62.5 Pa), those values may be used, provided they are reduced by 25%., or

(Eb)Use the Air Leakage Chart (*aka Tooley Chart*) on Exhibit 5.S3A, *Diagnostic Test Report* in conjunction with blower door measurement.

(E2)Clothes dryers are not required to be tested.

- b. At completion of Wx work, all mechanical ventilation rates shall be set (adjusted) for run time and CFM to achieve minimum ACH required by ASHRAE 62.2.
- c. Document all performance test results in project file.

4. **Mechanical Ventilation Ducting:** All mechanical ventilation fan exhaust ducting (whole building and local) shall comply with the following:
- a. Extend directly to the outside of the structure.
 - b. Equip all exhaust fans with a back draft damper located at either the fan outlet or the vent termination.
 - c. Screen termination cap for exhaust fan (minimum opening size $\frac{1}{4}$ " ; maximum $\frac{1}{2}$ ") or otherwise protect from entry by leaves, pests, or other materials.

Exception: No screen on Dryer termination

- d. Connect duct to an air sealed and tight fitting collar to the termination cap.
- e. Ensure entire duct system, including termination cap has at least the equivalent net free area of the fan outlet.
- f. Construct ducting of rigid vent pipe material. Ducts shall have a smooth interior surface and be constructed of galvanized metal, copper, or stainless steel.

Exception (does NOT apply to kitchen range hood exhaust fan ducting): Where rigid vent pipe is impracticable, flex duct may be used for runs no longer than 6 feet from fan to vent cap. For runs longer than 6 feet, flex duct may be used if the duct diameter is increased an additional 50% from the fan outlet diameter. In no installation shall the flex duct be allowed to loop. If running flex duct across varying heights (such as ceiling joists), the flex duct shall be stretched and secured to a splint to avoid sagging and the collection of condensation.

- g. Insulate ducting to minimum R-8 if it passes through unconditioned space.
- h. Refer to SWS 6.0101.1f, Ventilation Ducts
- i. Ensure ducting is air-tight and mechanically fastened at each joint using a minimum of three (3) screws and sealed using UL 181B or UL 181B-M materials. For metal ducting, the insert end of the duct shall extend into the adjoining duct in the direction of airflow.
- j. Support using nylon, plastic, or metal strapping with a minimum width of $\frac{1}{2}$ inch (range hood ducting shall be supported with metal strapping). Support strapping or hangers shall not compress the insulation. Support strapping or hangers shall be installed within 1 foot of a joint or connection and a minimum of every 4 feet thereafter, or per manufacturer's specifications.

Variance #26: DOE granted a variance from SWS Sections 5.0105.2b and 6.0101.1g Duct Support allowing: Duct support strapping of nylon, plastic, or metal (1/2" or wider) for all metal ducts.

5. **Dwelling Unit Mechanical Ventilation Required:** Dwelling Unit mechanical ventilation is required to comply with ASHRAE Standard 62.2-2016 including Appendix A – *Existing Buildings*.

Exception: Dwelling unit ventilation is not required when Q_{fan} is less than or equal to 15 cfm.

- a. **Dwelling unit ventilation system types:** A mechanical exhaust system, supply system, or combination thereof is required to provide each dwelling unit's calculated mechanical ventilation rate.

- (1) The dwelling unit ventilation system shall consist of one or more supply or exhaust fans and associated ducts and controls.
- (2) Outdoor air ducts connected to the return side of an air handler are allowed as supply ventilation if manufacturer's requirements for return air temperature are met.

- b. **Dwelling unit fan requirements:**

- (1) **Existing fans:** Existing fans providing dwelling unit ventilation (in part or in whole) are exempt from any sound rating (ASHRAE Standard 62.2, Appendix A, Section 4.1).
- (2) **Newly installed fans:** Fans installed to provide dwelling unit ventilation shall have a sound rating of 1.0 sone or less as determined by the Home Ventilation Institute (www.hvi.org/)

Exception: Air handlers, heat recovery ventilator/energy recovery ventilator (HRV/ERVs), inline fans and remote mounted fans are exempt from sound rating requirements if mounted a minimum of 4 feet from grill.

- c. **Dwelling unit controls:** A readily accessible manual ON-OFF control, including but not limited to a fan switch or a dedicated branch-circuit overcurrent device, shall be provided for either intermittent or continuous systems. Controls shall include text or an icon indicating the system's function.

6. **Local exhaust in kitchens:** A working exhaust fan shall be present in kitchens where a gas combustion range, cook top, or oven is present. Ensure existing exhaust fans are functioning properly or install new exhaust fans.

- a. **Ventilation level:** A kitchen exhaust fan installed by the Local Agency shall

- (1) Be rated by Home Ventilating Institute (www.hvi.org/) to deliver a minimum of 100 cfm intermittent at 0.25 inches water gauge or 5 air changes per hour continuous.
- (2) Have a minimum efficacy of 2.8 cfm/watt

- (3) Be rated for sound at a maximum of 3.0 sones at one or more airflow settings greater than 100 cfm. When existing equipment does not meet this requirement the dwelling unit ventilation rate may be adjusted to overcome the deficit.
- Exception:** The kitchen exhaust fan may exceed the maximum of 3.0 sone rating if the maximum rated airflow exceeds 400 cfm.
- b. **Fan rating:** Exhaust fans installed directly over a range or oven shall be rated for installation in this location.
- c. **Kitchen fan control:** Kitchen fans shall be controlled by the manufacturer's switch or a wall mounted switch.
7. **Local exhaust in bathrooms:** A bathroom exhaust fan installed by the Local Agency shall be rated to deliver a minimum of 50 cfm intermittent at 0.25 inches water gauge or 20 cfm continuous. When existing equipment does not meet this requirement the dwelling unit ventilation rate may be adjusted to overcome the deficit
- a. **Sound rating:** Exhaust fans installed by local agency:
- (1) Intermittent: 3.0 sones or less
 - (2) Continuous: 1.0 sone or less
- b. **Energy use:** Exhaust fans installed to provide local bathroom exhaust shall have an operating watt draw of 50 watts or less.
- c. **Bathroom fan control:** A readily accessible manual ON-OFF control shall be provided for each demand controlled mechanical exhaust system. Automatic control devices such as but not limited to the following shall be permitted provided they do not impede manual ON-OFF control: humidity sensors, shut-off timers, occupancy sensors, multiple-speed fans, combined switching, IAQ sensors, etc.
8. **Crawlspace and garage ventilation:** Exhaust fans may be installed for operation in crawlspaces or garages to exhaust pollutants and maintain a pressure boundary relative to the dwelling unit. Fans installed shall be rated for continuous use. Ventilation flows shall not be included in the ASHRAE Standard 62.2-2016 mechanical ventilation calculation. Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum 26 gauge sheet steel and shall have no openings into the garage.
- a. **Sizing crawlspace and garage fans:** The Local Agency shall size the fan to maintain negative pressure relative to the dwelling unit during normal operating conditions.
- b. **Crawlspace and garage fan controls:** Exhaust fans installed in crawlspaces shall be wired to exhaust continuously with a switch near the fan to allow shut down of fan for maintenance.

- c. **Verification of fan performance:** The Local Agency shall verify that fan performance during normal operating conditions creates a negative pressure with reference to the dwelling unit.
- d. **Fan rating:** Fans installed for the purpose of maintaining a pressure boundary shall be rated for continuous operation.
- e. **Fan termination point:** Fans installed for the purpose of maintaining a pressure boundary shall not terminate within five (5) feet of a door, window, combustion appliance air-intakes, or fresh air intakes.

9. **Dryer ducting:**

- a. Clothes dryer ducting installed shall comply with the following:
 - (1) Extend directly to the outside of the structure.
 - (2) Vent shall terminate in a non-screened vent cap with a damper. The exhaust duct shall terminate not less than 3 feet in any direction from openings into the building.
 - (3) Have a smooth interior finish and shall be constructed of metal a minimum 0.016 inch (0.4 mm) thickness. The exhaust duct size shall be 4 inches (102 mm) nominal in diameter.
 - (4) The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Screws shall not be used to connect dryer ducting.
 - (5) Not exceed 35 feet in length from dryer location to outlet terminal. The maximum length shall be reduced two and one-half (2.5) feet for every 45 degree elbow and five (5) feet for each 90 degree elbow. One foot of flex duct is equal to two feet of smooth duct pipe.
 - (6) Support both vertical and horizontal runs using material (nylon or plastic), or metal strapping with a minimum width of ½ inch. Support strapping or hangers shall be installed within one (1) foot of a joint or connection and a maximum of every four (4) feet thereafter.

Variance #26: DOE granted a variance from SWS Sections 5.0105.2b and 6.0101.1g Duct Support allowing: Duct support strapping of nylon, plastic, or metal (1/2" or wider) for all metal ducts.
 - (7) Slope horizontal runs downward toward the vent discharge.
 - (8) Insulate dryer ducts located in unconditioned space to a minimum R-8.
 - (9) Fasten UL listed foil type or semi-rigid sheet metal to rigid metal with clamp.
 - (10) Seal dryer ducts.

- b. **Dryer transition duct:** The dryer transition duct is the ducting between the dryer and the point at which it goes through the wall, floor, or ceiling and leaves the vicinity of the dryer. This ducting shall be listed and labeled in accordance with UL 2158A. The transition duct shall not exceed eight (8) feet in length and be long enough to allow for moving the dryer away from the wall, but not allow excess bending and kinking that can trap lint and water in the ducting. The transition ducting is not meant to pass through a wall, floor, or ceiling. The transition duct shall connect to a smooth metal duct or a metal collar where it penetrates the ceiling, wall, or floor.

10. **Outdoor air inlets:** When outdoor air inlets for individual rooms are installed, they shall:

- a. Have a controllable and secure opening.
- b. Be sleeved and flashed or otherwise designed so as not to compromise the properties of the wall or window in which they are placed.
- c. Be screened (1/2" screen minimum) or otherwise protected to prevent entry of leaves, debris, or pests.
- d. Not be located within ten (10) feet of hazardous or unsanitary locations.

Effective Date: none

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Refer to: Policy

See also:



SPEC 11.0

Placeholder – *for future use*

Dehumidifier content moved to Spec 9, Moisture Control – [Section 11, Dehumidifiers](#)

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Weatherization Specification

See also:

[SWS Section 5. Heating and Cooling](#)
[Exhibit 5.S7A, Work Order and Procedures for Electric Furnace](#)
[Exhibit 5.S7B, Work Order and Procedures for Gas Furnace](#)
[Exhibit 5.S7C, Work Order and Procedures for Oil Furnace](#)
[Exhibit 5.S7D, Work Order and Procedures for Oil Retrofit](#)
[Exhibit 5.S7E, Work Order and Procedures for Heat Pump/Air Conditioner](#)
[Exhibit 9.4A, Combustion Safety Test Form](#)
[Exhibit 9.4A\(2\), Daily In-Progress CSTF](#)
[Exhibit 9.4B, CSTF Technical Support Document](#)

Refer to: Policy 5.5.1, *Air Conditioning and Heating Systems*



SPEC 12.0 AIR CONDITIONING AND HEATING SYSTEMS

The Local Agency shall ensure all dwelling units have a safe, operable, permanently installed, and adequate heating system, upon completion of weatherization services. Air conditioning system replacement, repair, or installation is allowed in homes of at-risk occupants.

1. **Inspection and testing:** The Local Agency shall:
Refer to Exhibits 5.S7A-5.S7E, *Work Orders and Procedures for HVAC Service forms*
 - a. **Inspect and test permanently installed** heating and cooling system(s) in each dwelling unit for safe operation, prior to delivering weatherization services.
Document in the project file the condition of heating system prior to weatherization.
 - b. **Heat rise:** The Local Agency shall:
 - (1) Test all forced air heating systems for heat rise. If the heat rise is outside the manufacturer's acceptable range the system fails.
 - (2) If the heating unit fails the heat rise test, make appropriate repairs or defer the project, until the problem is corrected.
Exceptions: If the manufacturer's acceptable heat rise range is unavailable:
(Ea)Default acceptable heat rise range is greater than 40° and less than 70°F
(Eb)Document efforts and attempts made in project file.
 - c. **Inspect electric heating systems:**
 - (1) **Minimum requirement** for electrically heated dwelling units is:
 - (a) Visual inspection of the electrical system.
 - (b) Visual inspection of heating system clearances to combustibles.
 - (c) Visual inspection of air handler (if present).
 - (d) Verification that the system is permanently installed and securely attached to the floor, wall, or ceiling.

d. **Inspect and safety test combustion heating systems:** The Local Agency shall:

Refer to Exhibit 9.4A, *Combustion Safety Testing Form*

Refer to Policy 9.4, *Combustion Safety Testing*

Refer to Spec 3, *Combustion Safety Testing*

(1) **Safety test:** Test combustion appliances for safe operation.

2. **HVAC service and repair:**

a. **Minimum service:** At a minimum, if no hazards are present or repairs needed, Local Agencies shall document it in project file and provide a minimum service, if necessary based upon the auditor visual inspection, as follows:

(1) **Air handler:**

(a) Clean fan blades and air handler cabinet of all visible dirt.

(b) Check and change furnace filter.

(2) **Condenser:** (Heat Pump):

(a) Clean outdoor condenser coil.

(b) Clean indoor coil.

(c) Straighten bent fins.

b. **Repair and service:** If Local Agencies identify hazards or needed repairs; they shall:

(1) **Perform all of the following**, as applicable:

(a) Correct hazards identified during initial inspection.

(b) Complete system checks and repairs detailed in the work order form. Local Agencies may use the corresponding heating type Exhibit(s) 5.S7A-5.S7D as follows, or equivalent documentation:

i. Exhibit 5.S7A, *Electric Furnaces Service and Repair*

ii. Exhibit 5.S7B, *Gas Furnaces Service and Repair*

iii. Exhibit 5.S7C, *Oil Furnaces Service and Repair*, or

iv. Exhibit 5.S7D, *Heat Pump Service and Repair*

(c) Improve distribution efficiency.

(2) **Document Repair and Service:** When work exceeds minimum service, post on equipment, or in a conspicuous location, services performed, personnel name, contact information, and date of service.

c. **Refer to SWS for Other Systems** not listed above:

Refer to SWS 5.0109.3, *Evaporators*

Refer to SWS 5.0109.5, *Evaporative Coolers*

Refer to SWS 5.0204.1, *Fuel Fired Boilers*

3. **System replacement:** Select heating equipment of the lowest capacity required to meet the calculated heating load and provide the air movement required by any air conditioning equipment installed.

a. **Installation:** Install indoor unit according to manufacturer specifications and applicable building code (e.g., *IRC, IMC, IBC*) and *ANSI/ACCA Standard 5, HVAC Quality Installation Specification*. Ensure unit is level, stable, secured to ductwork, properly braced to prevent movement (seismic bracing), and elevated as required by applicable building code.

b. **Permits Required:** Obtain necessary permits prior to the replacement of a system. Comply with all applicable code regulations as described in Specification 1, *General Requirements*.

c. **Calculating Heat Load:** The Local Agency or their subcontractor shall perform Manual J heat load calculations for all heating system replacements. The Local Agency shall document heat load calculations in the client file (project file).

Exceptions: For non-DOE funded equipment measure, the following deemed equivalent heat load calculations may be used:

(E1)TREAT

(E2)Performance Tested Comfort Systems (PTCS), for DHP only, or

(E3)Any other heat load calculation methods deemed equivalent, with Commerce prior written approval.

d. **Selecting Equipment:**

(1) To properly size equipment and install new systems, Local Agencies or subcontractors shall use the completed post-weatherization project in the heat load calculations.

(2) Select residential equipment in accordance with the current version of *ANSI/ACCA Manual S (Residential Equipment Selection)*.

Exception: For non-DOE funded equipment measure, when sizing equipment, the following limits may be used to assure Local Agencies or subcontractors do not oversize the new equipment. Do not exceed the heat load calculation by:

(a) 140% for forced air systems

Exception: Natural gas- or oil-fired space-heating equipment whose total rated space-heating output in any one dwelling unit is 40,000 Btu/h or less is exempt from the sizing limit.

(b) 125% for heat pump systems

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Refer to: Policy 5.5.6, *Ductless Heat Pumps (DHP)*

See also:
[SWS 5.0108.3, Mini-Split System](#)
[Bonneville Power Administration's Qualified Products List](#)
[Sample: BetterBuilt HVAC Sizing Tool](#)



SPEC 12.1 DUCTLESS HEAT PUMPS

1. New Ductless Heat Pump (DHP) equipment requirements:

- a. **Materials:** Equipment shall be a split system Ductless Heat Pump (DHP) with an inverter-driven, variable speed compressor, a variable speed outdoor fan, and a multi-speed or variable speed indoor blower unit. Equipment shall be manufactured by a company listed in the Air Conditioning, Heating and Refrigeration Institute (AHRI) Unitary Directory. The Weatherization Program promotes sustainability. The Local Agencies (LA) performing this work are encouraged to utilize “green” materials and products wherever possible and make every effort to recycle waste material.
- b. **Ratings:** Heat pump equipment shall meet the performance, safety, and rating requirements as given in the latest revision of AHRI Standard 240, or equivalent. Units shall be listed by Underwriters’ Laboratories or equivalent and shall display the AHRI symbol of certification. The DHP equipment shall be listed by model number on the most current Bonneville Power Administration’s Qualified Products List. The heat pump equipment shall be rated with a Heating Seasonal Performance Factor (HSPF) of 10.0 or greater if utilizing a single head or a HSPF of 9.0 or greater if utilizing multiple heads.
- c. **Heat Pump Sizing:** The Local Agency shall:
Refer to Policy 5.5.1, *Air Conditioning and Heating Systems* for requirements.

Size the heat pump system in accordance with the manufacturer’s specifications and requirements to ensure [Adequate Heat](#). If the system provides adequate heat at the winter design temperature, a separate back-up system (supplemental heat) is not required. Otherwise, the system shall be designed to include zonal electric resistance heat (either in unit or as separate zone heaters) up to the total capacity required by the house. Sizing of the DHP shall take into consideration the planned thermal improvements to the building through the weatherization program.
- d. **Warranty** – Heat pump equipment shall be warranted by the manufacturer against defects in material and workmanship. This warranty should not be considered to cover equipment failure caused by failure to perform normal maintenance, abuse, or external causes beyond the control of the Local Agency. A Statement of Warranty shall accompany your invoice and shall be provided to the building owner.

2. **Local Agency requirements:** The Local Agency shall:
 - a. **Provide Client Education:**
 - (1) Teach the building occupant or owner in proper operation and maintenance of the DHP system:
 - (a) Instruct the building occupant or owner how to operate the DHP in coordination with the existing zonal systems in the home.
 - (b) Instructions shall include adjusting other zonal thermostats so the DHP is the primary heating system.
 - (c) Demonstrate filter replacement and cleaning.
 - (d) Demonstrate the operation of indoor thermostat controls and indicator lights.
 - (e) Explain to the building occupant or owner the different operating modes of the heat pump system (e.g. heating, cooling, defrost).
 - (2) Provide the building occupant or owner the manufacturer's owner's manual.
3. **New Equipment Installation:** The Local Agency shall:

Refer to SWS 5.0108 *Mini-Split System* for other ceiling cassettes and ducted mini-splits

 - a. **Installation of indoor and outdoor units:** Comply with federal, state, and local building and environmental codes for the installation of this product. Install outdoor unit and install indoor unit(s) according to manufacturer's specifications. The following specifications are not intended to replace manufacturer's specifications.
 - b. **Indoor unit(s):**
 - (1) Indoor unit(s) location
 - (a) Locate indoor unit(s) to provide effective airflow to desired locations without exceeding the manufacturer specifications for refrigerant line total length
 - (b) Maintain clearances in accordance with manufacturer specifications
 - (2) Indoor unit support
 - (a) Securely mount indoor unit(s) according to manufacturer specifications ensuring condensate drainage is correctly sloped
 - c. **Outdoor unit:**
 - (1) Outdoor unit location
 - (a) Locate unit with manufacturer recommended clearance on all sides and to allow service access according to applicable code

- (2) Outdoor unit support
 - (a) Situate outdoor unit on a non-wicking equipment pad
 - (b) Ensure unit is level, plumb, stable, and elevated a minimum of 6" inches above snow line
 - (c) Units may be mounted on the building exterior wall, secured and supported according to the manufacturer's instructions following noise and vibration abatement requirements.
- d. **Surge Protection:** The Local Agency shall install surge protection on all DHP installations, to protect sensitive electronic equipment from damaging voltage transients and power surges. Surge protective devices may either be internal to unit or added externally.
- e. **Refrigerant Piping:** Total equivalent length of refrigerant piping shall not exceed system manufacturer specifications.

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See also:

[SWS 5.0104, Duct Installation](#)

[SWS 5.0105, Duct Repair](#)

[SWS 5.0106, Duct Sealing](#)

[SWS 5.0107, Duct Insulation](#)

[Exhibit 5.S10, Standards for Weatherization Materials](#)

Refer to: Policy 5.6.1, *Heating and Cooling Ducts*



SPEC 13.0 HEATING AND COOLING DUCTS

Insulate all heating and cooling ducts located outside the heated envelope of the dwelling unit to a minimum of R-8. Reduce leakage in ducts to lowest practical level, where determined necessary by diagnostic testing. Seal and insulate ducts to meet the requirements detailed in this specification.

1. **Duct Survey, Inspection, and Testing:** The Local Agency shall:
Refer to Spec 4, *Diagnostic Testing*.
 - a. Conduct diagnostic testing and visually inspect all accessible ducting in the heat distribution system including the plenum, trunk and branch lines.
2. **Pressure Pan Testing Required:** The Local Agency shall:
 - a. Perform pressure pan tests to test duct systems.
Exceptions: The Local Agency may:
 - (E1) Test ducts using a duct testing device and the associated procedures outlined by the manufacturer as an alternative to pressure pan testing.
 - (E2) Not test pressure pans if the entire distribution system is located within the envelope's conditioned space.
3. **Dominant Duct Leak Test Required:** The Local Agency shall:
Refer to Spec 4.3, *Dominant Duct Leak Testing*.
 - a. Perform a dominant duct leak test.
4. **Ducts, Duct Sealing, and Duct Insulating Materials:** The Local Agency shall:
 - a. Use approved materials listed in Exhibit 5.S10, *Standards for Weatherization Materials* for replacement, repair, and sealing of ducts.

5. **Repairing or Replacing Ducts:** The Local Agency or Subcontractor shall:
 - a. Reconnect all serviceable ductwork found disconnected from boots, trunks, or plenums.
 - b. Use permanent reconnection method, appropriate to the materials used for connection.
 - c. Repair or replace all torn, crushed, or severely deteriorated ductwork.

6. **Sealing Ducts:** The Local Agency shall:
 - a. **Seal ducts**, when determined necessary by diagnostic testing or visual inspection, to provide permanent, airtight connections using UL 181 approved materials (i.e. mastic, fiber mesh tape, aluminum butyl tape), to the following standard:
 - (1) Seal all accessible air handler cabinet and plenum connections, both inside and outside,
 - (2) Seal all accessible ductwork-to-ductwork connections, both inside and outside, and
 - (3) Seal all accessible elbows, holes, joints, seams, including lateral seams
 - b. **Repair Duct Leaks:**
 - (1) **Less than 1/8"**, which are more than 10' from the air handler:
 - (a) Seal with mastic only.
 - (2) **Less than 1/4"**:
 - (a) Use fiber mesh tape embedded in mastic.
 - (3) **Between 1/4" and 3/4"**:
 - (a) Use temporary tape (such as duct tape) as backing material to cover the hole, then
 - (b) Embed the fiber mesh tape with mastic over the temporary tape.
 - (c) The fiber mesh tape and mastic shall extend 1.0" past all sides of the temporary tape covering the hole.
 - (4) **Greater than 3/4"**:
 - (a) Cover the hole by mechanically fastening rigid backing material (such as 30ga metal).
 - (b) Cover the rigid backing material with fiber mesh tape and mastic.
 - (c) The fiber mesh tape and mastic shall extend 1" past all sides of the rigid material covering the hole.
 - c. **Timing:** Seal ducts prior to insulating ducts.

7. Flex Duct Requirements: Local Agencies shall:

- a. Ensure existing systems are functioning properly and newly installed systems meet the following:
 - (1) Insulate existing or newly installed flex duct outside the thermal boundary to a minimum, effective R-8.
 - (2) Ensure that newly installed flex duct is proper length for connection between two points without excessive bends or sag.
 - (3) Support horizontal and vertical runs of newly installed flex duct using nylon, plastic, or metal strapping having a minimum width of 1-½ inch. Support strapping or hangers shall not compress the insulation.
 - (4) Install support strapping or hangers within 1 foot of a joint or connection of newly installed flex duct, with a maximum of 4 feet between supports.
 - (5) Ducts shall never directly contact the ground. Correct existing flex duct if it is in direct contact with the ground.
 - (6) Connect newly installed flex duct to metal collars or boots. Secure the inner layer of the flex using a compression strap. Secure the outer layer of insulation using a compression strap.

8. Metal Duct Requirements: The Local Agency shall:

- a. Ensure existing systems are functioning properly and newly installed systems meet the following:
 - (1) Insulate existing or installed metal duct outside the thermal boundary to a minimum, effective R-8.
 - (2) Ensure that newly installed metal ducts is proper length without unnecessary elbows or changes in direction.
 - (3) Securely connect sections of newly installed metal ducts to each other using a minimum of 3 screws for round ducts and 4 for rectangular.
 - (4) Permanently secure insulation on newly installed metal ducts with rot and stretch proof twine or rust-proof wire, without unduly compressing the insulation.
 - (5) Support newly installed horizontal and vertical metal duct runs using nylon, plastic, or metal strapping having a minimum width of ½ inch. Support strapping or hangers shall not unduly compress the insulation.
 - (6) Install support strapping or hangers within 1 foot of a joint or connection for newly installed metal ducts, with a maximum of 4 feet between supports.

(7) Ducts shall never directly contact the ground. Correct existing metal duct if it is in direct contact with the ground.

9. **Rigid Fiberglass Duct Board Prohibited:** The Local Agency shall not use rigid fiberglass duct board to fabricate ducts.

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Weatherization Specification

Refers to: Policy 5.5.8, *Thermostats*

See also:
[SWS 5.0101.1, *Thermostat Replacement*](#)



SPEC 14.0 THERMOSTATS

Installation of a thermostat or replacement of an existing thermostat is allowable.

1. **Determining type of thermostat to install:** The Local Agency shall:
 - a. Determine if a standard or a programmable thermostat should be installed
 - (1) Give preference to a programmable thermostat.
 - (2) Install the appropriate thermostat. DOE funding is only allowable if installing a programmable thermostat.
 - (3) Verify sufficient number of thermostat wires are available to meet the needs of the replacement unit and the existing system
 - (4) Ensure thermostats have a dead-band range of less than two degrees
 - (5) Ensure bi-metal, line-volt thermostats have third party verification
 - b. Provide operating instructions for programmable thermostats
 - (1) Ensure dwelling unit occupants fully understand the benefits of a programmable thermostat
 - (2) Demonstrate how to program the thermostat for optimal use, and how to change the back-up battery
 - (3) Provide occupants/owners with user's manual, warranty information, installation instructions and installer contact information
2. **Thermostat power source:** The Local Agency shall:
 - a. Preferably, choose hardwired thermostats with a battery backup
 - b. Wireless thermostats are allowable, if necessary
3. **Required thermostat features:** The Local Agency shall:
 - a. Select a double-setback programmable thermostat that allows for full functionality of the installed system (supplementary heat, emergency heat, fan only, ventilation control, etc.)

- b. Program the thermostat to match the equipment and control board settings per manufacturer specifications
 - c. Set time delay for fan start in accordance with manufacturer specifications and as appropriate for the climate zone (e.g., no time delay for hot humid climates, longer time delay for cold climates)
 - d. Program the thermostat setbacks to a schedule that accommodates the occupant and reduces overall run time
4. **Location:** The Local Agency shall:
- a. Install thermostats in location which is reachable and readable by the primary occupant(s)
 - b. Install thermostat where it accurately reflects the temperature and humidity of the zone which it controls (i.e., not exposed to extreme temperatures, radiant heat sources, warm/cold walls, or drafts)
 - c. Follow manufacturer's installation requirements for placement
 - d. Seal penetrations for control wiring with a durable sealant (e.g., caulk, silicone) that complies with applicable fire safety code
5. **Thermostats for heat pump systems:** The Local Agency shall:
- a. Design thermostats used with heat pump systems so that temperature pick-up is accomplished by using heat pumping as much as possible, and electric resistance elements only when necessary
 - b. Connect supplementary heat to second-stage heating terminal in accordance with manufacturer specifications
 - c. If applicable, install and connect outdoor temperature sensor that is compatible with the thermostat in accordance with manufacturer specifications
 - d. Calculate and select an optimum thermal balance point for supplementary heat operation in accordance with ANSI/ACCA Manual S and manufacturer specifications
6. **Disposing Hazardous Materials – Mercury:** The Local Agency shall dispose of hazardous waste materials generated in the course of weatherization work according to all local laws, regulations and/or Federal guidelines, as applicable

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Weatherization Specification

Refers to: Policy 5.7.2, *Water Pipe*

See also:
[SWS 7.0303.2, Piping](#)



SPEC 15.0 WATER PIPE INSULATION IN UNCONDITIONED SPACES

The Local Agency shall install insulation on accessible hot and cold water lines in unconditioned spaces.

Exceptions: Water pipes shall not be insulated if any of these conditions are present:

Ea. Water pipes or valves are leaking or are improperly supported.

Eb. When electric heat tape is being used to prevent freezing of pipes and heat tape manufacturer does not approve product for insulation coverage.

1. **Pipe insulation R-value:** Water pipe insulation installed by the Local Agency shall have a minimum effective insulation value of R-3.
 - a. Insulate hot and cold water distribution pipes in unconditioned space.
2. **Installation standard for foam pipe insulation:** The Local Agency shall install insulation to these standards:
 - a. Position insulation with a lengthwise slit on horizontal pipe so that the slit is on the bottom side of the pipe.
 - b. Size insulation to fit and firmly secured to the pipe.
 - c. If products are glued, use the manufacturer's recommended adhesive and seal all slits in the material.
 - d. If products are not glued, hold in place with elasticized tape, wire, or plastic ties.
 - (1) Apply elasticized tape every nine (9) inches on center, and around each joint between separate pieces of material.
 - (2) If ties are used, they shall be made of either galvanized wire or non-slipping plastic.
 - (3) Space ties at one inch from each end of the material and thereafter every nine (9) inches on center.
 - e. Other techniques for attaching pipe insulation may be acceptable. Local Agency shall receive Commerce prior written approval.

- f. Cut and fold, or otherwise mold, insulation material to completely cover all elbows or curved pipe without compressing the insulation or allowing gaps to occur in the insulation.

3. Installation standard for fiberglass:

- a. If fiberglass batts are used, then the batts shall be at least R-7 when flat.
- b. After installation a minimum of R-3 shall be present on any water pipes, including piping for refrigerator ice makers that are not enclosed within the floor insulation.
- c. Attach the insulation permanently to the pipe with wire, cable ties, twine, strapping tape, or by other approved methods.
- d. Space materials used to attach the fiberglass at one inch from each end of the fiberglass insulation and thereafter every (9) inches on center.
- e. Waste or drain pipes are excluded from this insulation requirement.
- f. Water pipes that are protected by (enclosed within) installed floor insulation are not required to be separately wrapped.

- 4. Insulation of pipes exposed to weather:** If insulation is installed on pipes exposed to the weather, then such insulation shall be resistant to degradation from moisture, ultraviolet light, and extremes in temperature, or a jacket or facing shall be installed that protects the insulation from these conditions.

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Weatherization Specification

Refer to: Policy 5.7.1, *Water Heaters*

See also:
[SWS Subtopic 7.0302, *Water Heater Installation*](#)



SPEC 16.0 WATER HEATER INSULATION

Insulate Water heaters in unconditioned spaces if applicable.

Exceptions: A tank shall not be insulated if any of the following conditions exist and cannot be corrected with available funding:

- Ea Internal insulation is R-10 or greater.
- Eb There is evidence of leaks, Health and Safety concerns, or other impending failure. Correct concerns or defer project.
- Ec External insulation is prohibited as indicated by the manufacturer.

1. **Insulation wrap R-value:** Insulating wraps shall have a R-10 insulation value or greater. Refer to Spec 15 for water pipe insulation in unconditioned spaces installation standards
2. **Clearances:** Maintain a minimum of 6" clearance from combustion appliance venting, vent connectors, and burner between the insulation and adjacent hot surfaces. Do not wrap the top of fuel-fired water heaters or cover combustion air intakes.
3. **Temperature setting:** Prior to the installation of an insulating wrap, the hot water temperature shall be set at 120 degrees F. Test the water temperature, measured at a sink and adjust setting so the temperature is within the range of 120 – 130 degrees F.

Exception: If the client requests a temperature outside the accepted range of 120 – 130 degrees F the Local Agency shall document this request in writing in the client file (project file).

4. **Installation procedures:** The Local Agency shall:
 - a. Install insulation according to manufacturer specifications over entire storage tank while ensuring that insulation does not obstruct pressure relief valve, plumbing pipes, gas valves, combustion air intakes, etc.
 - b. Permanently secure insulation with minimal compression
 - c. Seal all seams and edges airtight using compatible and durable tape
 - d. Clearly label tank with R-value, when installation is complete.

5. **Fire Rating:** Insulation should be rated with a flame spread and smoke development index of 25/450 or less when tested in accordance with ASTM E84 or UL 723.

Effective Date: none

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Weatherization Specification

Refer to: Policy

See also:



SPEC 17.0

Placeholder – *for future use*

Window content moved to - [Spec 7, Windows](#)

Effective Date: none

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Weatherization Specification

Refer to: Policy

See also:



SPEC 18.0

Placeholder – *for future use*

Door content moved to - [Spec 8, Doors](#)

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Weatherization Specification

Refer to: Policy 9.5, *Smoke Detectors, Carbon Monoxide (CO) Detectors, & Fire Extinguishers*

See also:

[SWS 2.0102.1 CO Detection and Warning Equipment](#)



SPEC 19.0 CARBON MONOXIDE DETECTORS

In every dwelling unit, a minimum of one operable carbon monoxide detector shall be installed. Replacement of operable CO Detectors is not an allowable cost.

1. **Detector Standards:** Detectors shall have:

Refer to SWS 2.0102.1a, *CO Detector Selection*

- a. A 10-year manufacturer's warranty for residential models or 1-year warranty for commercial low-level models.
- b. An electrochemical sensor.
- c. A digital display that indicates CO levels in Parts Per Million (ppm).
- d. The ability to detect at least 15 ppm.
- e. A label to verify testing and listing to the UL 2034 Standard.

Exception: CO Detectors need not be UL listed if a low level detector is desired. To comply with this exception, these commercial low-level detectors shall meet or exceed all of the following:

(E1) Listed items a. through d. above.

(E2) ACGIH and NIOSH Standards.

2. **Detector Power Options:** Detector shall be powered by one of the following methods:

Refer to SWS 2.0102.1a, *CO Detector Selection*

- a. **Hardwired:** Hardwired detectors are allowable. Hardwired detectors shall have a lithium battery backup.
- b. **Battery-operated:** Battery operated detectors shall have contain an internal non-replaceable battery.). They shall make an audible alarm when the battery is at the end of its life cycle.
- c. **Plug in:** Plug in detectors shall have a tamper-resistant connection to a continuously energized 120-v AC power source. They shall not be on a switched plug or on a GFCI protected circuit. Plug in detectors shall have a battery backup.

3. **Labeling Devices:** The Local Agency shall label all installed detectors in a permanent fashion with a date of installation or replace-by-date as per manufacture's specification (e.g. Information on mounting plate or on bottom).
4. **Manufacturer's Instructions:** The Local Agency shall:
Refer to SWS 2.0102.1b, *CO Detector Occupant Notification*
 - a. Provide the manufacturer's instructions including the owner's manual, warranty, and the expected lifetime of the unit information to the occupant of the dwelling unit.
5. **Education of Dwelling Unit Occupants:** The Local Agency shall provide the occupant(s) of the dwelling unit with verbal and written information regarding the dangers of CO, how to read the CO detector, instructions on how to respond to CO levels above 10 ppm, and the applicable information regarding the expected useful life of the CO detector installed.
6. **Installation Location(s) for CO Detectors:** The Local Agency shall:
 - a. Install in dwelling units with combustion appliances or attached garages, a minimum of one operable carbon monoxide detector in the vicinity of each sleeping area and on each level with a combustion appliance.
 - b. Install CO alarms in the locations required by the Authority Having Jurisdiction (AHJ).
 - c. Do not locate detectors contrary to manufacturer's specifications.
 - d. Where practical, detectors shall be mounted:
 - (1) In a visible location
 - (2) On walls between 5 and 6 feet from the floor
 - (3) No closer than 5 feet from combustion appliances, chimneys, flues, or inside corners
7. **Installation in Sleeping Rooms:** The Local Agency shall install a CO detector inside any closable sleeping room that contains a combustion appliance.
8. **Testing:** The Local Agency shall test each detector for proper operation after installation as per test procedures in the owner's manual provided by the manufacturer.

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Weatherization Specification

See also:

Refer to: Policy 9.5, *Smoke Detectors, Carbon Monoxide (CO) Detectors, & Fire Extinguishers*

[SWS Subtopic 2.0101, Smoke Alarms](#)



SPEC 20.0 SMOKE DETECTORS

Installation of smoke detectors is allowed where detectors are not present or are inoperable. Replacement of operable smoke detectors is not an allowable cost. When installed, install smoke detectors in accordance with manufacturer's requirements.

1. **Detector Standards:** Detectors installed shall have a minimum ten-year operating life, shall be listed and labelled in accordance with UL 217, and shall be clearly marked as "UL approved."
2. **Detector Power Options:** Detector shall be powered by one of the following methods:
 - a. **Hardwired:** Installing hardwired detectors is allowable only when the Local Agency receives Commerce prior written approval. Hardwired detectors shall have a lithium battery backup.
 - b. **Battery-operated:** Newly installed or replaced smoke detectors shall be sealed, non-replaceable 10-year battery. They shall make an audible alarm when the battery is at the end of its life cycle.

Exceptions:

(E1) Existing hardwired smoke detectors that are not working may be replaced with a new hardwired smoke alarm.

(E2) Smoke alarms with a visual alarm for hearing impaired individuals shall be installed in addition to a standard smoke alarm.

3. **Labeling Devices:** Label all installed detectors in a permanent fashion with a date of installation or replace-by-date as per manufacture's specification (e.g. Information on mounting plate or on bottom).
4. **Manufacturer's Instructions:** The Local Agency shall provide the manufacturer's instructions including the owner's manual, warranty, and the expected lifetime of the unit information to the occupant of the dwelling unit.

5. **Education of Dwelling Unit Occupants:** The Local Agency shall provide the occupant(s) of the dwelling unit with verbal and written information regarding the operation of the smoke detector(s), the importance of testing, and battery replacement.
6. **Installation Location(s) for Smoke Detectors:** The Local Agency shall install smoke detectors on walls or ceilings per manufacturer's requirements.
7. **Testing:** The Local Agency shall test each detector for proper operation after installation.

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Weatherization Specification

See also:

[Exhibit 5.1.4A, Client Health and Safety Packet](#)

[Exhibit 5.1.4B, Client Education Guide](#)

[Exhibit 9.8B, Test Kit Documentation Form](#)

[Exhibit 9.8C, Renovation Recordkeeping Checklist](#)

EPA website: [Lead Safety Documents and Outreach Materials](#)

EPA booklet: [The Lead-Safe Certified Guide to Renovate Right](#)

[WPN 22-7 Wx H&S - Table of Issues](#)

Refer to: Policy 9.8, *Lead-Based Paint*



SPEC 21.0 LEAD-BASED PAINT

All weatherization work shall be performed following the Environmental Protection Administration's (EPA) Renovation, Repair, and Painting (RRP) protocol (*WAC 365-230*) as administered by Department of Commerce and (*40CFR 745, Subpart E*) as administered by EPA.

1. Applicable Regulations and Requirements

Refer to Policy 9.8 *Lead-based Paint* for requirements

Refer to WPN 22-7 *Weatherization Health and Safety, Table of Issues*

- a. **RRP firm certificate:** Every Local Agency and all contractors shall obtain a RRP Firm certificate, to perform Weatherization (Wx) work disturbing paint in lead-based paint target housing (pre 1978 or test positive for lead), in the following:
 - (1) Washington state non-tribal land – certificate received from State
 - (2) Tribal or federal land – certificate received from EPA
- b. **Individual RRP training and certificate:** The Local Agency shall ensure onsite staff receive EPA's, Renovation, Repair, and Painting (RRP) training and receive a certificate of completion, equivalent or better.
 - (1) All Local Agency staff doing in field Weatherization work including: Auditors, Wx Workers, Crew, In-progress Inspector, or QCI.
 - (2) At a minimum, one renovator onsite shall have a RRP certificate. Typically it is the retrofit installer crew lead.
 - (a) Individuals working under a RRP certified crew lead performing Wx work disturbing paint in lead-based paint target housing are not required to, but are encouraged to obtain EPA RRP training.

2. **Onsite certification records:** Records of Certification (EPA or State, and individual) shall be available at jobsite, as required by law.

3. **Client notification:** The Local Agency shall:
Refer to Exhibit 5.1.4A, *Client Health and Safety Packet*
Refer to Exhibit 5.1.4B, *Client Education Guide*
- a. Give the occupant(s) of lead-based paint target housing a copy of the EPA pamphlet "*The Lead-Safe Certified Guide to Renovate Right*" before the start of any work.
4. **Lead Safe Work Protocols Apply:** The Local Agency shall:
- a. Follow Lead Safe work, EPA's Renovation, Repair, and Painting protocols, if:
- (1) **Target housing:** A dwelling unit was constructed before 1978.
- Exceptions:**
- (Ea)**Test out:** Dwelling unit tested and determined to be free of lead-based paint.
- (Eb)**De minimis levels:** The amount of disturbed lead-based paint surface does not exceed the minor maintenance and repair rule (de minimis levels: six square feet (6sf) per room of interior surfaces, 20 square feet (20sf) of exterior surfaces, 10% of a small component type, such as a window sill).
- The de minimis level exemption shall **NOT** apply to any of the following work:
- Ei. Window replacement,
- Eii. Demolition of painted surface areas, or
- Eiii. Using any of the prohibited work practices, including but not limited to:
- Open-flame burning or torching;
 - Machines to remove paint through high-speed operation without HEPA exhaust control; or
 - Operating a heat gun at temperatures at or above 1100 degrees Fahrenheit
- (Ec)**Airborne lead level:** As a result of the work, the OSHA/DOSH airborne lead level will not exceed 30 micrograms per cubic meter.
- (2) **Presume lead:** The Local Agency chooses to assume the dwelling unit has lead-based paint and the anticipated weatherization work will disturb more than the de minimis levels.

5. **Documentation:** The Local Agency shall:
Refer to Policy 5.1.2, *Wx Project Documentation*, Section 14I, *Lead-Based Paint*
Follow all EPA rules
 - a. Document lead safe work in project file:
 - (1) **Lead testing:** Use Exhibit 9.8B, *Test Kit Documentation Form*
 - (2) **Checklist:** Use Exhibit 9.8C, *Renovation Recordkeeping Checklist*
 - (3) **Photos of containment:** Document with photos and description of each containment area demonstrating lead safe work practices.
 - b. Use lead warning sign onsite

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Weatherization Specification

See also:

Refer to: Policy 5.7.4, *Energy Efficient Lighting*

[SWS Subtopic 7.0103, Lighting](#)



SPEC 23.0 LIGHTING REPLACEMENT

Retrofit of lighting fixtures, replacement of incandescent screw-in bulbs with light emitting diode (LEDs), and replacement of halogen or incandescent torchiere lamps with LED are allowable weatherization measures under the provisions of Policy 5.7.4, *Energy Efficient Lighting*. Lighting replacement shall be Energy Star qualified, equivalent, or better.

Exception: CFLs are allowable, if readily available and LEDs are not feasible.

1. Removal

- a. Terminate all unused electrical connections in appropriate covered junction box per NFPA 70.
- b. Seal any penetrations created by removal as per ANSI/NFPA /ICC Fire Code

2. Installation

- a. Install lighting in accordance with manufacturer specifications and applicable code (i.e., NFPA 70, NFPA 101, NECA/IESNA 500)
- b. Install exterior fixtures constructed of UV resistant materials and rated for installation in damp or wet locations.
- c. Install replacement LED lamps when high intensity incandescent or halogen 1200w or more are in use.
- d. Seal junction boxes and cans between ceiling material. Sealants shall:
 - (1) Be compatible with their intended surfaces.
 - (2) Allow for differential expansion and contraction between dissimilar materials.
 - (3) Meet the requirements of the applicable fire safety code (e.g. thermal or ignition barriers).
 - (4) Meet independent testing and verification protocols as low VOC (volatile organic compound) when used inside the pressure boundary.

3. **Disposal:** Permanently remove equipment from job site and recycle or dispose of removed equipment in accordance with local and federal law (e.g., EPA Section 608 of Clean Air Act of 1990)
4. **Documentation:** Provide occupants/owners with user's manual, warranty information, installation instructions, proper disposal information, and installer contact information for fixtures.

Effective Date: none

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Weatherization Specification

Refer to: Policy

See also:



SPEC 24.0

Placeholder – *for future use*

Lamps merged into [Spec 23, Lighting Replacements](#)

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Weatherization Specification

See also:

Refer to: Policy 5.7.3, *Refrigerator Replacement*

[SWS Subtopic 7.0101, Refrigeration](#)



SPEC 25.0 REFRIGERATORS

Replacement refrigerators shall be justified by the Policy Manual. Refrigerator replacement may require data collection of make, model number, serial number and date of manufacture. Data logging of energy consumption may be required. Freezer-only unit replacements are not allowed with DOE funding.

1. **Data Logging and Databases:** The Local Agency shall use a minimum of 2 hours of data logging information, or database referrals to
 - a. Establish energy usage of existing refrigerators, and
 - b. Determine if refrigerator needs replacement.
2. **Replacing Refrigerator:** If the Local Agency replaces the refrigerator:
 - a. Document condition of existing refrigerator
 - b. Ensure Replacement Refrigerator is:
 - (1) EnergyStar qualified, equivalent, or better.
 - (2) Accessible as required by the Federal Fair Housing Act and ICC A117.1, where applicable
3. **Sizing Refrigerator:** Size the replacement refrigerator to:
 - a. **Fit in the location:** Ensure the replacement refrigerator will:
 - (1) Not reduce required maneuvering clearances in the kitchen to less than that permitted by local, state, or federal guidelines.
 - (2) Not block access to light switches, cabinets, etc. and will fit through the smallest opening between the outside and installation location.
 - b. **Meet the needs of the family:**
 - (1) Choose size based on the size and needs of the family.
 - (2) Install smallest size refrigerator that is practical for each household.

4. **Disposal of removed refrigerators:** The Local Agency shall remove the old refrigerator from the property and dispose of it at an EPA-approved disposal site that reclaims the refrigerant. The client file (project file) will contain documentation of the proper disposal from the disposal facility, or a statement signed by a commercial vendor indicating that the vendor will dispose of the refrigerator at an approved disposal site that reclaims the refrigerant. Permanently decommission old appliance.

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See also:

[SWS – Manufactured Housing](#)
[SWS 3.0102.5, MH Belly Repair – Soft Bottom Patching](#)
[SWS 3.0102.6, MH Belly Repair – Soft Bottom Replacement](#)
[SWS 3.0102.7, MH Belly Repair – Rigid Bottom Patching](#)
[SWS 3.0102.8, MH Belly Repair – Rigid Bottom Replacement](#)
[SWS 4.0302.9, MH – Blown Belly Insulation](#)
[SWS 4.0388.1, Foundation Skirting](#)

Refer to: Policy 5.9.1, *Mobile Homes*



SPEC 26.0 MOBILE HOMES

The Local Agency shall weatherize all mobile homes in accordance with the State of Washington Weatherization Manual (Policies and Procedures, Specifications, and Exhibits). The more specific requirements take precedence over the general requirements. The following mobile home specific requirements (**Spec 26, Mobile Homes**) take precedence over the general requirements: *Specifications, Sections 1 through 25*.

1. **Underfloor insulation:** Contractors blowing insulation into the cavity between rodent barrier and sub-floor shall install fiberglass insulation only. A density of 1.25 to 1.75 pounds per cubic foot (lb/cu.ft.), is our recommended target. A bag count calculation can be used to confirm appropriate density. Insulation shall be in substantial contact with the underfloor.
 - a. **Repairing rodent barrier:**
 - (1) **Belly condition and support:** The belly board (flexible rodent-barrier) shall be complete and intact in areas where insulation is blown-in. The rodent barrier shall be supported as required to avoid sagging.
 - (2) **Patches:** Patch holes in the rodent barrier with like or similar materials. Stitch staple or mechanically fasten and glue to the existing rodent barrier with adhesive, mastic, or caulk. Seal patches with caulk, glue, mastic, or adhesive (peel & seal) and staple with a minimum number of 4 staples per patch. Install patching material over all holes lapping a minimum of 3" over surrounding material.
 - (3) **Mechanical fasteners:** Stitch staples (clinch or cinch staples) shall be at a minimum size 9/16, type galvanized or stainless, and gauge 4M.
 - (4) **Repair rim joist installation holes:** Seal holes in the rim joist used to install insulation in the cavity between the belly board and sub-floor, Prior to replacing exterior weatherproof covering.

- b. **Replacing road barrier:**
Refer to SWS 3.0102.6, *MH Belly Repair – Soft Bottom Replacement*
(1) If replacing the entire belly, refer to SWS 3.0102.6 for requirements.
 - c. **Leaving open floor - no road barrier:**
Refer to Spec 6.3, *Crawlspace/Underfloor/Perimeter Insulation*
Insulate open underfloors (no road barrier existing or removing and not replacing) in accordance with Spec 6.3, *Crawlspace/Underfloor/Perimeter Insulation*. Document reasons for insulating mobile home floor as if it is a site built home, with fiberglass batt (e.g. additions or tip out).
2. **Skirting:** If skirting is not present, all insulation and ductwork installed by the program shall be protected.
 - a. **Material selection:** Select materials that are corrosion and rot resistant, compatible with existing surfaces, and pest resistant. Select materials that are rated for ground contact if they touch the ground.
 - b. **Coverage:** Install skirting continuously around the entire perimeter of the conditioned space.
 - c. **Support:** Install support material to adequately support new skirting.
 - d. **Fastening:** Mechanically fasten and as to manufacturers' specifications.
 - e. **Flashing:** Install flashing to direct bulk water to exterior.
 - f. **Rodent Proofing – for large obvious holes (larger than 1sf):** Block hole with appropriate materials (such as: ¼" hardware cloth, copper metal mesh, or metal sheet goods).
 3. **Ceiling insulation:** Install ceiling insulation to a minimum R-38 or the highest practical R-value
 - a. **Installation of passive ventilation:** Installation of passive ventilation is allowable. The installation of additional ventilation is not required. If ventilation is installed, the code minimum shall not be exceeded.
 - b. **Patching insulation access holes in roofing:** Contractors shall patch all holes created to install attic insulation. Holes shall be patched to prevent intrusion of bulk moisture. Patches on roofs shall be installed in a manner that ensures they are as durable as and last the life of the existing roofing.
 - c. **Protecting structural integrity:** Do not compromise the structural integrity of the roof system when creating access holes to install attic insulation.

4. **Exterior roof insulation:** Contractors shall:
- a. **Structural integrity:** Determine the ceiling/roof system is structurally adequate to support the combined weight of all materials imposed on the ceiling/roof system including insulation which may be installed in the attic cavity.
 - b. **Attic cavity fill:** Fill the attic cavity between the ceiling and roof with insulation prior to applying exterior ceiling/roof insulation.
 - c. **Insulation and membrane:** Install a minimum 2 inches of rigid extruded polystyrene or polyisocyanurate insulation covered with an EPDM, TPO, or PVC membrane.
 - d. **Securing insulation boards:**
 - (1) Secure insulation boards to the roof structure using fender washers with a minimum diameter of 1 inch.
 - (2) Install insulation to prescribed R-value without gaps and voids according to manufacturer specifications.
 - (3) Sink screw heads so they do not project above the rigid board insulation.
 - e. **Roof membranes:** Install roofing membranes to cover the existing roof and extend down the wall. Secure the membrane to the wall in a manner that prevents water intrusion into the wall cavity. Ensure the roofing system is sufficiently rigid and sloped to minimize “ponding” or “pooling” of water on roof surface after installation.
 - f. **Roofing projections:** All existing exhaust fan terminations, plumbing vent stacks, and combustion appliance vent stacks shall extend through the new exterior roof insulation and terminate in an air-tight and water-tight manner.
 - (1) **Extending combustion vents:** Extend all combustion appliance vent stacks, if necessary, to meet applicable HUD code and appliance manufacturers’ specifications for minimum height of the vent stack termination above the new roof level.
 - (2) **Sizing exhaust vents:** New vent caps for exhaust fans shall:
 - (a) Not be of smaller diameter than the duct or pipe projecting through roof,
 - (b) Allow free flow of air , and
 - (2) **Sealing vent caps:** Seal ducts or pipes to the inside of the vent cap to prevent the entrance of exhaust air into the ceiling cavity.
 - (3) **Sealing extensions:** If an extension is needed, seal fan/duct extensions to the outside of the existing duct or fan housing and to the inside of the vent cap with compatible materials (i.e. silicon caulk).

- (4) **Sealing metal kitchen vent caps:** Vent caps for all kitchen exhaust fans shall be made of metal. Seal metal vent cap to the fan exhaust duct and roof cap with compatible materials (i.e. UL 181B or UL 181B-M).
- (5) **Flashing roof penetrations:** Flash all roof penetrations to membrane with compatible materials.

5. **Wall insulation:**

Refer to SWS 4.0202.3-4.0202.5 *Enclosed Walls*

- 6. **Exterior water heater closets:** Insulate the water heater closet exterior door to minimum R-11, where it is not practical to insulate the water heater. Air seal the exterior door and interior of the closet to prevent air infiltration.
 - a. **Exterior water heater closet with combustion appliance:** Provide combustion air as necessary
- 7. **Mobile Home Air sealing:** Air seal mobile home with attention to all accessible marriage lines in a multi-section unit and with all considerations from **Spec 5, Building Envelope Air Sealing**.

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Weatherization Specification

See also:

Refer to: *Multifamily Policy Table of Contents*

[2020 SWS](#)



SPEC 27.0 MULTIFAMILY

Refer to: [2022 WA Multifamily Weatherization Field Guide](#)



Exhibits

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**Managing the Low-Income Weatherization Program
for
United States Department of Energy (DOE)
United States Department of Health and Human Services (HHS-LIHEAP)
Bonneville Power Administration (BPA)
and
Washington State Weatherization Plus Health (State)**

**Prepared By:
Washington State Department of Commerce
Energy Division**

2022 Edition
July 2022 Version



WEATHERIZATION WORKS

July 2022

Exhibits	See also
	Policies and Procedures – P Multifamily Policies – M Specifications – S Exhibits – E Definitions – D
Managing the Low-Income Weatherization Program	
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2020 Standard Work Specifications (SWS) Multifamily Weatherization Specification	

Last Modified

[Acronyms](#)

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Managing the Low-Income Weatherization Program

Acronyms

A

AAA	American Arbitration Association
ACEEE	American Council for Energy Efficient Economy
ACF	Administration for Children and Families
ANSI	American National Standards Institute

B

BPA	Bonneville Power Administration
BPC	Building Performance Center
BPI	Building Performance Institute

C

CAA	Community Action Agency
CAP	Community Action Program
CAT	Computerized Audit Tool
CFL	Compact Fluorescent Light Bulb
CFR	Code of Federal Regulations
CIAP	Comprehensive Improvement Assistance Program (under HUD)
CO	Carbon Monoxide
CPA	Certified Public Accountant
CTED	Community, Trade and Economic Development (Washington State Department of) now known as Department of Commerce (Commerce)

D

DAHP	Department of Archaeology and Historic Preservation
DOE	Department of Energy (United States Department of)
DRC	Dispute Resolution Center

**Managing the Low-Income Weatherization Program
Acronyms**

DSHS	Department of Social and Health Services (Washington State Department of)
E	
EOW	Energy OutWest
EPA	Environmental Protection Agency (United States Department of)
F	
G	
GA	General Assistance
GAO	General Accounting Office
GHWR	General Heat Waste Reduction
H	
+H	Plus Health Measures
H&S	Health and Safety
HHS	Health and Human Services (United States Department of)
HRRP	Home Repair and Rehabilitation Program
HUD	Housing and Urban Development (United States Department of)
I	
IAQ	Indoor Air Quality
IGR	Independent Group Residence
IRC	International Residential Code
IRS	Internal Revenue Service (United States Department of)
J	
K	
L	
LIHEAP	Low-Income Home Energy Assistance Program
LSW	Lead-Safe Weatherization

**Managing the Low-Income Weatherization Program
Acronyms**

M

MM	Matchmaker, formerly Energy Matchmaker (EM). Now known as Washington State Weatherization Plus Health (State) Funding
MVL	Minimum Ventilation Level

N

NEC	National Electrical Code
NEI	Non Energy Impacts
NHPA	National Historic Preservation Act
NPS	National Park Service
NSR	Non-SIR Repair

O

O & M	Operations & Maintenance (PSE Program)
OMB	Office of Management and Budget (Federal)
OSHA	Occupational Safety and Health Administration

P

PCR	Peer Circuit Rider
POI	Pollution Occurrence Insurance
PPM	Parts-Per-Million
PSE	Puget Sound Energy

Q

QCI	Quality Control Inspector
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R

RCW	Revised Code of Washington
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S

SIR	Savings-To-Investment Ratio
SSI	Supplemental Security Income

**Managing the Low-Income Weatherization Program
Acronyms**

T

T & TA	Training & Technical Assistance
TANF	Temporary Assistance for Needy Families
TREAT	Targeted Residential Energy Analysis Tools

U

UCC	Uniform Commercial Code
UL	Underwriters Laboratories
USDA	United States Department of Agriculture

V

W

WAC	Washington Administrative Code
WAP	Weatherization Assistance Program
WAPTAC	Weatherization Assistance Program Technical Assistance Center
WISHA	Washington Industrial Safety and Health Act
WPN	Weatherization Program Notice
WRed	Weatherization Readiness
WWW	World Wide Web
Wx or WX	Weatherization
Wx+H	Washington State Weatherization Plus Health (State) funding, formerly known as Matchmakers (MM)
Wx+H	Weatherization Plus Health Program

X

Y

Z

Managing the Low-Income Weatherization Program

Definitions

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) X Y Z

Please see the Department of Energy's 10 CFR Part 440, Final Rule, for additional definitions.

A

Abatement

See [Mitigation](#), [Remediation](#), and [Complete Removal](#)

In Weatherization, we generally use these terms to address improving hazards, such as Mold, Lead, Asbestos, or Radon.

The ending, reduction, or lessening of something. Abate, or remediate, the hazard by handling the hazardous material and doing the mid-level effort required, such as: partial removal, encapsulation, repair, enclosure, or encasement to enable installation of the Weatherization measure.

Acceptable Indoor Air Quality

Air toward which a substantial majority of occupants express no dissatisfaction with respect to odor and sensory irritation and in which there are not likely to be contaminants and concentrations to be a known health risk.

Acquisition Cost

From 2 CFR 200.2: Acquisition cost means the cost of the asset including the cost to ready the asset for its intended use. Acquisition cost for equipment, for example, means the net invoice price of the equipment, including the cost of any modifications, attachments, accessories, or auxiliary apparatus necessary to make it usable for the purpose for which it is acquired. Acquisition costs for software includes those development costs capitalized in accordance with generally accepted accounting principles (GAAP). Per State Administrative and Accounting Manual (SAAM), the state of Washington includes all nonrefundable purchase taxes (e.g., sales taxes), and all appropriate ancillary costs less any trade discounts and rebates.

Exception: Ancillary charges, such as taxes, duty, protective in transit insurance, freight, and installation may be excluded from the acquisition cost in accordance with the Local Agency's (non-Federal entity's) regular accounting practices. Document if ancillary charges are included or excluded.

Managing the Low-Income Weatherization Program Definitions

Additional Work

Problems observed during monitoring inspections that need to be corrected, such as a plumbing leak that needs repair to protect the underfloor insulation.

Adequate Heat

Heating facilities are considered adequate if they are capable of maintaining a room temperature of 65 degrees F in all habitable rooms and bathrooms when the outside design temperature is reached.

Administration Costs

Costs associated with agency level functions, but not directly associated with a program. These agency level functions include, but are not limited to: planning, budgeting and accounting, and establishment and direction of local agency policies, goals, and objectives.

Agency

Department of Commerce (Commerce), Housing Improvements and Preservation Unit.

Air Conditioning

An air conditioner (often referred to as AC) is a home appliance, system, or mechanism designed to dehumidify and extract heat from an area.

Air Filter/Purifier

Care should be taken when deciding to provide air filters/purifiers. Depending on the application, air purifiers can have limited to no effectiveness. Some air purifiers can produce levels of ozone, which can be harmful to an occupant's health. For each Wx+H project an analysis should be conducted on the anticipated outcome for the cost of the air purifier.

Air Handler

A steel cabinet containing a blower with cooling and heating coils connected to ducts, which transport indoor air to and from the air handler.

Air Sealing

Sealing of the building envelope with materials that stop or prevent air leakage into or through a dwelling unit.

Ambient CO Level

The level of CO measured within the dwelling unit, but not within the exhaust flue.

Managing the Low-Income Weatherization Program Definitions

Ancillary Items

Items necessary for the proper installation of weatherization materials. Ancillary item refers to small items such as hardware, nails and screws, other fasteners, adhesive, sealant, etc, and not large-ticket items such as dry walling, roof and floor decking, rough framing, etc. (the latter are incidental repairs). Ancillary items are items required by materials manufacturers, general construction, and Weatherization Assistance Program (WAP) field standards to achieve a finished product in a typical installation where no unusual or extensive repairs are needed. The costs of ancillary items and installation are to be included within the cost of the individual Wx Measure (WxM) when calculating the Savings-to-Investment Ratio (SIR) for the individual WxM. Although the WAP requires the use of appropriate, durable ancillary materials, standards for ancillary items are typically not listed in 10 CFR Part 440, Appendix A.

Arbitration

Submission of a dispute to one or more impartial persons for a final and binding decision. Through contractual provisions, the parties may control the range of issues to be resolved, the scope of relief to be awarded, and many procedural aspects of the process. Under *Chapter 7.04 RCW*, all arbitrations are final and binding unless there is either arbitrator misconduct or the arbitrator obviously disregards the law.

Asbestos-containing material (ACM)

See [Friable](#)

Any material containing more than one percent (1%) asbestos.

Assessor

The person that performs an assessment to make recommendations and assist the Auditor to identify health, safety, durability, and energy conservation issues, problems, or opportunities in buildings.

At-Risk Occupant

A vulnerable occupant that is particularly sensitive to their environment such as elderly, young children, persons with medical conditions and therefore particularly susceptible to stimuli including but not limited to: temperature swings, chemicals, allergens, disruptions, construction by-products, and weatherization materials.

Auditor

The person that identifies health, safety, durability, and energy conservation issues, problems, or opportunities in buildings and establishes the Scope of Work (SOW). An Auditor for the Wx Program shall be certified as an Energy Auditor (EA), a Building Analyst (BA), or a Quality Control Inspector (QCI) by the Building Performance Institute (BPI).

Managing the Low-Income Weatherization Program Definitions

Average Cost Per Unit (ACPU)

See [Building Cost](#)

The Department of Energy (DOE) sets the Adjusted Average Cost per Dwelling Unit for each Program Year (PY) in the Weatherization Grant Guidance Weatherization Program Notice (WPN). The “average cost per unit” (ACPU) shall be at or below this figure at the end of each program year.

Budget Categories included in DOE ACPU: Weatherization Measure Installed Measure Costs, Weatherization-Related Repair Measure Installed Measure Costs, Program Support Costs (Audit and Inspection costs, Consumer Conservation Education Costs, and the cost to carry out Low-Cost/No-Cost Weatherization activities), and Vehicle and Equipment Costs.

Budget Categories NOT included in DOE ACPU: Administration, Health and Safety Measures, Other Program Operations (Liability Insurance, Leverage Assistance, and Financial Audits), Training and Technical Assistance, and Special Project Costs.

B

Backdrafting

Continuous spillage of combustion gases from a combustion appliance.

Background CO level

The naturally occurring level of CO measured outside of the dwelling unit.

Baffling

Materials used to maintain ventilation openings and minimum clearance requirements.

Baseload Costs

Those energy costs associated with a building's operation excluding costs associated for heating/cooling.

Bathroom

Any room containing a bathtub, a shower, a spa, or a similar source of moisture.

Bathroom ½ (Half-Bath)

A room containing a sink and a toilet. This does not require additional mechanical ventilation.

Managing the Low-Income Weatherization Program Definitions

Bimetal Element

A metal spring, lever, or disc made of two dissimilar metals that expand and contract at different rates as the temperature around them changes. This movement operates a switch in the control circuit of a heating or cooling device.

Blended Funding

See [Braided Funding](#)

Use of more than one fund source including Commerce-administered Wx funds (DOE, BPA, LIHEAP, and State) and utility funds (or other non-Commerce-administered funds) in a [Blended Measure](#) or a [Blended Project](#), for a single Wx Project.

Blended Measure

Any Wx measure where installation labor and measure costs are paid for with any combination of Commerce-administered Wx funds (DOE, BPA, LIHEAP, and State) and utility funds (or other non-Commerce-administered funds).

Blended Project

Any Wx project where installation labor and measure costs are paid for with any combination of Commerce-administered Wx funds (DOE, BPA, LIHEAP, and State) and utility funds (or other non-Commerce-administered funds).

Blower Door

Building diagnostic equipment used to measure and locate air leaks through windows, doors, and other places in a dwelling unit. It consists of a large board or hood that blocks the front door of the dwelling unit, a powerful fan, and gauges.

Blower Door Test

A test to determine the air leakage in a dwelling unit. It uses a variable-speed fan to pressurize or depressurize a dwelling unit. The pressure difference between the inside and outside air at various fan-induced pressures is measured. These readings are used to determine features such as the leakiness or the natural air change rate of the dwelling unit.

Braided Funding

See [Blended Funding](#)

British thermal unit (Btu)

The quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit.

Managing the Low-Income Weatherization Program Definitions

Building Airflow Standard (BAS)

The calculation used to determine the target level of airflow in a dwelling unit that should be achieved by mechanical or natural ventilation at the completion of weatherization, measured in CFM50 (i.e., CFM measured at 50 Pascals pressure difference).

Building Costs

See [Average Cost Per Unit \(ACPU\)](#)

All costs associated to a specific building, including Weatherization and Weatherization-Related Repair Installed Measure Costs and Program Support Costs.

The following costs are NOT included in Building Costs: Administration, Health and Safety Measure Costs, Other Program Costs (Financial Audits, Liability Insurance, and Leveraging Costs), Training and Technical Assistance Costs, and Special Project Costs.

Building Permit

An authorization issued by county, city, or state officials allowing a specific type of construction at a particular location.

Building Shell/Envelope

A building's exterior envelope, consisting of the walls, floor, and roof of a building.

Building Tightness Limit (BTL)

See Building Airflow Standard (BAS)

Burner

A device that facilitates the burning of a fossil fuel like gas or oil.

Bypasses

Holes, openings, and chase-ways typically found around chimneys, plumbing, and electrical penetrations in attics and crawlspaces that allow conditioned air to escape or unconditioned air to enter a dwelling unit.

C

Carbon Monoxide (CO)

An odorless and poisonous gas produced by incomplete combustion.

Managing the Low-Income Weatherization Program Definitions

Carbon Monoxide Detector

A device that automatically detects the presence and gives a warning of different levels of carbon monoxide (CO) in the air over time. See **Policy 9.5, *Smoke Detectors, Carbon Monoxide (CO) Detectors, & Fire Extinguishers***

Case-by-Case Basis:

Rather than always performing an action to meet a requirement in every case, making determinations on a case-by-case basis, means decisions are made separately, each according to the facts of the particular situation. Results may differ due to different facts including, but not limited to: clients (health, vulnerability, age, etc.), Local Agency staff, available and qualified subcontractors, dwelling units, conditions of building elements, best practices, limited options, appropriate actions, and available funding.

Categorical Income Eligibility

Defined across programs as automatically granting program eligibility to applicants who have already met the eligibility requirements of another agency's identified program.

Ceiling Loading

The amount of weight in pounds per square foot a ceiling is designed to support.

Client (Low-Income Client)

An income eligible person (low-income) owner or occupant of a dwelling that will benefit from services including, but not limited to: increasing energy efficiency, reducing total residential expenditures, and improving health and safety.

Client Education

See [Client Education Recipients](#)

Providing client(s) with structured and consistent information on services provided: consumer conservation, repairs, and health and safety. Information includes, but is not limited to energy efficiency; function, use, and maintenance of equipment, systems, and components installed in their dwelling; health and safety matters such as potential hazards and prevention; information to enable client to make informed decisions and provide informed consent. The level of required written and verbal client education the Local Agency provides is defined by Department of Energy. However, [Client Education Recipients](#) will vary with the property type and the pertinence of the information.

Managing the Low-Income Weatherization Program Definitions

Client Education Recipients

In Single-family owner-occupied properties, the recipients of client education are the Low-income Clients: Owners/Occupants.

In Single-family rentals, the recipients of client education are property owners and tenants.

In Multifamily properties the recipients of client education include, but are not limited to the: Low-income Clients: Tenants and Occupants; Owners; Owner-Agents; Building Managers; Facilities Personnel; Maintenance Staff; and Maintenance Designee.

Client File

See [Project File](#), for Multifamily

The file that contains documents, electronic records, or file references specific to the work on an individual dwelling unit. All information shall be readily available for monitor, inspector, or auditor review.

Closed Top Dam

A fixture that is dammed with a metal, sheetrock, or other non-combustible material that extends at least 24 inches above the fixture and has a cover over the top that will prevent insulation from entering inside the dammed area.

Closed Unit

A dwelling unit that meets the definition of a [Completed Unit](#), all financial transactions are complete, and the file is closed.

CO Detector

See [Carbon Monoxide Detector](#)

Combat Pay

Special pay while serving in a combat zone.

Combustion Air

Air that chemically combines with a fuel during combustion to produce heat and flue gases, mainly carbon dioxide and water vapor.

Combustion Analyzer

A device used to measure steady-state efficiency of combustion heating units.

Managing the Low-Income Weatherization Program Definitions

Combustion Appliances

Any liquid, gas, or solid-fuel burning appliances, including water heaters, wood stoves, ranges, ovens or stovetops, furnaces, boilers, space-heaters, fireplaces, fireplace inserts, and gas logs.

Combustion Appliance Zone (CAZ)

The physical area in which the combustion appliance is located; usually contained by a door or an access closure.

Combustion Safety Diagnostic Testing

Use of a digital and calibrated manometer to read pressure differentials and CO levels under a variety of natural and created conditions to assist in diagnosing airflow and draft dynamics in a combustion appliance.

Commerce-Administered Utility Funding

Any funds from a utility that Commerce administers for the Wx Program. Treat these funds from a utility as Utility Funding when determining the type of project and measure described in this memo.

Commerce-Administered Wx Funding (DOE, BPA, LIHEAP, and State)

Any funds from the Department of Energy, Bonneville Power Administration, Low-Income Housing Energy Assistance Program, and Washington State Weatherization Plus Health (State) funding that Commerce administers for the Wx Program.

Compact Fluorescent Light Bulb

A light bulb designed to replace screw-in incandescent light bulbs, they are often found in table lamps, wall sconces, and hall and ceiling fixtures of commercial buildings with residential type lights. They combine the efficiency of fluorescent lighting with the convenience of standard incandescent bulbs. Light is produced the same way as with other fluorescent lamps. Compact fluorescent bulbs have either electronic or magnetic ballasts.

Competent Person – Asbestos

In addition to the definition in [WAC 296-62-07728](#), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them as specified in WAC 296-62-07728. The competent person shall be certified as an asbestos supervisor in compliance with WAC 296-65-030(3) and 296-65-012 for Class I and Class II work, and for Class III and Class IV work involving 3 square feet or 3 linear feet or more of asbestos-containing material. For Class III and Class IV work, involving less than 3 square feet or 3 linear feet, the competent person shall be trained in an operations and maintenance (O&M) course which meets the criteria of EPA (40 CFR 763.92(a)(2)).

Managing the Low-Income Weatherization Program Definitions

Competent Person – Confined Space

One who is capable of identifying existing and predictable hazards in the surroundings or working conditions within a confined space which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them (29 CFR 1926.32(f)).

Complete Removal

See [Mitigation, Abatement, and Remediation](#)

In Weatherization, we generally use these terms to address improving hazards, such as Mold, Lead, Asbestos, or Radon.

A comprehensive elimination of all hazardous material and cleaning to ensure all trace elements are eradicated. This level is generally prohibited in the Weatherization Program.

Completed Unit

See [DOE Completed Unit](#)

A dwelling unit that meets the definition of a [Weatherized Unit](#), has passed final inspection and is certified as complete. Units that receive only low-cost/no-cost services may not be counted as completed units in the Weatherization Information Data System (WIDS).

Comprehensive Cleaning (one time)

Single instance of comprehensive house cleaning including carpet shampooing, industrial vacuuming, and garbage removal. Other activities shall be approved by the Washington State Weatherization Plus Health (State) Program Manager.

Computerized Energy Analysis Tool

Energy use analysis software approved by the Department of Energy for use in determining cost-effective Weatherization Measures (WxM), Energy Conservation Measures (ECM), or energy efficiency measures.

Conditioned Basement

An intentionally heated or cooled basement.

Confined Space

A space large enough and arranged so an employee could fully enter the space and work, has limited or restricted means for entry or exit, and is not designed for continuous occupancy. Confined spaces include, but are not limited to, tanks, vessels, silos, storage bins, hoppers, vaults, excavations, and pits.

Managing the Low-Income Weatherization Program Definitions

Consumer Conservation Education Costs

Costs included in Program Support to provide consumer conservation education to clients including, but not limited to, energy efficiency, safety hazards, and the proper operation of equipment, including the operation, testing, and battery replacement of smoke detectors.

Contractor

Any agency administering the weatherization program and its subcontractors.

Cost-Effective

See [Savings-to-Investment Ratio \(SIR\)](#) and [Deemed Measures Priority List \(DMPL\)](#)

A Weatherization Measure is considered cost-effective if it receives a Savings-to-Investment Ratio of 1.0 or greater ($SIR \geq 1$) in *TREAT* (the DOE authorized Weatherization energy analysis tool). Or, for other than DOE funded projects, meets the requirements on the Exhibit 5.2.7A, *Deemed Measures Priority List (DMPL)* table.

Crawlspace Improvements

Replacing or adding ground cover and installing crawlspace ventilation. Other installations or actions shall be approved by the Washington State Weatherization Plus Health (State) Program Manager.

D

Dam (Ridged)

At access point - Fixed ridged dam higher than the insulation. A shield of either solid, non-combustible material or fire rated material with a flame spread of 25 or less. Damming shall be secured in place to prevent displacement.

Damming

Materials used to prevent insulation from spilling or spreading to areas that may cause moisture, combustion, or ventilation problems.

Data Logger

A device that measures energy consumption over a given time period, typically in Kilowatt/hours, and often used to determine the energy consumption of refrigerator and freezer units.

Dealer of Record

A service dealer who has been the client's supplier for a period of time. See **Policy 8.4, Subcontracting**.

Managing the Low-Income Weatherization Program Definitions

Deemed Measures Priority List (DMPL)

See [Cost-Effective](#)

A State-approved table that establishes cost-effective Weatherization Measures, standard Health and Safety Measures, General Heat Waste Reduction Measures, and Low-Cost/No-Cost Measures, including levels of insulation that may be added to and installed in buildings. See **Policy 5.2.7, Deemed Measures Priority List (DMPL)**.

Deferred Project

When conditions in a home are beyond the scope of the Weatherization Program and would render the weatherization measures unsafe or ineffective. Local Agencies can defer the project until said conditions are repaired. Examples conditions for deferral include: moisture/standing water, electrical/wiring issues, environmental contaminants, structural/roofing deficiencies, etc. See **Policy 5.1.3, Deferral Standards**.

Deficiency

Noncompliance issues that are of secondary concern, such as, small file omissions (no date on form), procedural items that can be quickly or easily corrected, or a finding in work quality that is easily correctable and does not significantly impact the overall results of work performed (for example, failure to wrap the first five feet of water pipe from the water heater).

Depressurize

Cause to have a lower pressure or vacuum with respect to a reference of a higher pressure.

Diagnostic Testing

Use of a digital and calibrated manometer to read pressure differentials under a variety of natural and created conditions to assist in diagnosing airflow and ventilation dynamics in a dwelling unit.

Dilution Air

Air that enters through the dilution device; an opening where the chimney joins to an atmospheric-draft combustion appliance.

Dilution Device

A draft diverter or barometric draft control on an atmospheric-draft combustion appliance.

Direct-vented Combustion Appliance

An ANSI Category I appliance. An appliance that operates with a non-positive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent. Combustion air is supplied from outdoors directly to combustion chamber.

Managing the Low-Income Weatherization Program Definitions

Disability

A physical or mental condition that substantially limits one or more major life activities. There are several definitions of disability in the law. Each definition emphasizes some aspects of the condition and is specifically tailored to delineate the scope of a legal right under various public programs. See *Persons with Disabilities*.

DOE Completed Unit

See [Completed Unit](#)

A dwelling unit that meets both the definition of a DOE Weatherized Unit and has DOE funds used directly on it shall be counted as a DOE Completed Unit.

DOE State Plan

A yearly document prepared for DOE by Commerce that describes the weatherization program and the rules and responsibilities of Commerce and its contractors. The plan is distributed to Contractors and interested parties.

DOE Weatherized Unit

See [Weatherized Unit](#)

From WPN 05-1, 2004 (p. 26):

To assist State and local agencies in determining what a DOE weatherized unit is, DOE offers the following definition. A DOE Weatherized unit is: A dwelling unit on which a DOE-approved energy audit has been performed. As funds allow, the appropriate measures installed on this unit have an SIR of 1.0 or greater, but also may include any necessary energy-related health and safety measures. The use of DOE funds on this unit may include but are not limited to auditing, testing, measure installation, inspection, use of DOE equipment, vehicles, or DOE provides the training and/or administration. Therefore, a dwelling unit that both meets the definition of a DOE weatherized unit and has DOE funds used directly on Installed Measures, shall be counted as a DOE completed unit.

Note: The above definition is not intended to impede or otherwise cause difficulties to states and local agencies that have entered into a leveraging partnership where other sources of funds are involved. If there is uncertainty in determining how best to account for the completed weatherized units under such an arrangement, contact your respective Regional Office for guidance.

Dominant Duct Leakage Testing

A test performed with the air handler running, indicating which is the leakier side of the furnace distribution system (the supply side or the return side).

Managing the Low-Income Weatherization Program Definitions

Draft Diverter

A device located in gas appliance chimneys that moderates draft and diverts down drafts that could extinguish the pilot or interfere with combustion.

Dust Mite Cover

An allergy-proof bedding cover barriers with a mean pore size diameter below 10 microns. These covers are the most effective barriers against pet dander, dust mites, bed bugs, and other harmful allergens.

Dwelling Unit

A house, including a stationary mobile home; an apartment; or a room in a group residential facility, including a shelter, group home, or transitional facility.

Dwelling Unit – Multifamily (MF)

A building with two (2) or more attached dwelling units.

2-4 units:

A building with two (2) to four (4) units. Generally, these dwelling structures are of similar size and construction to single-family (SF) homes. As such, many of the SF Policies and Specifications apply. For example: 2-4 unit buildings shall follow the Single-Family requirements on the Deemed Measures Priority List (DMPL). However, they are considered Multifamily (MF) Wx Projects and to account for multiple units, need to be entered into WIDS as MF 2-4 Units. Also, since they are attached dwelling units within a single building Indoor Air Quality and Combustion Safety concerns align with MF requirements.

Examples include: Duplex, Tri-Plex, and Four-Plex

Low-Rise:

3-stories or less (includes conditioned living space basement level) and 5 units or more.

Examples include: Town House, Row House, Garden Apartments, Woody Walkups, and Central Corridor Building

High-Rise:

4-stories or more and 5 units or more.

Shelters, Group Homes, Transitional Facilities, and Rooming Houses:

A dwelling unit or units whose principal purpose is to house on a temporary basis, individuals who may or may not be related to one another and who are not living in nursing homes, prisons, or similar institutional care facilities.

Managing the Low-Income Weatherization Program Definitions

Auditor shall assess the use of the building to determine if operating as a SF or MF (unattached or attached units) and dwelling unit count. Document methodology and justification in the Project File. For the purpose of determining how many dwelling units exist in a shelter, local agencies may count one of the following as a dwelling unit:

- a. Each 800 square feet
- b. Each floor
- c. As applicable, bedrooms may be treated as distinct dwelling units

Examples include: Single Resident Occupancy (SRO)

Dwelling – Single-Family (SF)

A structure containing no more than one dwelling unit.

E

Earned Income

Income from salaries or wages.

Elderly Person

A person who is 60 years of age or older.

Electrical Repair

Minor: Electrical repairs required for health and safety with small material costs including, but not limited to: open splices, non-conforming wiring, missing junction boxes (j-box), j-box covers, outlet/switch/blank cover plates, gfci, pigtails, and replacing breaker.

Major: Electrical repairs required for health and safety with large material costs including, but not limited to: upgrading circuits, replacing electrical panel, increasing electrical service, and completely rewiring.

Eligible Household Member

Per 62 FR 61344-61416, an eligible household member shall be a U.S. citizen or documented immigrant (qualified alien). Each household member's citizenship status shall be documented.

Emergency Shelter

A facility that provides temporary or transitional shelter for homeless people.

Energy Audit

On-site evaluation performed by trained auditors of a dwelling unit's physical and operating characteristics, and its energy uses and processes.

Managing the Low-Income Weatherization Program Definitions

Energy Audit Report

A report to explain the Energy Audit findings in a manner which is easily understandable including the condition of the property, the potential energy savings, and the Wx Project Scope of Work.

Energy Star

A Department of Energy designation for products and materials that meet certain established energy efficiency requirements.

Exterior Wall Plate

The bottom framing member of a wall system that lies flat on the exterior perimeter of the foundation and to which wall studs are fastened.

F

Factory-built Housing

Housing designed for human occupancy such as a single-family dwelling. The structure of any room is entirely or substantially prefabricated or assembled at a place other than a building site. It may also include a component. A factory-built house is also referred to as a "modular" structure. Factory-built housing does not include manufactured (mobile) housing. ([See RCW 43.22.450\(3\)](#)).

Fan Control

A bimetal thermostat that turns the furnace blower on and off as it senses the presence of heat.

Financial Audit Costs

Costs for a financial audit in compliance with [Section 6.8, Audits](#).

Flame-spread Rating

The flame spread index and smoke development index obtained by ASTM E 84 test method for surface burning characteristics of building materials.

Flooring

When replacing flooring install hard surface flooring. Conduct an analysis to how much of the home's flooring should be replaced to benefit the client. Non-hard surface flooring replacements shall be approved by the Washington State Weatherization Plus Health (State) Program Manager.

Flue

A channel for combustion gases.

Managing the Low-Income Weatherization Program Definitions

Friable

Material can be crumbled, pulverized, or reduced to powder by the pressure of an ordinary human hand.

Fully Enclosed Airtight Cavity

An insulation cavity enclosed on all six sides by a rigid material (eg. drywall, OSB, rigid insulation board, etc.).

Exception: an asphalt-impregnated fiberboard (a.k.a belly board) used in a mobile home, may qualify as a suitably rigid material but shall be assessed on a case-by-case basis.

G

Gas

Any gaseous fuel.

General Heat Waste Reduction List

A State-approved table that establishes non-insulation energy conservation measures. All measures on this list are presumed cost-effective and shall be installed as applicable to the extent funding allows. Total General Heat Waste Reduction material and labor cost shall be <\$250 per unit. See **Policy 5.1.5, Low-Cost/No-Cost and General Heat Waste Reduction.**

Green Cleaning Kit

See [Recipes for Safer Household Cleaners](#)

Local Agencies shall choose products that are biodegradable and non-toxic – this ensures that they'll break down into the soil and won't be hazardous. All products shall be certified by Green Seal and have less than 10% VOC concentration.

H

Hardwired Detector (or Hardwired Fixture)

A detector or fixture that is directly and permanently wired into a dwelling unit's electrical system.

Health and Safety (H&S) Measure

Energy-related measures and repairs necessary to eliminate hazards within a structure, which by their remedy, allow for the installation of weatherization materials. Energy-related health and safety measures and repairs are intended to protect building occupants and workers.

See [Weatherization Program Notice \(WPN\) 22-7 Weatherization Health and Safety Guidance](#)

Managing the Low-Income Weatherization Program Definitions

Health and Safety (H&S) Measure Costs

See [Installed Measure Costs](#)

The Installed Measure Costs for Health and Safety (H&S) Measures.

Heat Anticipator

A very small electric heater in a thermostat that causes the thermostat to turn off before room temperature reaches the thermostat setting, so that the house does not overheat from heat remaining in the furnace and ducts after the burner shuts off.

Heat Rise

The number of degrees of temperature increase that air is heated as it is blown over a heat exchanger. (Heat rise equals supply temperature minus return temperature.)

Heated Floor Area

The horizontal projection of that portion of interior space which is contained within exterior walls and which is conditioned directly or indirectly by an energy-using system, and which has an average height of five feet or greater.

Heating Degree Day

Each degree that the average daily temperature is below the base temperature (usually 65 degree F) constitutes one heating degree day.

Heating System

See also [Adequate Heat](#)

Any component of a residential space-heating system which distributes heat (duct work, air handler, baseboard, pipes, or radiators), generates heat or controls combustion (furnace, boiler, space-heater, or safety controls), ventilates products of combustion (flue, vent pipe, and chimney), and stores and supplies fuel for the heating system (tank or fuel line).

HEPA Vacuum Cleaner

Vacuum cleaners delivered in the Weatherization + Health program shall be tested and approved under Carpet and rug Institute (CRI) Seal of Approval / Green Label program or deemed equivalent, with prior written Commerce approval. For example, many vacuums in the CRI SOA/GL program are not HEPA filter units, yet are very effective at dust containment. HEPA filters may add additional cost to the overall operational cost of the vacuum.

HEPA/MEPA Furnace Filter

Install only HVAC filters that are rated MERV 8 or higher according to ASHRAE 52.2-2007 (at approximately 295 fpm). True HEPA filters are typically rated MERV 17 to 19.

Managing the Low-Income Weatherization Program Definitions

From the EPA: True HEPA filters normally are not installed in residential HVAC systems; installing a HEPA filter in an existing HVAC system would probably require professional modification of the system. A typical residential air-handling unit and the associated ductwork would not be able to accommodate such filters because of their size and increased airflow resistance. Some residential HVAC systems may not have enough fan or motor capacity to accommodate higher efficiency filters.

Do not install any air-cleaning equipment designed to produce ozone (i.e., ozone generators).

High Limit

A bimetal thermostat that turns the heating element of a furnace off if it senses a dangerously high temperature.

High Residential Energy User

A low-income household whose residential energy expenditures exceed the median level of residential expenditures for all low-income households in the State. The median level is \$900. The annual energy expenditures of high residential energy users are greater than \$900 (>\$900).

House Pressure

The difference in pressure between the indoors and outdoors measured by a manometer.

Household

A group of individuals living in a dwelling unit.

Household with a High Energy Burden

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. The median level is six percent (6%). The annual energy burden of households with high energy burden is greater than six percent (>6.0%).

HVAC System Cleaning

Heating, Ventilation, and Air-Conditioning (HVAC) System Cleaning includes HVAC equipment (furnace filter replacement-washable or disposable; clean and tune), woodstove and woodstove chimney, ventilation distribution and ductwork systems. Agencies should evaluate whether it is truly necessary to and beneficial to conduct a full duct cleaning by a National Air Duct Cleaners Association (NADCA) certified firm.

Managing the Low-Income Weatherization Program Definitions

I

IC-Rated Fixture

A fixture that is rated and labeled for coverage with insulation.

Inch of Water

Small air pressure differences caused by wind, blower doors, furnace fans, and chimneys are measured in inches of water (in.-H₂O) in the American measurement system.

Incidental Repair Measure (IRM)

See [Weatherization-Related Repair](#).

Indoor Air Quality

See [Acceptable Indoor Air Quality](#).

Input Rating

The rate at which an energy-using device consumes electricity or fossil fuel.

Inspector

The person that conducts a quality assurance review of work completed, reviews the SOW for completeness and accuracy, and ensures all measures installed meet specifications. An Inspector performing final inspections for the Wx Program shall be certified as a Quality Control Inspector (QCI) by the Building Performance Institute (BPI).

Installation

Physical labor to set product in position or adjust for use. Excludes program support activities such as inspecting and auditing.

Installed Measures

See [Weatherization Measure \(WxM\)](#), [Health and Safety \(H&S\) Measure](#), and [Weatherization-Related Repair \(WRR\) Measure](#)

Installed Measure Costs

Contractor: Verifiable contractor costs (including material and labor costs) to install Weatherization Measures (WxM), Health and Safety (H&S) Measures, or Weatherization-Related Repair (WRR) Measures (total contractor bill).

Crew: Verifiable material and labor costs to install Wx Measures, H&S Measures or WRR Measures.

Managing the Low-Income Weatherization Program Definitions

Installer

The person performing Weatherization (Wx) work and installing a measure(s).

Insulation

See [R-value](#)

A material with high resistance (R-value) to heat flow that when placed in the walls, ceiling or floors of a building will reduce the rate of heat flow. In buildings, insulation usually refers to material placed between the interior of a building (in the roof below the waterproofing layer or in the ceiling of the top floor in the building or between the exterior and interior walls of a building) and the outdoor environment to reduce the rate of heat loss to the environment or heat gain from the environment. Some commonly used materials for home insulation are fiberglass, cellulose, rock wool, and styrofoam. The resistance to heat flow is provided by the many small dead air spaces between the fibers or particles. Insulation comes in a variety of forms; blankets, or batts, foam, boards, or small loose pieces.

Intermittent Ignition Device

A device that lights the pilot light on a gas appliance when the control system calls for heat thus saving the energy wasted by a standing pilot.

J

Jalousie Windows

A window consisting of several slats of glass that open simultaneously by means of a crank (similar to Venetian blinds).

K

Knee Wall

A short vertical wall in a story and a half dwelling unit.

Knob-and-Tube Wiring

A wiring method used primarily from 1900 to 1930, characterized by the use of two parallel wires supported on insulated glass or porcelain knobs and tubes.

L

Labor Costs

The cost of construction to install weatherization materials including wage, fringe, and tax.

Managing the Low-Income Weatherization Program Definitions

Lead-Based Paint

Paint that contains one (1.0) milligram per square centimeter or 5000 micrograms per gram or 0.5 percent lead by weight.

Lead De-minimus Level

The amount of disturbed lead-based paint area of a given painted surface which does not exceed six (6) square feet per room of interior surfaces or 20 square feet of exterior surfaces.

Lead Level 1 Containment

Methods that prevent dust generation and contains all debris generated during work process. The containment establishes the work area which shall be kept secure. At a minimum, this may include: Use of hand tools; Working wet (water mist or foam); Shrouded power tools; "Bubble dust bags;" Catchment poly bags; Placing 6 mil polyethylene sheeting immediately below the work area.

Lead Level 2 Containment

Methods that define a work area that will not allow any dust or debris from work area to spread. Requires the covering of all horizontal surfaces, constructing barrier walls, sealing doorways and windows, covering HVAC registers, etc. to prevent the spread of dust and debris.

Lead-Safe Weatherization (LSWx)

Work protocols to reduce and control the amount of lead dust and paint chips generated when disturbing surfaces that may have lead-based paint.

Lead-Safe Weatherization Worker (Certified)

Worker that has completed the Lead-Safe Weatherization and Work Practices based on the Montana State University (MSU) curriculum, and is a Renovation, Repair, and Painting Certified Renovator.

Leveraging

Using funds from an allowable leveraging fund source to pay for the portion (overage) of a Weatherization Measure (WxM) which does not achieve the required Savings-to-Investment Ratio (SIR) target of 1.0. This qualifies the WxM and allows the federal fund source investment to achieve the $SIR \geq 1.0$.

Leveraging Costs

Funds used for leveraging activities in accordance with the 10 CFR 440.14(b) (9) (xiv), such as utility funds.

Managing the Low-Income Weatherization Program Definitions

Leveraging Fund Sources

Examples of allowable leveraging fund sources include, but are not limited to: approved utility contributions and Washington State Weatherization Plus Health (State) Funding.

The following Commerce administered federal sources do not qualify as leverage: Bonneville Power Administration (BPA), United States Department of Energy (DOE), or United States Department of Health and Human Services (HHS) Low Income Home Energy Assistance Program (LIHEAP).

Liability Insurance Costs

Costs for insurance policies to cover local agencies for regular liability with General Liability Insurance and specific health and safety issues with Pollution Occurance Insurance (POI).

Local Agency

A community-based agency, nonprofit agency, local government, or tribe that carries out the objectives of the low-income weatherization program.

Low-cost/No-cost

Program term for relatively inexpensive conservation devices that can be easily installed by the weatherization client, (i.e., compact fluorescent bulbs, low-flow shower heads and aerators and door weather-stripping). See **Policy 5.1.5, *Low-Cost/No-Cost and General Heat Waste Reduction***

Low-cost/No-cost Costs

Low-Cost/No-Cost weatherization activities provide relatively inexpensive conservation devices that can be easily installed by the weatherization client, (i.e., LED bulbs, low-flow shower heads and aerators, and door weather-stripping).

Lower Explosive Limit (LEL)

The minimum concentration of combustible vapor or combustible gas in a mixture of the vapor or gas and gaseous oxidant above which propagation of flame will occur on contact with BPI-1200-S-2017 Standard Practice for Basic Analysis of Buildings 38 an ignition source. Also referred to as Lower Flammable Limit.

Managing the Low-Income Weatherization Program Definitions

M

Major Measure

A high priority Weatherization Measure (energy efficiency 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.

Exception: If not using DOE funding, a Major Measure may also include a Heating System Replacement if the existing system is either failing or is a 70% efficient gas furnace.

Make-up Air

Air supplied to a space to replace exhausted air.

Manometer

Measuring device for small gas pressures.

Manufactured Home

A single-family dwelling built according to the United States department of housing and urban development manufactured home construction and safety standards act, which is a national preemptive building code. A manufactured home also: (a) Includes plumbing, heating, air conditioning, and electrical systems; (b) is built on a permanent chassis; and (c) can be transported in one or more sections with each section at least eight feet wide and forty feet long when transported, or when installed on the site, is three hundred twenty square feet or greater.

Master Control System

A living record that tracks inventories of equipment, materials, and supplies including but not limited to: purchases, installations, transfers, and disposals.

Material Costs

The cost of purchase and delivery of weatherization materials.

Materials Inventory

All consumable products purchased for installation of weatherization measures and related repairs that are kept on hand for future use. Materials may include insulation, caulk, wood, glass, heating/ventilation components, hardware, and related supplies.

Mechanical Air Changes

The number of air changes per hour occurring in a dwelling unit as a result of air movement that is assisted with mechanically operated fans.

Managing the Low-Income Weatherization Program Definitions

Mechanical Ventilation (exhaust only)

Follow specifications in *ASHRAE Standard 62.2 - 2016* and see **Policy 9.3, Indoor Air Quality – Mechanical Ventilation**.

Mediation

A process whereby a neutral person assists disputing parties in reaching a mutually acceptable resolution. Process is outside the court system and not legally binding. See [Arbitration](#).

Minimum Ventilation Level (MVL)

See [Building Airflow Standard \(BAS\)](#)

Mitigation

See [Abatement](#), [Remediation](#), and [Complete Removal](#)

In Weatherization, we generally use these terms to address improving hazards, such as Mold, Lead, Asbestos, or Radon.

The action of reducing the severity, seriousness, or painfulness of something. Mitigate the hazard by doing the minimum required to enable installation of the Weatherization measure.

Mobile Home

A factory-built dwelling built prior to June 15, 1976, to standards other than the United States Department of Housing and Urban Development Code, and acceptable under applicable state codes in effect at the time of construction or introduction of the home into the state. Mobile homes have not been built since the introduction of the United States Department of Housing and Urban Development Manufactured Home Construction and Safety Act.

Modular Home

See [Factory-built Housing](#).

Moisture Problem

Any condition which, if left unattended will allow moisture in any state (liquid, vapor, or ice) to damage the dwelling structure. Evidence of moisture problems includes, but is not limited to, visible rot, mold, peeling paint, swollen/bulged/soft building materials and/or discoloration of building component surfaces.

Mold and Moisture Reduction

Local Agencies may mitigate mold and moisture issues by installing a dehumidifier, dehumidistat, or perform incidental leak repair. Also see **Policy 9.6, Biologicals and Unsanitary Conditions, including Mold and Moisture**

**Managing the Low-Income Weatherization Program
Definitions**

Mortar

A mixture of sand, water, and cement used to bond bricks, stones, or blocks together.

Multifamily Dwelling

See [Dwelling Unit – Multifamily \(MF\)](#)

N

Native American

A person who is of American Indian heritage, is of Alaska Native heritage, or a member of an Indian Tribe.

Natural Air Changes

The number of air changes per hour occurring in a dwelling unit as a result of natural air movement (i.e., without any assistance from mechanical fans).

Net Free Area

The area of a vent after that area has been adjusted for insect screen, louvers, and weather coverings. The free area is always less than the actual area.

Noncombustible Material

Materials that pass the test procedure for defining noncombustibility of elementary materials set forth in ASTM E 136.

O

Open-combustion Heater

A heating device that takes its combustion air from the surrounding room air.

Orphaned Natural Draft Water Heater

A natural draft water heater vented into an oversized chimney.

Other Program Operation Costs

The Program Operation costs NOT included in [Building Costs](#), including [Financial Audit Costs](#), [Liability Insurance Costs](#), and [Leveraging Costs](#).

Oxygen Depletion Sensor (ODS)

A safety device for unvented combustion heaters that shuts gas off when oxygen is depleted.

Managing the Low-Income Weatherization Program Definitions

P

Pascal

A unit of measurement of air pressure. See [Inch of Water](#).

Persons with Disabilities

Persons with any disease, disability, or impairment substantially interfering with their ability to function in society. Any medically determinable physical or mental impairment shall qualify if it has lasted for a continuous period of not less than 12 months, or can be expected to last for 12 months, or result in death.

For further direction, refer to Section 7(6) of the Rehabilitation Act of 1973; Section 1614(a) - Section (3)(A) or 223(d) of the Social Security Act; Section 102(7) of the Developmental Disabilities Services and Facilities Construction Act; or Chapter 11 or 15 of Title 38, United States Code.

Individuals with disabilities are defined as persons with a physical or mental impairment that substantially limits one or more major life activities. People who have a history of, or who are regarded as having a physical or mental impairment that substantially limits one or more major life activities, are also covered. Major life activities include caring for one's self, walking, seeing, hearing, speaking, breathing, working, performing manual tasks, and learning. Some examples of impairments which may substantially limit major life activities, even with the help of medication or aids/devices, are: AIDS, alcoholism, blindness or visual impairment, cancer, deafness or hearing impairment, diabetes, drug addiction, heart disease, and mental illness.

Pest Mitigation

Commerce encourages the use of an Integrated Pest Management (IPM) program. The goal of IPM is to control pests by the most economical long term means, and with the least possible hazard to people, property, and the environment. Local Agencies can refer to EPA Pesticide Environmental Stewardship Program (PESP) for additional details. See also **Policy 9.11, Pests**

Plenum

The piece of ductwork that connects the air handler to the main supply duct.

Power-vented Combustion Appliance

An ANSI Category IV appliance. An appliance that operates with a positive vent static pressure and with a vent gas temperature that may cause excessive condensate production in the vent.

Managing the Low-Income Weatherization Program Definitions

Prescriptive Air Sealing

Air seal all penetrations bigger than 1/16th inch in diameter; including but not limited to: top plate, chimneys, ducting, exhaust penetrations, plumbing penetrations, electrical penetrations, recessed lights.

Pressure

A force encouraging movement by virtue of a difference in some condition between two areas.

Pressure Boundary

An air barrier; usually the primary air barrier, most effective when aligned with a thermal boundary.

Pressure Pan Testing

The process of testing air leakage in duct systems using a device to block a duct register while measuring the static pressure behind the device during a blower door test.

Priority Air Sealing

Air sealing that addresses the major and obvious holes in the pressure boundary, typically visible holes in the walls and ceilings of the building envelope.

Priority List

See [Deemed Measures Priority List \(DMPL\)](#)

Private, Federally Subsidized Housing

Units owned by a private developer who received financial benefits from the government to develop the project.

Privately-Owned Subsidized Housing

Units with project-based subsidies.

Program Operations Costs

Costs that can be clearly identifiable with a program. Includes the following costs:
1. Weatherization Measures; 2. Health and Safety Measures; 3. Weatherization-Related Repair Measures; 4. Program Support; 5. Vehicle and Equipment; and
6. Other Program Operations (Financial Audit, Liability Insurance, and Leveraging.)

Program Support Costs

Costs directly associated with the Weatherization program, but not directly associated with a specific Weatherization building, including Audit and Inspection costs and Consumer Conservation Education costs.

Managing the Low-Income Weatherization Program Definitions

Program File

The file that contains documents required for the administration of a weatherization program.

Project File

See [Client File](#), for Single-family

The file that contains documents, electronic records, or file references specific to the work on a Multifamily building or multiple buildings that comprise a Weatherization Project. All information shall be readily available for monitor, inspector, or auditor review.

Public Housing

Units owned by a public housing authority where tenants pay a percentage of income for rent and utilities.

Q

Qualified Alien (Documented Immigrant)

A client or household member that meets any of the listed Immigration Statuses and provides the associated verification documentation. See **Exhibit 1.3.1F, Documented Immigrant (Qualified Alien) Documents** for a list of acceptable documents.

R

Recommendations

Suggestions to assist with compliance of program requirements or to enhance or improve service. These are significantly less serious and may be communicated verbally to the agency during the course of monitoring (on-site technical assistance) or the exit conference.

Recreational Vehicle

A travel trailer, motor home, truck camper, or camping trailer that is primarily designed and used as temporary living quarters, is either self-propelled or mounted on or drawn by another vehicle, is transient, is not occupied as a primary residence, and is not immobilized or permanently affixed to a mobile home lot.

Red-Tagged

The authority having jurisdiction determines correction is required, equipment is unsafe to operate, building is unsafe to occupy, and a stop work order is issued.

Managing the Low-Income Weatherization Program Definitions

Remediation

See [Abatement](#), [Mitigation](#), and [Complete Removal](#)

In Weatherization, we generally use these terms to address improving hazards, such as Mold, Lead, Asbestos, or Radon.

The action of remedying something, in particular of reversing or stopping environmental damage. Remediate, or abate the hazard by handling the hazardous material and doing the mid-level effort required, such as: partial removal, encapsulation, repair, enclosure, or encasement to enable installation of the Weatherization measure.

Remove Toxic Household Chemicals

Local Agencies shall have the owner/tenant approval to remove toxic chemicals from the home. Local Agencies shall also dispose of toxic chemicals properly.

Rent Rolls (Centralized Records)

Centralized records verifying income eligibility of multifamily building occupants.

Rent Rolls contain: 1) Property name and address; 2) Apartment number; 3) Household size (*eligible household members*); 4) Total household income; 5) Income certification date; 6) Demographic information (if possible); 7) Vacant units listed; 8) Or other data points or data formats approved by Commerce.

Return Air

Air circulating back to the furnace from the house, to be heated by the furnace and supplied to the rooms.

Reweathering

To install or provide materials for a dwelling unit previously weatherized.

R-value

See [Insulation](#)

Unit of resistance to heat flow, expressed as temperature difference required to cause heat flow through a unit area of a building component or material at a rate of one (1) heat unit per hour. R-value ranges from 1 to 60 that refers to the insulation's ability to resist heat flow, affected by the insulation's coverage, density, and airflow near and through the insulation and water presence within the insulation.

Room Heater

A heater located within a room and used to heat that room.

Roomer/Boarder

An individual who lives in an owner-occupied unit or lease-allowed sublet and meets all of the following conditions: makes one fixed monthly payment that includes rent, heat, and

Managing the Low-Income Weatherization Program Definitions

other utility costs; can provide a written lease agreement and proof of boarding payment; and is not related to any household member by blood, marriage, or through adoption. Tenants of housing managed by community-based treatment programs and who meet all of the above conditions shall be considered as roomers/boarders. See [Household](#).

S

Savings-to-Investment Ratio (SIR)

The measurement of how many times an energy retrofit pays for itself during an established lifetime. The ratio is the lifetime savings-to-initial investment. SIR of one or greater ($SIR \geq 1$) indicates cost-effective investment.

Sealed-Combustion Appliance

An appliance that draws all combustion air from outdoors and has a sealed exhaust system.

Sealed-Combustion Heater

A heater that draws all combustion air from outdoors and has a sealed exhaust system.

Shall

Required. Mandatory.

Single-Family Dwelling

A structure containing no more than one dwelling unit.

Signature

A person's handwritten name or other mark signifying and documenting confirmation and consent. To satisfy the Wx Program signature(s) requirement on the Household Information Form (HIF); Informed Consent; receipt of information (client education, warranties, observed conditions, hazards, and test results, as applicable); Owner/Agency Agreements; client authorization of measure installation; scope of work confirmation; permission to proceed; and Wx Project completion verification the following formats are allowable:

Original signature, verified electronic signature, digital signature, scanned signature, typed signature with a statement "this typed signature indicates my confirmation and consent." Local Agencies shall develop and follow written quality control procedures.

Exception: In some instances of information receipt, when clients decline or are unavailable to sign, Local Agencies or subcontractors can document their good faith effort to deliver information (date, time, and delivery method attempts) and certify it with their signature.

Managing the Low-Income Weatherization Program Definitions

Site Work

See [Installation](#).

Slip, Trip, and Fall Hazards Prevention

For clients with documented fall injuries, mobility issues, or slip, trip, and fall hazards that put them at risk for future injuries, Local Agencies may install handrails, grab bars, shower mat, or build ramps (limited) or fix irregular steps (limited).

Smoke Detector

A fire-protection device that automatically detects and gives a warning of the presence of smoke. See **Policy 9.5, Smoke Detectors, Carbon Monoxide (CO) Detectors, & Fire Extinguishers**

Solid Fuel Burning Appliance System

Any appliance that burns solid fuel; for example, coal, pellets, and wood.

Sone

A subjective unit of loudness for an average listener equal to the loudness of a 1000-hertz sound that has an intensity 40 decibels above the listener's own threshold of hearing.

The sone was proposed as a unit of perceived loudness by Stanley Smith Stevens in 1936. In acoustics, loudness is the subjective perception of sound intensity. The ventilation industry uses sones as a way of measuring how loud a fan is in range hoods. As a unit of reference 6 sones is the level that we typically speak at when seated around a conference table. Keep in mind that noise is a subjective thing which varies depending upon a person's tolerance to such.

The following table compares decibels to sones.

dBA										
sones										

Another point of reference that may be helpful is comparing sones to the decibel level of dishwashers. Many entry level dishwashers operate at close to 60 decibels. Units that are rated as some of the quietest are going to be in the mid to upper 40 decibel level.

Keep in mind that an additional 10 decibels is twice as loud.

Space-Heater

A free-standing or self-contained unit that: generates and delivers heat to a local zone; may be permanently installed or portable; and is characterized by a lack of pipes or duct work for distributing heat through the building. Examples of individual space-heaters include

Managing the Low-Income Weatherization Program Definitions

electric baseboards, electric radiant or quartz heaters, heating panels, gas- or kerosene-fired unit heaters, wood stoves, and infrared radiant heaters.

Space-Heating

Heating the living spaces of the home with a room heater or central heating system.

Spillage

The temporary flow of combustion gases from a dilution device.

Stack Effect

The draft established in a building from air infiltrating low and exfiltrating high.

Stand-Alone Natural Draft Water Heater

A natural draft water heater vented into a properly-sized chimney in accordance with NFPA 31 for oil-fired units, NFPA 54 for gas-fired units, NFPA 58 for propane-fired units and NFPA 211 for solid-fueled units or the venting tables of a chimney liner manufacturer.

Steady-state Efficiency

The efficiency of a heating appliance, after an initial start-up period, that measures how much heat crosses the heat exchanger. A combustion analyzer measures the steady-state efficiency.

Steady-state Operating Condition

The typical operating condition of a heating appliance after it has gone through its initial start up period.

Subcontractor

An individual, partnership, corporation, or other similar entity that performs Weatherization work, installs measures, and carries liability insurance and assurance bonding for all work performed for Local Agencies. All entities acting as subcontractors shall possess either a state contractor's or similar license and meet training and certification requirements.

Subsidized Housing

Housing for which the monthly shelter costs of the occupants are determined according to income (such as 30 percent of monthly income) and may cover only rent or include some utility costs.

Supply Air

Air that has been heated or cooled and is then moved through the ducts and out the supply registers of a home.

**Managing the Low-Income Weatherization Program
Definitions**

T

Technical Assistance

Technical information that is exchanged throughout the course of the monitoring visit. TA may be offered in any area being reviewed, however, often times much of this occurs during the course of inspecting the projects.

Thermal Boundary

The plane of a building envelope where insulation is installed to minimize heat flow, most effective when aligned with a pressure boundary.

Training and Technical Assistance Costs

Costs for Training and Technical Assistance in compliance with **Policy 6.5, *Training and Technical Assistance***.

TREAT: Targeted Retrofit Energy Analysis Tool

A computerized tool that is the DOE authorized Weatherization energy analysis tool used during an energy audit that assists in determining cost-effectiveness of anticipated conservation measures for a dwelling unit.

U

Unconditioned Basement

A basement that is intentionally not heated or cooled.

Unintentionally Conditioned Basement

A basement that is heated or cooled unintentionally; typically getting residual heat or cooling from a conditioned space or from conditioning equipment located in the basement.

Utility-Funded Measure

Any Wx measure where installation labor and measure costs are fully paid for with utility funds (or any Wx measure where installation labor and measure costs are fully paid for with other than Commerce-administered Wx funds (DOE, BPA, LIHEAP, and State)).

Utility-Funded Project

Any Wx project where installation labor and measure costs are fully paid for with utility funds (or any Wx project where installation labor and measure costs are fully paid for with other than Commerce-administered Wx funds (DOE, BPA, LIHEAP, and State)).

Utility Funding

Any funds from a utility.

**Managing the Low-Income Weatherization Program
Definitions**

UV Resistant

Materials that are resistant to degradation caused by ultra-violet light rays.

V

Vapor Retarder

A material that retards the passage of water vapor.

Vent Connector

The vent pipe carrying combustion gases from the appliance to the chimney.

Vent Draft Pressure

The pressure in a vent with reference to either the outside or within combustion appliance zone, measured in Pascals.

Vent Damper

An automatic damper powered by heat or electricity that closes the chimney while a heating device is off.

Venting

The removal of combustion gases by a chimney.

W

Walk-off Door Mat

To reduce dirt in homes, use walk-off door mats at the entrance. The mat should be long enough so that you can walk across with both feet before entering the house, with the width no wider than the door itself. Outside mats are usually made of rubber. For extremely muddy areas, use metal, wire, or brushes to scrape boots. Avoid coco fiber mats as they shed and track loose fibers into the home. Also avoid rope or wood mats as they are a depository for microbes and pollutants.

Water heater Temperature Adjustment

For Weatherization energy savings, hot water temperature shall be set to no higher than 120 degrees Fahrenheit per Washington RCW 19.27A.060. For documented health conditions, the water heater temperature may be adjusted. Document action and justification in client file (project file).

Weatherization Audit

The process of identifying energy conservation opportunities in building.

Managing the Low-Income Weatherization Program Definitions

Weatherization Materials

Those materials listed in Appendix A of the DOE WAP for Low-Income Persons Final Rule, 10 CFR Part 440. Materials for Weatherization-related repairs do not have to be listed in Appendix A, but should be at least equal to or better than industry standard practices.

Weatherization Measure (WxM) – Energy Conservation Measure (ECM)

See [Cost-Effective](#)

Energy efficiency measures (building shell and equipment) determined to be cost-effective in Commerce standards.

Weatherization Measure Costs

See [Installed Measure Costs](#)

The Installed Measure Costs for a Weatherization Measure (WxM).

Weatherization Plus Health (Wx+H) Program

A program, working in conjunction with the Weatherization Program which addresses health conditions and hazards within a home, similar to Healthy Homes. Wx+H Projects include, but are not limited to improving the following health and hazard issues: Asthma and Allergies, Hazardous Household Products, Indoor Air Quality, Lead Poisoning, Mold & Moisture Control, and Pest Management.

Wx+H Client Education:

Local Agencies shall deliver structured and consistent information for Wx+H client education that addresses at a minimum the following: Asthma and Allergies, Hazardous Household Products, Indoor Air Quality, Lead Poisoning, Mold & Moisture Control and Pest Management.

Wx+H Comprehensive Projects:

Projects receiving both Weatherization (Wx) Services (Wx Measures with Wx funding) and Weatherization Plus Health (Wx+H) Services (+H Measures with Wx+H funding).

Wx+H Stand-Alone Plus-Health Projects:

Projects receiving Weatherization Plus Health (Wx+H) Services (Plus Health (+H) Measures with Wx+H funding), without receiving Weatherization Services.

Wx+H Stand-Alone Plus-Health - Low-Cost/No-Cost Projects:

Projects receiving Weatherization Plus Health (Wx+H) Services (Plus Health (+H) Client Education and Plus Health (+H) Low-Cost/No-Cost Measures with Wx+H funding, expenditures for materials of less than \$500 per unit), without receiving Weatherization Services.

Managing the Low-Income Weatherization Program Definitions

Wx+H Stand-Alone Plus-Health MF Projects:

Multifamily projects receiving Weatherization Plus Health (Wx+H) Services (Plus Health (+H) Measures with Wx+H funding), without receiving Weatherization Services.

Weatherization Readiness (WRed) Measure

Necessary repair or correction to physical building related issues required to move Wx Projects forward to completion, not necessarily directly related to energy efficiency measures.

Weatherization-Related Repair (WRR) Measure - Incidental Repair Measure (IRM)

Repairs necessary for the effective performance or preservation of weatherization materials. Such minor repairs include, but are not limited to: framing or repairing windows and doors which could not otherwise be caulked or weather-stripped, roof, floor, plumbing, and electrical repairs. The cost of WRR (incidental repairs) shall be included in the cost of the package of measures installed in a dwelling.

Weatherization-Related Repair Measure Costs

See [Installed Measure Costs](#)

The Installed Measure Costs for Weatherization-Related Repairs (WRR) Measures.

Weatherized Unit

See [DOE Weatherized Unit](#)

A dwelling on which a DOE-approved energy audit or the *Deemed Measures Priority List* has been applied and weatherization work has been completed. As funds allow, the Wx measures installed on this unit have a Savings-to-Investment Ratio (SIR) of 1.0 or greater, but also may include any necessary energy-related health and safety measures.

Weatherization Work Begins

Weatherization work begins on the date of the project's initial energy audit.

Workflow

A sequence of Weatherization (Wx) work or systematic organization of physically installing measures from initiation to completion in which previous completed tasks are not disturbed.

Example: Complete repair or air sealing prior to covering with insulation.

**Managing the Low-Income Weatherization Program
Definitions**

Worst-case Depressurization Test

A safety test, performed by specific procedures, designed to assess the probability of chimney backdrafting. The specific procedures include a systematic setup of the dwelling unit in a configuration most likely to cause a combustion appliance to backdraft or spill exhaust gases into the dwelling unit.

Y

Young Children

Children less than six years of age.

Z

Zonal Pressure Testing

The use of pressure measurements to compare relative tightness or hole size of different surfaces and zones of a dwelling unit.

Zone

A room or portion of a building separated from other rooms by an air barrier, not usually an effective air barrier.

Exhibit 1.2.3A

Percentage of Native American Low-Income Households			
Agency	% By County		Federally Recognized Tribe(s)
Benton-Franklin Community Action Council	Benton	1.55%	
	Franklin	0.87%	
Blue Mountain Action Council	Columbia	0%	
	Garfield	2.25%	
	Walla Walla	1.31%	
Chelan-Douglas Community Action Council	Chelan	3.12%	
	Douglas	2.15%	
City of Seattle Office of Housing-HomeWise Program	City of Seattle		
Clark County Department of Community Services	Clark	2.30%	
Coastal Community Action Program	Grays Harbor	9.01%	Chehalis Confederated/Quinault Nation Shoalwater Bay
	Pacific	4.36%	
Community Action Partnership	Asotin	1.94%	
Community Action Center of Whitman County	Whitman	0.64%	
Community Action Council of Lewis, Mason & Thurston Counties	Lewis	2.80%	Skokomish/Squaxin Island Chehalis Confederated/Nisqually
	Mason	8.26%	
	Thurston	4.04%	
Housing Authority of Skagit County	Skagit	3.89%	Samish Nation/Sauk-Suiattle/Swinomish/Upper Skagit
King County Housing Authority	King	1.17%	Muckleshoot/Snoqualmie
Kitsap Community Resources	Kitsap	4.52%	Port Gamble S'Klallam/Suquamish
Kittitas County Action Council	Kittitas	1.70%	
Klickitat-Skamania Development Council	Klickitat	7.62%	Yakama Nation
	Skamania	6.73%	

Exhibit 1.2.3A
Percentage of Native American Low-Income Households
Page 2 of 2

Percentage of Native American Low-Income Households			
Agency	% By County		Federally Recognized Tribe(s)
Lower Columbia Community Action Council	Cowlitz	4.49%	Cowlitz
	Wahkiakum	2.31%	
Metropolitan Development Council	City of Tacoma		
North Columbia Community Action Council	Adams	0.90%	
	Grant	3.50%	
	Lincoln	5.12%	
Olympic Community Action Programs	Clallam	9.32%	Jamestown S'Klallam/Lower Elwha Klallam/Makah/Quileute
	Jefferson	5.98%	Hoh
Rural Resources Community Action	Ferry	29.74%	Colville Confederated
	Pend Oreille	4.21%	Kalispel
	Stevens	10.90%	Spokane
Okanogan County Community Action Council	Okanogan	15.30%	Colville Confederated
Pierce County Community Action Programs	Pierce	1.78%	Puyallup
Snohomish County Human Services Department	Snohomish	4.07%	Stillaguamish/Tulalip
Spokane Neighborhood Action Programs	Spokane	3.78%	
The Opportunity Council	Island	1.80%	Lummi Nation/Nooksack
	San Juan	2.50%	
	Whatcom	5.05%	
Yakima Valley Farm Workers Clinic	Yakima County	5.25%	Yakama Nation
	S. of Union Gap		
Opportunities Industrialization Center of Washington	Yakima County N. of Union Gap	0.89%	Yakama Nation

Data compiled from the 2000 Census, Households at 125% Poverty.

Income and Residence Verification Checklist

I certify that I have seen the following documentation for:

Head of Household

Applicant Address, City, State, Zip

Agency Representative _____
Date

Income Documentation	Source of Verification
Pay stubs for all earned income	
Employer statement and phone number	
Pensions/retirements	
Veteran's benefits	
Educational grants	
Interest	
L & I statement	
Divorce decree(s)	
Child support received/paid	
TANF	
GAU	
SSI	
Social Security	
Bank statement/award letter for months of:	
Other	
Residence Documentation	Source of Verification
Deed/title	
Lease/rental agreement	
Subsidized housing lease	
Tax statement	
Other	

Exhibit 1.3.1B

Washington State Department of Commerce, Low Income Home Energy Assistance Program (LIHEAP)
HOUSEHOLD INFORMATION FORM (HIF) (7/2016)

*Agency:	Assistance Provided: <input type="checkbox"/> *Energy Assistance OR <input type="checkbox"/> *Crisis - Imminent OR <input type="checkbox"/> *Crisis - No Heat <input type="checkbox"/> Other Emergency Services <input type="checkbox"/> Conservation Education	<input type="checkbox"/> Interested in Weatherization <input type="checkbox"/> Tribal Member <input type="checkbox"/> Received Food Assistance <input type="checkbox"/> Heat with rent <input type="checkbox"/> Received EAP last program year	File Number:
*County:			Certification Date:
SECTION A: Household Contact & Eligibility Information			
*Primary Applicant:			
(Last Name)		(First Name)	
(Middle Initial)			
*Residence Address:			
City, State, Zip:			
Mailing Address: (If different)			
City, State, Zip:			
Phone Number: () -		Message Phone: () -	
		Lived at Residence:	
		Years: Months:	
*Housing Status:	*Housing Type:	*Income/Benefits:	*Total Number of People in the Household:
1 <input type="checkbox"/> Own/buy 2 <input type="checkbox"/> Subsidized 3 <input type="checkbox"/> Rental 4 <input type="checkbox"/> Roomer/Boarder 5 <input type="checkbox"/> Temp Housing	1 <input type="checkbox"/> 1-3 Family 2 <input type="checkbox"/> 4+ Family 3 <input type="checkbox"/> Hi-Rise 4 <input type="checkbox"/> Mobile 5 <input type="checkbox"/> RV	<input type="checkbox"/> SSI <input type="checkbox"/> Earned Income <input type="checkbox"/> TANF <input type="checkbox"/> Pension <input type="checkbox"/> GA <input type="checkbox"/> Self Employed <input type="checkbox"/> VA <input type="checkbox"/> Child Support <input type="checkbox"/> Soc. Sec. <input type="checkbox"/> Unemployment <input type="checkbox"/> Military <input type="checkbox"/> Other	
Cost per Month: \$	Number of Bedrooms:		*Household's Monthly Income: \$
Target Group #1: <input type="checkbox"/> Yes <input type="checkbox"/> No	*Primary Heat Source:	*Annual Heat Cost: \$ _____	<input type="checkbox"/> Back Up Heat Cost
Target Group #2: <input type="checkbox"/> Yes <input type="checkbox"/> No	1 <input type="checkbox"/> Electric 4 <input type="checkbox"/> Oil 2 <input type="checkbox"/> Natural Gas 5 <input type="checkbox"/> Wood 3 <input type="checkbox"/> Propane 6 <input type="checkbox"/> Coal	Total Energy Cost: \$ _____	<input type="checkbox"/> Used Surrogate Data
		*Total Annual Electric Costs: \$ _____	
SECTION B: Energy Assistance (EAP)			
Staff: _____		P.O.#: _____	
Payment to Vendor(s):		HOUSEHOLD ELIGIBILITY AMOUNT: \$ _____	
#1 _____ Acct. #: _____		Direct Pay to Applicant: \$ _____	
#2 _____ Acct. #: _____		\$ _____	
		TOTAL EAP PAID TO DATE: \$ _____	
SECTION C: Other Emergency Services (OES)			
Staff: _____		P.O.#: _____	
Heat System: Repairs <input type="checkbox"/>	Vendor #: _____	\$ _____	
Replacement <input type="checkbox"/>	Vendor #: _____	\$ _____	
Other Repairs & Services:	Vendor #: _____	\$ _____	
	Vendor #: _____	\$ _____	
Shelter Assistance:	Vendor #: _____	\$ _____	
		TOTAL OES PAID TO DATE: \$ _____	

I certify that I have provided and reviewed all information on each page of this document and it is accurate to the best of my knowledge. I understand that I may be subject to criminal prosecution if I have knowingly provided false information. I further understand that I may request a Fair Hearing if the provision of the above information is not acted on to determine my eligibility within a reasonable time or if I do not receive benefits for which I feel I am eligible. I give my permission for this agency and Washington State Department of Commerce (COMMERCE) to request/release necessary information that may result in my receiving benefits from this assistance request and from similar and related programs administered by the State of Washington, including food assistance. I also give the above listed heating vendor(s) permission to establish a line of credit, and/or to release my account information to this agency or COMMERCE for current and future data analysis and eligibility determination. I understand that provision of my social security number is necessary to avoid duplicate energy assistance benefit payments to the same applicant household. I hereby authorize energy program staff to also use my social security number for income verification purposes (including Employment Security Unemployment Insurance and DSHS Food Assistance). I further authorize this agency and COMMERCE to use my personal information within their organizations for the purpose of identifying and reporting unduplicated non-personal applicant data.

***Applicant Signature:** _____ **Date:** _____
(Note: All fields designated with an (*) are required information.)

Exhibit 1.3.1B

Washington State Department of Commerce, Low Income Home Energy Assistance Program (LIHEAP)
Household Member Information Form (7/2016)

*Last Name		*First Name		MI	*SSN (required if primary)	*DOB	
*Relation to Primary <input type="checkbox"/> Self <input type="checkbox"/> Spouse <input type="checkbox"/> Partner <input type="checkbox"/> Child <input type="checkbox"/> Other Relative <input type="checkbox"/> Other Non-Relative		*Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		Race <input type="checkbox"/> American Indian or Alaskan Native <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American <input type="checkbox"/> Native Hawaiian or Other Pacific Islander <input type="checkbox"/> White <input type="checkbox"/> Multi-Race <input type="checkbox"/> Other		Education (24 Years or Older) <input type="checkbox"/> 0-8 <input type="checkbox"/> 9-12 Non-Graduate <input type="checkbox"/> High School Graduate/GED <input type="checkbox"/> 12+ Some Post-Secondary <input type="checkbox"/> 2 or 4 Year College Graduate Included in Calculation <input type="checkbox"/> Yes <input type="checkbox"/> No	Disabled <input type="checkbox"/> Yes <input type="checkbox"/> No Military Veteran <input type="checkbox"/> Yes <input type="checkbox"/> No Health Insurance <input type="checkbox"/> Yes <input type="checkbox"/> No
*Last Name		*First Name		MI	*SSN (required if secondary)	*DOB	
*Relation to Primary <input type="checkbox"/> Spouse <input type="checkbox"/> Partner <input type="checkbox"/> Child <input type="checkbox"/> Other Relative <input type="checkbox"/> Other Non-Relative Secondary Applicant <input type="checkbox"/> Yes <input type="checkbox"/> No		*Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		Race <input type="checkbox"/> American Indian or Alaskan Native <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American <input type="checkbox"/> Native Hawaiian or Other Pacific Islander <input type="checkbox"/> White <input type="checkbox"/> Multi-Race <input type="checkbox"/> Other		Education (24 Years or Older) <input type="checkbox"/> 0-8 <input type="checkbox"/> 9-12 Non-Graduate <input type="checkbox"/> High School Graduate/GED <input type="checkbox"/> 12+ Some Post-Secondary <input type="checkbox"/> 2 or 4 Year College Graduate Included in Calculation <input type="checkbox"/> Yes <input type="checkbox"/> No	Disabled <input type="checkbox"/> Yes <input type="checkbox"/> No Military Veteran <input type="checkbox"/> Yes <input type="checkbox"/> No Health Insurance <input type="checkbox"/> Yes <input type="checkbox"/> No
*Last Name		*First Name		MI	SSN	*DOB	
*Relation to Primary <input type="checkbox"/> Spouse <input type="checkbox"/> Partner <input type="checkbox"/> Child <input type="checkbox"/> Other Relative <input type="checkbox"/> Other Non-Relative		*Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		Race <input type="checkbox"/> American Indian or Alaskan Native <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American <input type="checkbox"/> Native Hawaiian or Other Pacific Islander <input type="checkbox"/> White <input type="checkbox"/> Multi-Race <input type="checkbox"/> Other		Education (24 Years or Older) <input type="checkbox"/> 0-8 <input type="checkbox"/> 9-12 Non-Graduate <input type="checkbox"/> High School Graduate/GED <input type="checkbox"/> 12+ Some Post-Secondary <input type="checkbox"/> 2 or 4 Year College Graduate Included in Calculation <input type="checkbox"/> Yes <input type="checkbox"/> No	Disabled <input type="checkbox"/> Yes <input type="checkbox"/> No Military Veteran <input type="checkbox"/> Yes <input type="checkbox"/> No Health Insurance <input type="checkbox"/> Yes <input type="checkbox"/> No
*Last Name		*First Name		MI	SSN	*DOB	
*Relation to Primary <input type="checkbox"/> Spouse <input type="checkbox"/> Partner <input type="checkbox"/> Child <input type="checkbox"/> Other Relative <input type="checkbox"/> Other Non-Relative		*Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		Race <input type="checkbox"/> American Indian or Alaskan Native <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American <input type="checkbox"/> Native Hawaiian or Other Pacific Islander <input type="checkbox"/> White <input type="checkbox"/> Multi-Race <input type="checkbox"/> Other		Education (24 Years or Older) <input type="checkbox"/> 0-8 <input type="checkbox"/> 9-12 Non-Graduate <input type="checkbox"/> High School Graduate/GED <input type="checkbox"/> 12+ Some Post-Secondary <input type="checkbox"/> 2 or 4 Year College Graduate Included in Calculation <input type="checkbox"/> Yes <input type="checkbox"/> No	Disabled <input type="checkbox"/> Yes <input type="checkbox"/> No Military Veteran <input type="checkbox"/> Yes <input type="checkbox"/> No Health Insurance <input type="checkbox"/> Yes <input type="checkbox"/> No
*Last Name		*First Name		MI	SSN	*DOB	
*Relation to Primary <input type="checkbox"/> Spouse <input type="checkbox"/> Partner <input type="checkbox"/> Child <input type="checkbox"/> Other Relative <input type="checkbox"/> Other Non-Relative		*Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		Race <input type="checkbox"/> American Indian or Alaskan Native <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American <input type="checkbox"/> Native Hawaiian or Other Pacific Islander <input type="checkbox"/> White <input type="checkbox"/> Multi-Race <input type="checkbox"/> Other		Education (24 Years or Older) <input type="checkbox"/> 0-8 <input type="checkbox"/> 9-12 Non-Graduate <input type="checkbox"/> High School Graduate/GED <input type="checkbox"/> 12+ Some Post-Secondary <input type="checkbox"/> 2 or 4 Year College Graduate Included in Calculation <input type="checkbox"/> Yes <input type="checkbox"/> No	Disabled <input type="checkbox"/> Yes <input type="checkbox"/> No Military Veteran <input type="checkbox"/> Yes <input type="checkbox"/> No Health Insurance <input type="checkbox"/> Yes <input type="checkbox"/> No
*Last Name		*First Name		MI	SSN	*DOB	
*Relation to Primary <input type="checkbox"/> Spouse <input type="checkbox"/> Partner <input type="checkbox"/> Child <input type="checkbox"/> Other Relative <input type="checkbox"/> Other Non-Relative		*Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		Race <input type="checkbox"/> American Indian or Alaskan Native <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American <input type="checkbox"/> Native Hawaiian or Other Pacific Islander <input type="checkbox"/> White <input type="checkbox"/> Multi-Race <input type="checkbox"/> Other		Education (24 Years or Older) <input type="checkbox"/> 0-8 <input type="checkbox"/> 9-12 Non-Graduate <input type="checkbox"/> High School Graduate/GED <input type="checkbox"/> 12+ Some Post-Secondary <input type="checkbox"/> 2 or 4 Year College Graduate Included in Calculation <input type="checkbox"/> Yes <input type="checkbox"/> No	Disabled <input type="checkbox"/> Yes <input type="checkbox"/> No Military Veteran <input type="checkbox"/> Yes <input type="checkbox"/> No Health Insurance <input type="checkbox"/> Yes <input type="checkbox"/> No
*Last Name		*First Name		MI	SSN	*DOB	
*Relation to Primary <input type="checkbox"/> Spouse <input type="checkbox"/> Partner <input type="checkbox"/> Child <input type="checkbox"/> Other Relative <input type="checkbox"/> Other Non-Relative		*Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		Race <input type="checkbox"/> American Indian or Alaskan Native <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American <input type="checkbox"/> Native Hawaiian or Other Pacific Islander <input type="checkbox"/> White <input type="checkbox"/> Multi-Race <input type="checkbox"/> Other		Education (24 Years or Older) <input type="checkbox"/> 0-8 <input type="checkbox"/> 9-12 Non-Graduate <input type="checkbox"/> High School Graduate/GED <input type="checkbox"/> 12+ Some Post-Secondary <input type="checkbox"/> 2 or 4 Year College Graduate Included in Calculation <input type="checkbox"/> Yes <input type="checkbox"/> No	Disabled <input type="checkbox"/> Yes <input type="checkbox"/> No Military Veteran <input type="checkbox"/> Yes <input type="checkbox"/> No Health Insurance <input type="checkbox"/> Yes <input type="checkbox"/> No

Note: All fields designated with an (*) are required information. SSN's for the primary and secondary applicants are also required.

Household Member & Income Information Form

List all immediate members of household, their source of income, and gross amount each member received for each month listed:

1. _____ 2. _____ 3. _____

DSHS income verified? (Y N) Date: _____ Reviewer: _____

Household Members	Source of Income	Gross	Amount	Per Month	Minus 10%	Minus 15%	Minus 20%	Gross Amount	Adjusted Gross Amount	Docts.
Name:		\$	\$	\$						
Name:		\$	\$	\$						
Children's Names:	Age	Children's Names:		Age	Children's Names:		Age			
1.		3.			5.					
2.		4.			6.					

** If client has more than six children please use back of this form.*

Total gross income: _____ = _____ the household's average monthly income.

Number of months documented: _____

I certify that the above information I have provided is a complete and accurate list of all household members and their income for the period, and _____. I understand that I am signing this form under penalty of criminal prosecution if I knowingly give false information resulting in payment to which I am not entitled.

Applicant's Signature

Date

Declaration of No Income

I, _____, do hereby declare that I have not received any income for the month(s) of:

- 1. _____
- 2. _____
- 3. _____

The reason that I have had no income for the months listed above is as follows:

I have been meeting my basic living needs for food, shelter and utilities in the following way:

Food: _____

Shelter: _____

Utilities: _____

I certify that the information contained above is complete and accurate to the best of my knowledge. I understand that I am signing this statement under penalty of prosecution if I knowingly give false information, which results in assistance received for which I am not eligible.

Client Signature/Date

Agency Representative/Date

State of Washington

County of _____

I certify I know or have satisfactory evidence (name of person) is the person who appeared before me, and said person acknowledged they signed this instrument and acknowledged it to be their free and voluntary act for the uses and purposes mentioned in the instrument.

Dated: _____

(Seal or stamp)

(Signature)

Title

My appointment expires: _____

Sample Weatherization Program Utility Information Release Waiver

Section A: Applicant Information

Primary Applicant: _____

(Last Name) (First Name) (Middle Initial)

Mailing Address: _____

Mailing City, State, ZIP: _____

Phone: (_____) _____

Residence Address: _____

Residence City, State, Zip: _____

Name on utility account if different from applicant: _____

Section B: Utility Information

Utility Service Provider (as applicable): _____

Electric: _____ Acct. # _____

Natural Gas: _____ Acct. # _____

Propane: _____ Acct. # _____

Oil: _____ Acct. # _____

Wood: _____ Acct. # _____

Coal: _____ Acct. # _____

Primary Heat Source: _____ **Secondary Heat Source:** _____

(Electric, Natural Gas, Propane, Oil, Wood, Coal)

I certify that the above information is accurate to the best of my knowledge. I give the above listed utility service providers permission to release my account information, including both consumption and expenditure data, to this agency or the Washington State Department of Commerce for current and future data analysis.

Applicant Signature: _____ **Date:** _____

Exhibit 1.3.1F

List of Documented Immigrant (Qualified Alien) Documents

The following is a list of documents acceptable to prove a clients documented immigrant (qualified alien) status.

Certain [USCIS](#) documents can be viewed online at:

http://www.ncosc.net/Foreign_Nationals/Travel_Doc_Identification.pdf

IMMIGRATION STATUS	VERIFICATION DOCUMENT (USCIS <i>U.S. Citizenship and Immigration Services</i> FORMS)
<p>Legal Permanent Resident - a person who has been granted lawful permanent residence in the United States</p>	<ul style="list-style-type: none"> • I-551 (referred to as green card), or • I-94 annotated with a temporary I-551 stamp (for recent arrivals or aliens who have applied for a replacement I-551)
<p>Refugee - Under United States law, a refugee is someone who:</p> <ul style="list-style-type: none"> • Is located outside of the United States • Is of special humanitarian concern to the United States • Demonstrates that they were persecuted or fear persecution due to race, religion, nationality, political opinion, or membership in a particular social group Is not firmly resettled in another country • Is admissible to the United States <p>A refugee does <i>not</i> include anyone who ordered, incited, assisted, or otherwise participated in the persecution of any person on account of race, religion, nationality, membership in a particular social group, or political opinion.</p>	<ul style="list-style-type: none"> • I-94 stamped showing admission under • section 207 of the INA and date of entry to the U.S., or • I-688B annotated 274a.12(a)(3), or • I-766 annotated A3, or, • I-571 <p>(Refugees usually adjust to LPR status after 12 months in the U.S., However, they are still considered refugee for eligibility purposes when they have a I-551 with a code of RE-6, RE-7, RE-8, or RE-9)</p>
<p>Special Immigrants - A special immigrant is a person who qualifies for a green card (permanent residence) under the United States Citizenship and</p>	<ul style="list-style-type: none"> • I-94 or passport stamped with an "S" category

Exhibit 1.3.1F

<p>Immigration Services (USCIS) special immigrant program.</p>	
<p>Asylee - An alien in the United States or at a port of entry who is found to be unable or unwilling to return to his or her country of nationality, or to seek the protection of that country because of persecution or a well-founded fear of persecution. Persecution or the fear thereof must be based on the alien’s race, religion, nationality, membership in a particular social group, or political opinion. For persons with no nationality, the country of nationality is considered to be the country in which the alien last habitually resided. Asylees are eligible to adjust to lawful permanent resident status after one year of continuous presence in the United States.</p>	<ul style="list-style-type: none"> • I-94 stamped showing grant of asylum under section 208 and date of entry; or • A grant letter from the Asylum Office of the USCIS; or • I-688B annotated 274a.12(a)(5); or • I-766 annotated A5; or • Court order of an immigration judge showing asylum granted under section 208.
<p>Parolee</p>	<ul style="list-style-type: none"> • I-94 annotated with stamp showing grant of parole under 212(d)(5) and a date showing granting of parole for at least 1 year.
<p>Deportation Withheld</p>	<ul style="list-style-type: none"> • Order of an immigration judge showing deportation withheld under section 243(h) and date of grant; or • I-688B annotated 274a.12(a)(10); or • I-766 annotated A10.
<p>Conditional Entrant</p>	<ul style="list-style-type: none"> • I-94 with stamp showing admission under 203(a)(7), refugee-conditional entry, or • I-688B annotated 274a.12(a)(3) • I-766 annotated A3
<p>Battered Spouse or Child of U.S. Citizen or Permanent Legal Resident</p>	<ul style="list-style-type: none"> • Approved or pending I-130 or I-360 petition showing a prima facie case that he or she is protected under the Violence Against Women Act, and

Exhibit 1.3.1F

	<ul style="list-style-type: none"> • Verification that the individual responsible for the battery or cruelty is no longer living in the household of the victim.
<p>Cuban or Haitian Entrants</p>	<ul style="list-style-type: none"> • I-94 with stamp showing parole as Cuban/Haitian Entrant under section 212(d)(5) of the INA • Form I-551 with code CU6, CU7, or CH6 • Foreign passport containing an unexpired temporary I-551 stamp with the code CU6 or CU7
<p>U.S. Military Veteran, Active Duty Military (includes spouse and unmarried dependent children under 21)</p>	<ul style="list-style-type: none"> • Green Form DD-2 marked ACTIVE, or • A current order showing the individual is on full-time duty in the U.S. Army, Navy, Air Force, Marine Corps, or Coast Guard (Reserves are not considered active duty). • DD-214 indicating honorable discharge, or • Discharge papers indicating honorable discharge
<p>Victims Of Trafficking (includes certain eligible immediate family members holding a derivative T-Visa)</p>	<ul style="list-style-type: none"> • Letter of certification from the Office of Refugee Resettlement (ORR.) The caseworker must verify the validity of this letter and notify ORR of the benefits for which the individual has applied by calling the toll-free trafficking verification line at 1-866-401-5510. • Form I-797a indicating Class T-1 Visa. • Form I-797a indicating T-2 (spouse), T-3 (child), T-4 (parent) or T-5 (unmarried sibling under age 18 years on the date such alien's T visa application was filed), known as a Derivative Visa. <p><i>Note: T status is valid for 3 years from date of approval and is not renewable. However, the individual may adjust to lawful permanent resident status within the 90-day period immediately preceding the expiration of T status.</i></p>

Exhibit 1.3.1F

American Indian Born In Canada	<ul style="list-style-type: none">• Birth or baptismal certificate issued on a reservation;• Tribal records;• Letter from the Canadian Department of Indian Affairs, or• School records
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Exhibit 1.3.3B

July 2018

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**Weatherization Program
Rental Property Owner/Agency Agreement**

- Single-Family Mission Based Low-Rise: Garden Apartment
- Duplex Private Investor-Owned Low-Rise: Corridor Building
- Triplex Shelter
- 4-Plex High-Rise

I, _____ certify that I am the owner/authorized agent
(Owner/Agent)

for the property located at: _____
(Project Address)

I authorize the _____
(Agency)

to manage the Weatherization Project for weatherization repairs and improvements as described and responsibilities detailed in the attached Scope of Work (SOW).

Purpose and Benefits:

The purpose of the Weatherization Project is to benefit the tenant(s).

The benefit to tenant(s) is: _____
(See Exhibit 1.4.1, Accrual of Benefits to Tenants table for examples.)

Owner Responsibilities and Maintenance:

I agree to provide care and maintenance for installed equipment and systems per Agency’s written directions and Manufacturer’s requirements, as part of the legal RCW 59.18.060 responsibilities. The Weatherization Program will not supplant these owner responsibilities.

Owner Contributions:

I agree to make the following contribution(s) to the Weatherization Project.

- Cash Contribution – Amount: _____
- In-kind Contributions – Work Scope attached: _____
- Rent Freeze – Rent Schedule attached: _____
- Preserve Low-income Housing: Covenant for low-income occupancy – Years: _____
- Contract Directly – Work Scope attached: _____
- Other Contributions to benefit tenant(s): _____

See Policy 1.4.2, Owner Contributions for examples & recommended minimums.

Exhibit 1.3.3B
Weatherization Program Rental Property Owner/Agency Agreement

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Phased Projects:

I commit to contacting the Agency and working with them in the future to complete further identified Weatherization projects with potential energy savings in my building, aligning the time frame with future capital improvement projects, staff time, and budget permitting:

<hr/>	<hr/>
<i>(Planned improvement)</i>	<i>(Estimated time frame)</i>
<hr/>	<hr/>
<i>(Planned improvement)</i>	<i>(Estimated time frame)</i>
<hr/>	<hr/>
<i>(Planned improvement)</i>	<i>(Estimated time frame)</i>

Release:

I release and pledge to hold harmless the above-named Agency and its staff from any liability in connection with the Weatherization work.

In consideration of the Weatherization work to be performed, parties agree:

1. "Rent" is defined as the tenant's monthly payment to the owner (non-subsidized housing) or the contract rent (subsidized housing).
2. Weatherization improvements cannot be used to justify any rent increase.
3. The owner/agent will submit a current rent schedule prior to completion of weatherization work upon request of the agency.
4. In the event the owner sells the premises within twelve (12) months after weatherization work is completed, the owner will comply with one of the two following conditions:
 - a. The owner shall repay the agency at the date of sale a prorated amount equal to the percentage of the twelve (12) months period remaining, times the full value of the material and labor as documented by agency work records, except if sold to low-income tenants.
 - b. The owner shall obtain in writing prior to sale the purchaser's agreement to assume the owner's obligations under this agreement.

The owner shall immediately upon entering into a non-contingent agreement of sale of premises, so inform both the agency and tenants by written notice.

Exhibit 1.3.3B
Weatherization Program Rental Property Owner/Agency Agreement

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5. In the event the agency determines that the owner or agent has violated the terms of this agreement, the owner or agent shall repay the agency the full value of materials and labor as documented by agency work records.
6. The present tenants and any successive tenants during the term of this agreement, are the intended beneficiaries of this agreement and shall have a right of enforcement.
7. If this agreement is breached, damages, where not otherwise specified, may be awarded in accordance with applicable law. The prevailing party in any suit to enforce this agreement shall be entitled to recover costs and a reasonable attorney's fee.
8. The provisions of this agreement are severable. If any provision of this agreement is found invalid, such finding shall not affect the validity of this agreement as a whole, or any part or provision hereof other than the provision so found to be invalid.
9. Failure of the agency to enforce the agreement upon breach by the owner shall not be construed as a waiver of the agency's right to enforce the agreement.

Signed: _____ Date: _____
(Owner/Authorized Agent)

Address: _____ Phone: _____

Approved by: _____ Date: _____
(Agency Representative)

**Exhibit 1.3.3C
Rental Property Owner Agreement and the Weatherization Assistance Program InfoSheet**

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Exhibit-1.3.3C-Owner-Agency-Agreement-InfoSheet



 <p>EXHIBIT 1.3.3C</p> <h2>Rental Property Owner Agreement and The Weatherization Assistance Program</h2> <p>What landlords need to know (Keep this info sheet with your property records)</p> <p>Property Owner Benefits of Weatherization</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; width: 30%;"> <p>1</p> <p>Greater tenant retention because renters will lower utility bills and increase the comfort of the home.</p> </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> <p>2</p> <p>With your investment and partnership, you have the potential to improve your property.</p> </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> <p>3</p> <p>By weatherizing your property, you will save energy and contribute to conservation efforts.</p> </div> </div> <p>What is the Washington Weatherization Assistance Program?</p> <p>The Weatherization Assistance Program is a state and federally funded program managed locally by community action agencies, housing authorities, or local government agencies.</p> <p>RENTAL PROPERTY OWNER AGREEMENT AND THE WEATHERIZATION ASSISTANCE PROGRAM 1</p> <p>v2.5</p>	<p>What Does the Program Provide?</p> <ul style="list-style-type: none"> • Building energy analysis • Attic insulation • Crawl space insulation • Sidewall insulation • Furnace repair or replacement • Heating duct sealing and insulation • Weatherization Plus Health • Water heater and water pipe insulation • Weather-stripping and caulking • Other draft reduction and energy-saving measures <p>How does a property qualify for weatherization?</p> <p>All rental units are eligible, whether single family homes or apartments, as long as the occupants are income-eligible.</p> <p>The Owner/Agency Agreement</p> <p>This agreement outlines the requirements for a rental property owner/landlord who applies for weatherization services.</p> <p>The Agreement ensures the tenant receives the full benefit of the energy-saving measures installed.</p> <ul style="list-style-type: none"> ○ Rent cannot increase based on the weatherization improvements to the home. A rent schedule must be submitted prior to completion of weatherization work. ○ As a property owner you agree to provide care and maintenance for installed equipment and systems per manufacturer's requirements and as part of RCW 59.18.060. ○ Owners selling property within 12 months of completed weatherization work must pay back at prorated cost. Unless sold to low income tenants or purchaser willing to assume agreement obligations. ○ If the terms and conditions are violated in the owner/agency agreement, the owner shall repay the weatherizing agency full value of materials and labor as document by work records. <p>RENTAL PROPERTY OWNER AGREEMENT AND THE WEATHERIZATION ASSISTANCE PROGRAM 2</p> <p>v2.5</p>	<p>Weatherization Fast Facts:</p> <p>In 2016 Washington low income residents saved</p> <p>\$600 k</p> <p>On their energy bills</p> <p>From 2012-2017</p> <p>5,397</p> <p>rental units were weatherized</p> <p>Weatherizing Washington homes since</p> <p>1978</p>
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Exhibit 1.3.3C, Owner/Agency Agreement InfoSheet - Spanish

 <p>ANEXO 1.3.3C</p> <h2>Acuerdo con el Dueño de la Propiedad Rentada y Programa de Asistencia para Protección Climática</h2> <p>Qué deben saber los inquilinos (Conserve este folleto informativo con los documentos de la propiedad)</p> <p>Beneficios de la protección climática para el dueño de la propiedad</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; width: 30%;"> <p>1</p> <p>Mayor retención del arrendatario dado que los arrendadores disminuirán sus facturas de servicios y mejorarán la comodidad de la vivienda.</p> </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> <p>2</p> <p>Con su inversión y asociación, usted tiene posibilidades de mejorar su propiedad.</p> </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> <p>3</p> <p>Al aplicar la protección climática a su propiedad, usted ahorrará energía y contribuirá con los esfuerzos de conservación.</p> </div> </div> <p>¿Qué es el Programa de Asistencia en Protección Climática de Washington?</p> <p>El Programa de Asistencia en Protección Climática es un programa financiado a nivel estatal y federal y administrado localmente por organismos de acción comunitaria, autoridades de vivienda u organismos gubernamentales locales.</p> <p>LOS DERECHOS DEL ARRENDATARIO Y EL PROGRAMA DE ASISTENCIA PARA PROTECCIÓN CLIMÁTICA 1</p> <p>v2.5</p>	<p>¿Qué ofrece el Programa?</p> <ul style="list-style-type: none"> • Realización de análisis energéticos Aislamiento de áticos • Aislamiento de sótanos • Aislamiento de paredes laterales Reparación o cambio de incineradores Sellado y aislamiento de ductos de calefacción • Weatherization Plus Health • Aislamiento de las cañerías de agua y de los calentadores de agua • Sellado con burletes y masillado • Otros recursos para la reducción de gastos y ahorro de energía <p>¿Qué viviendas resultan aptas para acceder a la protección climática?</p> <p>Todas las unidades rentadas resultan aptas, se trate de casas de una sola familia, o departamentos siempre que sus habitantes resulten aptos conforme a sus ingresos.</p> <p>Acuerdo del Dueño/Organismo</p> <p>Este contrato establece los requisitos para que un dueño/arrendador de un bien inmueble pueda recibir los servicios de protección climática.</p> <p>El Contrato garantiza que el arrendatario recibirá el beneficio total de las medidas de ahorro de energía instaladas.</p> <ul style="list-style-type: none"> ○ La renta no puede aumentar sobre la base de las mejoras por protección climática de la vivienda. Debe presentarse un cronograma de renta antes de la finalización del trabajo de protección climática. ○ Como dueño de la propiedad, acepta cuidar y mantener los equipos y sistemas instalados conforme a los requisitos del fabricante y como parte del Código Revisado de Washington (RCW) 59.18.060. ○ Los titulares que vendan la propiedad dentro de los 12 meses de la finalización del trabajo de protección climática deben hacer un reembolso a un costo prorrateado. A menos que se venda a arrendatarios o compradores de bajos ingresos dispuestos a asumir las obligaciones del acuerdo. ○ De cumplirse los términos y condiciones del contrato del dueño/organismo, el dueño le abonará al organismo de protección climática el valor total de los materiales y la mano de obra según se haya registrado en la documentación de la obra. <p>RENTAL PROPERTY OWNER AGREEMENT AND THE WEATHERIZATION ASSISTANCE PROGRAM 2</p> <p>v2.5</p>	<p>Más datos rápidos sobre protección climática:</p> <p>En 2016 los residentes de bajos ingresos de Washington ahorraron:</p> <p>\$600 k</p> <p>en sus facturas de luz</p> <p>De 2012 a 2017</p> <p>5,397</p> <p>unidades arrendadas recibieron la protección</p> <p>En Washington aplicamos la protección climática desde</p> <p>1978</p>
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**Exhibit 1.3.3D
Tenant Rights and the Weatherization Assistance Program**

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Exhibit 1.3.3D, Tenant Weatherization Rights InfoSheet



 <p>EXHIBIT 1.3.3D</p> <h2>Tenant rights and The Weatherization Assistance Program</h2> <p>What Renters need to know (Keep this info sheet with your lease rental contract)</p> <p>Benefits of Weatherization</p> <div style="display: flex; justify-content: space-around;"> <div style="background-color: #0070C0; color: white; padding: 5px; text-align: center;"> <p>1</p> <p>Weatherization can provide greater comfort and reduced utility bills, at no cost to the tenant</p> </div> <div style="background-color: #800040; color: white; padding: 5px; text-align: center;"> <p>2</p> <p>Residents of weatherized homes have better health including fewer headaches, allergies, flu, and breathing issues.</p> </div> <div style="background-color: #FF8C00; color: white; padding: 5px; text-align: center;"> <p>3</p> <p>Weatherization improves the safety of a home by reducing moisture and increasing ventilation.</p> </div> </div> <p>What is the Washington Weatherization Assistance Program?</p> <p>The Weatherization Assistance Program is a state and federally funded program managed locally by community action agencies, housing authorities, or local government agencies.</p> <p>TENANT RIGHTS AND THE WEATHERIZATION ASSISTANCE PROGRAM 1</p> <p>v2.5</p>	<p>What Does the Program Provide?</p> <ul style="list-style-type: none"> • Building energy analysis • Attic insulation • Crawl space insulation • Sidelwall insulation • Furnace repair or replacement • Heating duct sealing and insulation • Weatherization Plus Health • Water heater and water pipe insulation • Weather-stripping and caulking • Other draft reduction and energy-saving measures <p>What makes someone or a building eligible for Weatherization?</p> <p>All rental units are eligible, whether single family homes or apartments, as long as the occupants are income-eligible.</p> <p>Know Your Rights As Renter</p> <p>The Weatherization Program is designed to benefit owners and renters. Most, if not all, of the materials and labor used to weatherize your home will be supplied free of charge. In return for this service, the owner has agreed to the following:</p> <ul style="list-style-type: none"> ○ No increase in rent due to weatherization work. ○ No evictions except for good cause <p>Will my rent increase due to weatherization work?</p> <p>The owner cannot raise your rent due to weatherization work. They can raise rents for other reasons such as an increase in property taxes, cost of improvements other than weatherization that directly benefit tenants, and actual increases in the costs of maintenance and operation of the property.</p> <p>Can my landlord evict me once weatherization work begins?</p> <p>Beginning on the date the owner signs the agreement to weatherize your home, the owner cannot evict you, or attempt to evict you, except for good cause such as failure to pay rent, violating a provision of a lease or rental agreement, damaging property, causing a nuisance, etc.</p> <p>What if I feel the rental property owner has breached the agreement?</p> <p>Contact your local legal service office, community action agency, or the agency that did the weatherization work. The owner has signed an agreement in order to have your home weatherized and to abide by the conditions that serve to protect your rights as a renter.</p> <p>TENANT RIGHTS AND THE WEATHERIZATION ASSISTANCE PROGRAM 2</p> <p>v2.5</p>	<p>Weatherization Fast Facts:</p> <p>In 2016 Washington low income residents saved</p> <p>\$600 k</p> <p>On their energy bills</p> <p>From 2012-2017</p> <p>5,397</p> <p>rental units were weatherized</p> <p>Weatherizing Washington homes since</p> <p>1978</p>
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Exhibit 1.3.3D, Tenant Weatherization Rights InfoSheet - Spanish

 <p>ANEXO 1.3.3D</p> <h2>Los derechos del arrendatario y el Programa de Asistencia para Protección Climática</h2> <p>Qué deben saber los inquilinos (Conserve este folleto informativo con su contrato de arrendamiento)</p> <p>Beneficios de la protección climática</p> <div style="display: flex; justify-content: space-around;"> <div style="background-color: #0070C0; color: white; padding: 5px; text-align: center;"> <p>1</p> <p>La protección climática puede ofrecer mayor comodidad y reducciones en las facturas de los servicios públicos, sin costos para el arrendatario</p> </div> <div style="background-color: #800040; color: white; padding: 5px; text-align: center;"> <p>2</p> <p>Los residentes de la casa con protección climática tienen una mejor salud, lo que incluye menos dolores de cabeza, alergias, resfrios y problemas respiratorios.</p> </div> <div style="background-color: #FF8C00; color: white; padding: 5px; text-align: center;"> <p>3</p> <p>La protección climática mejora la seguridad de un hogar reduciendo la humedad y aumentando la ventilación.</p> </div> </div> <p>¿Qué es el Programa de Asistencia en Protección Climática de Washington?</p> <p>El Programa de Asistencia en Protección Climática es un programa financiado a nivel estatal y federal y administrado localmente por organismos de acción comunitaria, autoridades de vivienda u organismos gubernamentales locales.</p> <p>LOS DERECHOS DEL ARRENDATARIO Y EL PROGRAMA DE ASISTENCIA PARA PROTECCIÓN CLIMÁTICA 1</p> <p>v2.5</p>	<p>¿Qué ofrece el Programa?</p> <ul style="list-style-type: none"> • Realización de análisis energéticos • Aislamiento de áticos • Aislamiento de sótanos • Aislamiento de paredes laterales • Reparación o cambio de incineradores • Sellado y aislamiento de ductos de calefacción Weatherization Plus Health • Aislamiento de las cañerías de agua y de los calentadores de agua • Sellado con burletes y masillado • Otros recursos para la reducción de gastos y ahorro de energía <p>¿Qué viviendas o personas resultan aptas para acceder a la protección climática?</p> <p>Todas las unidades rentadas resultan aptas, se trate de casas de una sola familia, o departamentos siempre que sus habitantes resulten aptos conforme a sus ingresos.</p> <p>Los derechos del arrendatario y el Programa de Protección Climática</p> <p>Si su casa ha recibido la protección climática, esto es lo que debe saber como inquilino</p> <p>Conozca sus derechos como inquilino</p> <p>El Programa de Asistencia para Protección Climática tiene como fin beneficiar a los dueños y a los inquilinos. La mayoría, si no todos los materiales y la mano de obra empleados para la protección de su casa se proporcionarán sin cargo. A cambio de este servicio, el dueño acepta lo siguiente:</p> <ul style="list-style-type: none"> ○ No aumentar la renta debido a la protección climática ○ No realizar desalojos, excepto que exista justa causa <p>¿Mi renta aumentará debido al trabajo de protección climática?</p> <p>El dueño no puede aumentar su renta debido al trabajo de protección climática. Puede aumentar la renta por otros motivos, como aumentos en los impuestos sobre la propiedad, costo de mejoras que no sean de protección climática que beneficien directamente a los arrendatarios y aumentos reales en los costos de mantenimiento y operación de la propiedad.</p> <p>¿Puede mi arrendador desalojarme una vez que el trabajo de protección climática comience?</p> <p>A partir de la fecha en la que el dueño firme el contrato de protección climática de su casa, este no podrá desalojarlo ni intentar hacerlo, a menos que exista justa causa , como falta de pago de su parte, incumplimiento de una disposición del contrato de arrendamiento o alquiler, daño a la propiedad o disturbios, etc.</p> <p>¿Qué sucede si siento que el dueño de la propiedad ha incumplido el contrato?</p> <p>Contactese con la oficina de servicios legales local, el organismo de acción comunitaria o con el organismo que realizó el trabajo de protección climática. El dueño ha firmado un contrato para que su casa reciba la protección climática en el que acepta las condiciones que protegen sus derechos como inquilino.</p> <p>LOS DERECHOS DEL ARRENDATARIO Y EL PROGRAMA DE ASISTENCIA PARA PROTECCIÓN CLIMÁTICA 2</p> <p>v2.5</p>	<p>Datos sobre el Programa de Protección Climática</p> <p>En 2016 los residentes de bajos ingresos de Washington ahorraron:</p> <p>\$600 k</p> <p>en sus facturas de luz</p> <p>De 2012 a 2017</p> <p>5,397</p> <p>unidades arrendadas recibieron la protección</p> <p>En Washington aplicamos la protección climática desde</p> <p>1978</p>
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Accrual of Benefits

	Potential Benefit	Tenant Pays	Utilities Included in
1	Lower energy bills when seasonal temperatures are consistent with historic temperatures	Yes	No
2	"Lower than expected" energy bills in the event of hotter/colder weather than in previous years	Yes	No
3	Long, or longer term preservation of the property as affordable housing	Yes	Yes
4	Continuation of protection against rent increases beyond that required under the WAP regulations (10 CFR 440.22(b)(3)(ii))	Yes	Yes
5	Investment of the energy savings in facilities or services that offer measurable direct benefits to tenants	Maybe – requires description	Yes
6	Investment of the energy savings from the weatherization work in specific health and safety improvements with measurable benefits to tenants	Maybe – requires description	Yes
7	Additional improvements, not related to weatherization, to heat and hot water distribution, and ventilation, to improve the comfort of residents	Yes	Yes
8	Establishment of a shared savings program	Maybe – requires description	Yes

Exhibit 2.1.4A

**Weatherization Assistance Program
Application for Shelters, Group Homes, and Transitional Facilities**

Agency Use Only
Date: _____ Agency: _____ County: _____

Name of Facility: _____

Applicant/Operator's Name: _____

Facility Phone Number: _____

Address of Facility: _____

City, State, Zip: _____

Owner(s) or Organization Name: _____

Organization Phone Number: _____

Owner/Organization Address: _____

(If different from above)

City, State, Zip: _____

Name of Designated Official: _____

Title of Official: _____

Housing Type (Check One):

Single Unit Multi Unit Total # Eligible Units: _____

Heating Fuel - Main Source of Heat (Check One):

Electric Oil Gas Wood Other _____

Exhibit 2.1.4A

Page 2 of 2

I certify that the information I have provided on this application is accurate to the best of my knowledge. I further certify that the incomes of the persons/families residing in the facility of the organization I represent are at or below 200 percent of the federal poverty level (200% FPL), 60 percent of the state median income (60% SMI), or 80 percent of the area median income (80% AMI, if Wx project uses only Washington State Weatherization Plus Health (State) funding), whichever is greatest.

I have submitted a letter attesting to these facts and have included a copy of the organization's income guidelines or a copy of the organization's mission statement in lieu of individual resident income verification. If I have knowingly provided false information which results in receiving assistance for which the organization is not eligible, I may be subject to criminal prosecution.

I further understand that I may file a grievance for either of the following reasons:

1. The application was not acted upon within a reasonable time.
2. The application was denied and I think the facility is eligible to be weatherized under this program.

I also agree that in consideration of weatherization work to be performed, the rent, charges, or fees charged to the occupants of the property being weatherized will not be increased because of any increase in the value of the property due solely to weatherization assistance.

(Applicant/Operator's Signature)

(Date Signed)

The current operation of the property as a _____, which serves low-income people, shall continue for a period of _____ years. In the event that I sell the property within _____ years after weatherization work is completed, or if the property ceases to be used as a _____, I will comply with one of the two following conditions:

1. I will repay the agency at the date of sale or at the date of discontinuance an amount equal to the percentage of the _____ year/month period remaining, times the full value of material and labor as documented by agency work records; or
2. I will obtain in writing prior to sale the purchaser's agreement to continue operating the property as a _____ for the remaining term.

(Property Owner's Signature)

(Date Signed)

Exhibit 2.1.6A

Page 1 of 2

Link: [Exhibit 2.1.6A, Historic Preservation Programmatic Agreement 2010 Programmatic Agreement version, including Appendix A and Appendix B](#)

AMENDMENT TO PROGRAMMATIC AGREEMENT
BETWEEN
THE UNITED STATES DEPARTMENT OF ENERGY, THE WASHINGTON STATE DEPARTMENT
OF COMMERCE AND
THE WASHINGTON STATE HISTORIC PRESERVATION OFFICE
REGARDING EECBG, SEP AND WAP UNDERTAKINGS

WHEREAS, on May 6, 2010, The United States Department of Energy (DOE), The Washington Department of Commerce (Washington State Energy Office and Community Services Housing Division), and The Washington State Historic Preservation Officer, and entered into a Programmatic Agreement (Agreement) to fulfill the requirements of Section 106 of the National Historic Preservation Act for certain DOE-funded Undertakings in Washington.

WHEREAS, in 2010, as the result of unprecedented funding levels resulting from the implementation of the American Recovery and Reinvestment Act (Recovery Act), DOE, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers (NCSHPO) developed a first-of-its-kind [Prototype Programmatic Agreement](#) (Prototype PA) for National Historic Preservation Act Section 106 reviews;

WHEREAS, the intent of the Prototype PA was to provide DOE, recipients of financial assistance under DOE's Weatherization Assistance Program (WAP), State Energy Program (SEP), and Energy Efficiency Conservation Block Grant (EECBG) program, as applicable, and State Historic Preservation Offices (SHPOs) with a tailored method for complying with Section 106 of the National Historic Preservation Act. DOE, recipients, and SHPOs negotiated and executed subsequent programmatic agreements (subsequent PAs; i.e. this Agreement) in accordance with the Prototype PA;

WHEREAS, the Prototype PA originally provided that each subsequent PA would be valid for three years from the date of execution. As the result of ACHP's Program Comment dated March 11, 2013, however, all subsequent PAs, including this Agreement, were extended through December 31, 2020. (78 FR 16275, 16277);

WHEREAS, ACHP, NCSHPO, and DOE recognize the Prototype PA and subsequent PAs continue to provide great value to DOE, recipients, and SHPOs, notwithstanding expiration of most Recovery Act funding, this amendment extends the use of the Agreement for an additional 5 years; and

WHEREAS, DOE will send a copy of this executed amendment to the ACHP;

NOW, THEREFORE, in accordance with Stipulation XIV of the Agreement, the signatories of this Amendment agree as follows:

1. Amend Stipulation XV so it reads as follows:


This PA will be valid until December 31, 2025, as verified with DOE filing the PA with the ACHP.

Exhibit 2.1.6A

Page 2 of 2

This Amendment may be executed in counterparts, each of which when so executed shall be deemed an original, but all of which shall together constitute one and the same instrument, it being understood that all parties need not sign the same counterpart. This Amendment is not effective until each party executes the Amendment.


SIGNATORIES:



Michael Furze
Assistant Director
Washington State Department of Commerce - Energy Division

12/1/2020


Date



Allyson Brooks
Director and State Historic Preservation Officer
Washington Department of Archaeology and Historic Preservation

11/17/2020

Date



Derek G. Passarelli
Director, Golden Field Office
Office of Energy Efficiency and Renewable Energy
United States Department of Energy

December 2, 2020

Date

Historic Preservation Checklist

Step 1. Does client's scope of work include ground altering activities?

- No: Proceed to Step 2.
- Yes: Complete **DAHP EZ-1** Project Review Sheet.

Step 2. Does the project include conversion of existing properties or demolition, repair, or rehabilitation of a home 45 years or older?

- No: STOP here. Historic preservation regulations do not apply.
- Yes: Complete **DAHP EZ-2** on-line Historic Property Inventory process and submit to them for comment.

Step 3. If DAHP requests an EZ-3 form, make note of submittal date.

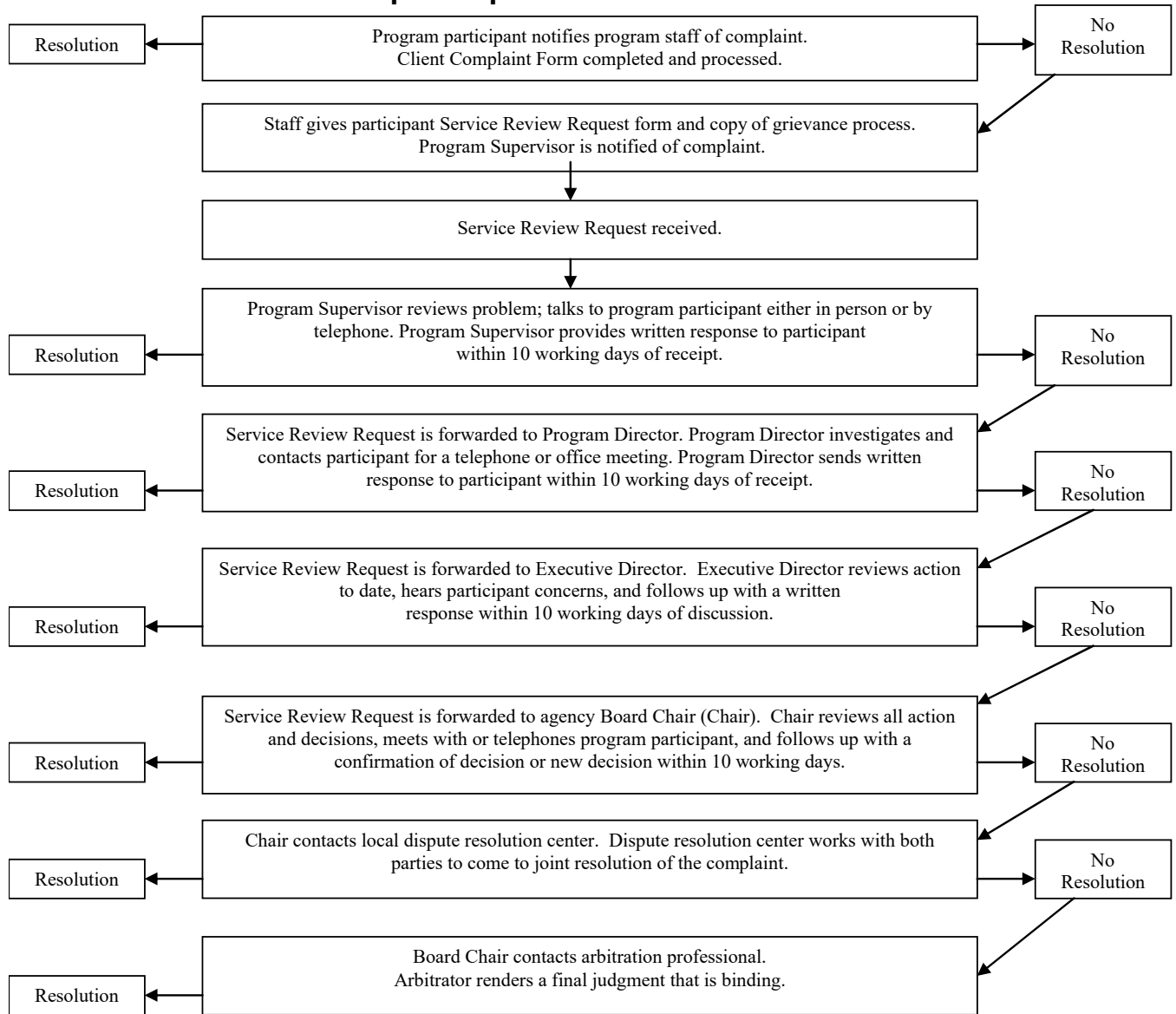
DAHP has 30 days to review form submittals. If you have not heard from DAHP in 2 weeks, please call for a status report.

Step 4. Make two copies of this Checklist, applicable DAHP forms, response letters, and documentation. Place one copy in the client file (project file) and mail one copy to the Commerce Representative listed on the Grant Face Sheet.

Exhibit 4A

Date to Participant: _____

Sample Dispute Resolution Flow Chart



**** NOTE: Subject to need, Building Performance Center (BPC), as the State's designated Peer Circuit Rider, will assign a local agency representative with appropriate technical expertise to assist contractors with outside review.**

The sample dispute resolution flow chart above addresses grievances in this order:

1. Program Staff	4. Agency Executive Director	7. Professional Arbitrator
2. Program Manager/Director	5. Chair, Board of Directors	
3. Division Director	6. Dispute Resolution Center	

Client Complaint Form

Client Information

Date	Program	Social Security #	Telephone #
First Name	Middle	Last Name	
Service Address	Apt.	City	Zip Code

Nature of Complaint:

- Denial of service
- Ineligible
- Deferral policy
- Application not handled in a timely manner
- Dissatisfaction with work

Details of Complaint:

Action Taken:

- Client directed to appropriate program staff
- Client received copy of agency dispute resolution process and Service Review Request
- Client sent copy of agency dispute resolution process and Service Review Request
- Other

Details of Action Taken:

Program staff contacted: Yes **Date contacted:** _____

Name of program staff contacted: _____

- Copy of Client Complaint Form in client's file
- Complaint noted in program database

Complaint Received By: _____

Date to Client:

Service Review Request

Complete this form with the information requested. A written account is required for review to proceed.

Name: _____

Address: _____

City/State/ZIP: _____

Home or Message Phone: _____ Work Phone: _____

Describe the circumstances for which you are requesting a service review. What happened? When did it happen? Where did it happen? Who is involved or who may have knowledge of the situation? Attach a separate page if needed.

When are you available to meet to discuss this matter?

Date 1: Morning/Afternoon (*circle one or both*)

Date 2: Morning/Afternoon (*circle one or both*)

I certify that the above statements are true and accurate to the best of my knowledge.

Your Signature: _____ Date: _____

Give this completed form to any agency staff member or mail in envelope provided. It will be promptly forwarded to the supervisor/director of the program/division involved. You will be contacted within 10 working days of the date received to confirm a meeting time.

Office Use: _____
Received by _____ Date Received _____

**Exhibit 4C
Service Review Request**

Office Use:

Received by: _____ Title: _____ Date: _____

Reviewed by: _____ Title: _____ Date: _____

Participant contacted, meeting scheduled: Date: _____

In-office meeting Telephone meeting In-home meeting

Notes from meeting: _____

Name/Position: _____ Date: _____

Resolution: _____

Name/Position: _____ Date: _____

Exhibit 4C
Service Review Request

To:

Address:

Phone Number:

Project Number:



As a result of reviewing your concerns with you and the details of your file, the following conclusion has been reached:

We will keep a copy of this information in our files for the next 18 months. If you are not satisfied with the above conclusion and would like further review of your complaint, please indicate in the space provided at the bottom of this letter and return. Thank you for participating in this process.

Signed: _____

Name

Title

Date

Name: _____ Telephone Number: _____

Address: _____ Best time to call: _____

I request further review of this situation. My reasons and comments are in the space below.
(Attach a separate sheet if needed.)

Your Signature: _____ Date: _____

Dispute Resolution Fact Sheet

Arbitration is the submission of a dispute to one or more impartial persons for a final and binding decision. Through contractual provisions, the parties may control the range of issues to be resolved, the scope of relief to be awarded, and many procedural aspects of the process.

Chapter 7.04 RCW ARBITRATION

Under Chapter 7.04 RCW, all arbitrations are final and binding unless there is arbitrator misconduct or the arbitrator obviously disregarded the law.

Mediation is a process whereby a neutral person – the mediator – assists the parties in reaching a mutually acceptable resolution to their dispute. The mediator does not have the authority to make a binding decision, unlike arbitration, where the arbitrator renders a decision that is final and binding.

Appropriate Uses Of Mediation

Any civil dispute between two or more individuals or groups is appropriate for mediation. All parties to the dispute shall be able to comprehend and be willing to use the third party role of mediation. Thus individuals with impaired mental or emotional functioning often are unable to enter into productive negotiating. Also, individuals who have been part of a violent pattern of victimization usually are not able to negotiate in their best interests if they are the victims or stop intimidating behaviors if they are the persecutors. Such situations usually are not amenable to mediation.

What are Some Advantages of Mediation?

- Parties are directly engaged in negotiating the settlement.
- The mediator, as a neutral third party, can view the dispute objectively and can assist the parties in exploring alternatives that they might not have considered on their own.
- As mediation can be scheduled at an early stage in the dispute, a settlement can be reached much more quickly than with litigation.
- Parties generally save money through reduced legal costs and less staff time.
- Mediators have been carefully chosen for their knowledge and experience.
- Parties enhance the likelihood of continuing their business relationship.
- Creative solutions or accommodations to special needs of the parties can become a part of the settlement.
- Information disclosed during mediation may not be divulged as evidence in any arbitral, judicial, or other proceeding.

How Does Mediation Differ From Arbitration?

Arbitration is less formal than litigation, and mediation is even less formal than arbitration. Unlike an arbitrator, a mediator does not have the power to render a binding decision. A mediator does not hold evidentiary hearings as would an arbitrator but instead conducts informal joint and separate meetings with the parties to understand the issues, facts, and positions of the parties. In contrast, arbitrators hear testimony and receive evidence in a joint hearing, on which they render a final and binding decision known as an award. In joint sessions with each side, a mediator tries to obtain a candid discussion of the issues and priorities of each party. Gaining certain knowledge or facts from these meetings, a mediator can selectively use the information derived from each side to:

- Reduce hostility between parties and help them engage in meaningful dialogue on the issues at hand.
- Open discussions into areas not previously considered or inadequately developed.
- Communicate positions or proposals in understandable or more palatable terms.
- Probe and uncover additional facts and the real interests of parties.
- Help each party to better understand the other parties' views and evaluations of a particular issue without violating confidences.
- Narrow the issues and each party's positions, and deflate extreme demands.
- Gauge the receptiveness for a proposal or suggestion.
- Explore alternatives and search for solutions.
- Identify what is important and what is expendable.
- Prevent regression or raising of surprise issues.
- Structure a settlement to resolve current problems and future parties' needs.

Exhibit 4E

Dispute Resolution Resources

Arbitration

American Arbitration Association (AAA)

<http://www.adr.org/>

Regional Office

1 Convention Place
701 Pike Street, Suite 950
Seattle, WA 98101-4111
(206) 622-6435
Fax: (206) 343-5679

Mediation

Resolution Washington: An Association of Dispute Resolution Centers

<http://www.resolutionwa.org/>

Dispute Resolution Center Listings

If a dispute resolution center (DRC) is not available in your immediate area, contact the nearest center to discuss your agency's options.

Bellevue Neighborhood Mediation Program

11511 Main Street, P.O. Box 90012
Bellevue, WA 98009-9012
(425) 452-4091
Web site: <http://www.cityofbellevue.org/>

Benton Franklin Dispute Resolution Center

5219 W. Clearwater, Suite 11
Kennewick, WA 99336
(509) 783-3325
Fax: (509) 783-3449
E-Mail: bfdrc@bfdrc.org
Web site: <http://www.bfdrc.org/>

Exhibit 4E
Dispute Resolution Resources

Community Mediation Services

610 Esther St., P.O. Box 1995
Vancouver, WA 98668-1995
(360) 619-1140
Fax: (360) 696-8009
E-Mail: Community.Mediation@ci.vancouver.wa.us
Web site: <http://www.ci.vancouver.wa.us/>

Dispute Resolution Center of Kitsap County

9004 Washington Ave. NW
Silverdale, WA 98383
(800) 377-6583 or (360) 698-0968
Web site: <http://www.kitsapdrc.org/>

Dispute Resolution Center of Lewis County

57 W. Main St., #185
Chehalis, WA 98532
(360) 748-0492
Fax: (360) 748-7717
E-Mail: drclc@quik.com

DRC of Island and Snohomish Counties

Mailing: P.O. Box 839
Street: 2801 Lombard Avenue
Everett, WA 90206
(800) 280-4770 or (425) 339-1335
Fax: (425) 259-2110
E-Mail: drc@voaww.org
Web site: <http://www.voaww.org/>

Dispute Resolution Center of Thurston County

PO Box 6184
Olympia, WA 98507
(360) 956-1155
Fax: (360) 357-5168
E-Mail: info@mediatethurston.org
Web site: <http://mediatethurston.org/>

**Exhibit 4E
Dispute Resolution Resources**

Dispute Resolution Center of Yakima and Kittitas Counties

1106 B. West Lincoln Ave.
Yakima, WA 98902
(509) 453-8949 or 1 (800) 853-8949
Fax: (509) 453-0910
E-Mail: drcyakima@nwinform.net
Web site: <http://www.drcyakima.org/>
Newsletter: www.resolutionwa.org

Fulcrum Institute Dispute Resolution Center

905 W. Riverside, Suite 304
Spokane, WA 99201
(509) 838-2799
Fax: Same as telephone

King County Dispute Resolution Center

P.O. Box 21148
Seattle, WA 98111
(888) 803-4696 or (206) 443-9603
Fax: (206) 443-9737
Web site: <http://www.kcdrc.org/>

Mediation and Settlement Center

138 1st Street South, Suite 6
Montesano, WA 98563
(360) 249-1925
Fax: (360) 249-1926
E-mail: coastaldrc@centurytel.net

Neutral Ground - Walla Walla

P.O. Box 1222
Walla Walla, WA 99362
(509) 522-0399

NW Conflict Management Center

Community Building
35 W. Main, Suite No. 230
Spokane, WA 99202
(509) 456-0103
Fax: (509) 462-0525

Okanogan County Dispute Resolution Center

17 S. Ash St. – P.O. Box 3567
Omak, WA 98841
(509) 826-1776
E-Mail: drc@ncidata.com

**Exhibit 4E
Dispute Resolution Resources**

Peninsula Dispute Resolution Center

P.O. Box 1035
Port Angeles, WA 98362
(360) 452-8024
E-Mail: PDRC@olypen.com
Web site: <http://www.pdrc.org/>

Pierce County Dispute Resolution Center

917 Pacific Avenue, Suite 206
Tacoma, WA 98402
(253) 572-3657
Fax: (253) 572-3579
E-Mail: clientservices@pccdr.org
Web site: <http://www.pccdr.org/>

Skagit County Mediation Services

601 South Second St.
Mount Vernon, WA 98273
(360) 336-9494
Web site: <http://www.skagitcounty.net/>

Whatcom Dispute Resolution Center

13 Prospect St.
Bellingham, WA 98225
(360) 676-0122
Web site: www.co.whatcom.wa.us/superior/resources/dispute.jsp

Training Opportunities

Many DRCs offer mediation training throughout the year. Contact individual DRCs for training schedules.

Exhibit 5.1A(3)

Climate Zone Map and Tables

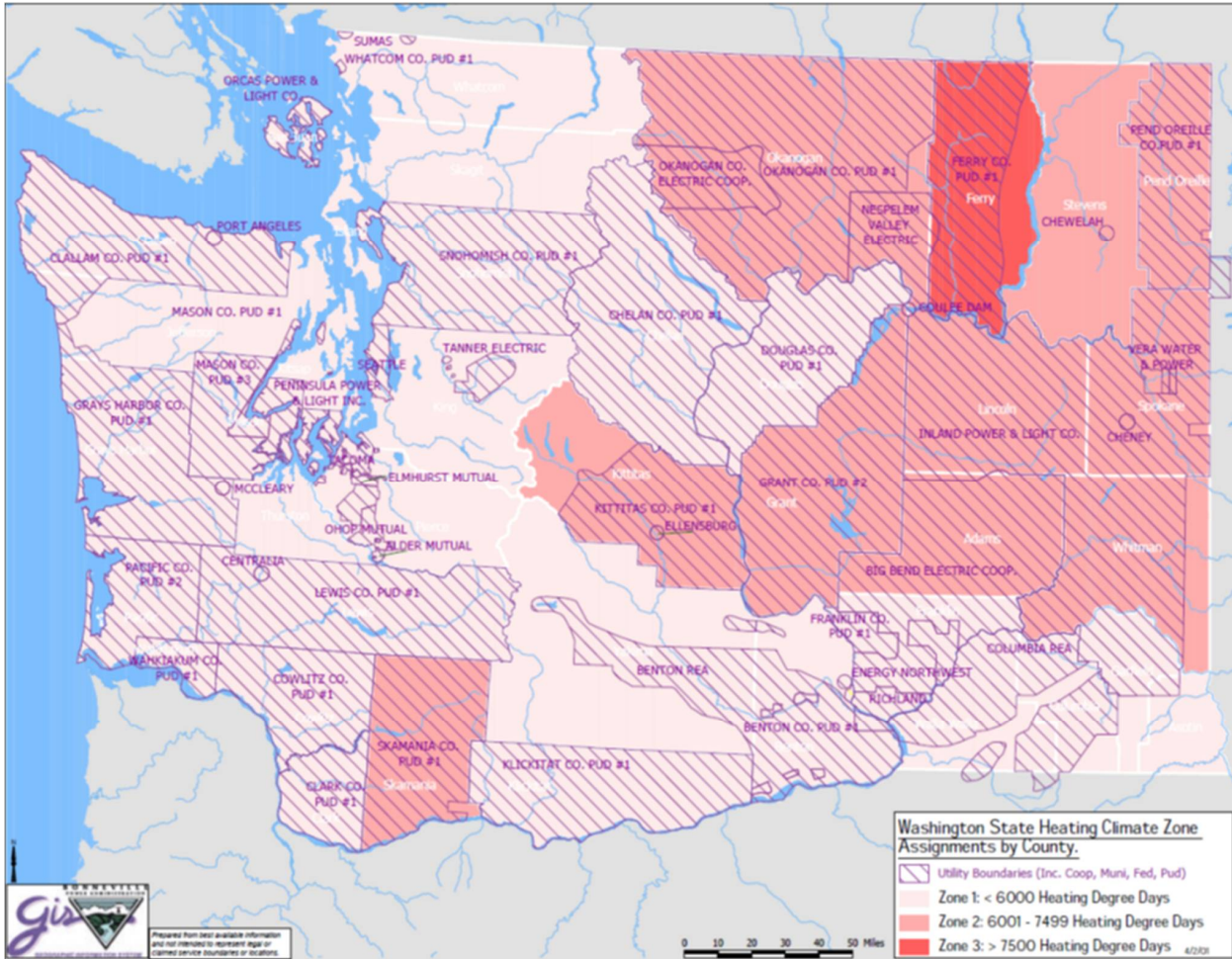


Exhibit 5.1A(3)

Climate Zone Table by Local Agency

Climate Zones			
	Agency	County Served	Climate Zone
401	Benton-Franklin Community Action Committee	Benton, Franklin	1
402	Blue Mountain Action Council	Columbia, Garfield, Walla Walla	1
403	Chelan-Douglas Community Action Council	Chelan, Douglas	1
404	City of Seattle Office of Housing - HomeWise Program	King	1
405	Olympic CommunityAction Programs	Clallam, Jefferson	1
406	Clark County Department of Community Services	Clark	1
407	Coastal Community Action Program	Grays Harbor, Pacific	1
408	Community Action Partnership - Idaho	Asotin	1
409	Community Action Center of Whitman County	Whitman	2
410	Community Action Council of Lewis, Mason and Thurston Counties	Lewis, Mason, Thurston	1
412	Housing Authority of Skagit County	Skagit	1
413	King County Housing Authority	King	1
414	Kitsap Community Resources	Kitsap	1
415	HopeSource	Kittitas	2
416	Washington Gorge Action Programs	Klickitat	1
		Skamania	2
417	Lower Columbia Community Action Council	Cowlitz, Wahkiakum	1
418	Metropolitan Development Council	Pierce	1
419	Rural Resources Community Action	Ferry, Lincoln, Pend Orielle, Stevens	2
420	Okanogan County Community Action Council	Okanogan	2
421	Pierce County Community Action Programs	Pierce	1
422	Snohomish County Human Services Department	Snohomish	1
423	Spokane Neighborhood Action Programs	Spokane	2
424	The Opportunity Council	Island, San Juan, Whatcom	1
425	Yakima Valley Farm Workers Clinic	Yakima	1
426	OIC of Washington	Adams	2
		Grant	2
		Yakima	1
907	Makah Tribal Housing	Clallam	1
909	Spokane Indian Housing Authority	Spokane	2
910	Yakima Nation Housing Authority	Yakima	1
911	South Puget Sound Intertribal Planning Agency	Grays Harbor, Lewis, Mason, Pacific, Pierce, Thurston	1

Exhibit 5.1A(3)

Climate Zone Table by County

County	Weighted HDD	Zone No.
Asotin County, WA	5,372	1
Benton County, WA	4,932	1
Chelan County, WA	5,737	1
Clallam County, WA	5,670	1
Clark County, WA	5,212	1
Columbia County, WA	5,601	1
Cowlitz County, WA	5,103	1
Douglas County, WA	5,905	1
Franklin County, WA	4,914	1
Garfield County, WA	5,499	1
Grays Harbor County, WA	5,109	1
Island County, WA	5,584	1
Jefferson County, WA	5,041	1
King County, WA	4,914	1
Kitsap County, WA	5,122	1
Klickitat County, WA	5,923	1
Lewis County, WA	5,069	1
Mason County, WA	5,035	1
Pacific County, WA	5,313	1
Pierce County, WA	4,666	1
San Juan County, WA	5,594	1
Skagit County, WA	5,357	1
Snohomish County, WA	5,231	1
Thurston County, WA	5,655	1
Wahkiakum County, WA	5,313	1
Walla Walla County, WA	5,057	1
Whatcom County, WA	5,622	1
Yakima County, WA	5,855	1
Adams County, WA	6,162	2
Grant County, WA	6,146	2
Kittitas County	6,804	2
Lincoln County, WA	7,093	2
Okanogan County, WA	6,675	2
Pend Oreille County, WA	7,357	2
Skamania County, WA	6,010	2
Spokane County, WA	6,845	2
Stevens County, WA	6,918	2
Whitman County, WA	6,765	2
Ferry County, WA	8,104	2

Exhibit 5.1A(6)

Site-Built Priority List Statewide Average Costs				
Measure	Average (\$)	Unit	Description	Measure Life
Attic/Ceiling Insulation to R-49				
Add R-49 (R-0 -> R-49)	2.14	per square foot	Ceiling blow, cellulose loose fill	45
Add R-38 (R-11 -> R-49)	1.82	per square foot	Ceiling blow, cellulose loose fill	45
Add R-30 (R-19 -> R-49)	1.56	per square foot	Ceiling blow, cellulose loose fill	45
Add R-19 (R-30 -> R-49)	1.27	per square foot	Ceiling blow, cellulose loose fill	45
Add R-11 (R-38 -> R-49)	0.92	per square foot	Ceiling blow, cellulose loose fill	45
Attic/Ceiling Insulation to R-38				
Add R-38 (R-0 -> R-38)	1.92	per square foot	Ceiling blow, cellulose loose fill	45
Add R-30 (R-8 -> R-38)	1.59	per square foot	Ceiling blow, cellulose loose fill	45
Add R-19 (R-19 -> R-38)	1.29	per square foot	Ceiling blow, cellulose loose fill	45
Add R-11 (R-27 -> R-38)	1.06	per square foot	Ceiling blow, cellulose loose fill	45
Sloped Ceiling Insulation				
2x4 cavity no insulation	1.49	per square foot	Blown insulation, closed cavity	45
2x6 cavity no insulation	1.8	per square foot	Blown insulation, closed cavity	45
Wall Insulation (2x4 cavity)				
No insulation - fill w/R-13	2.2	per square foot	dense pack, closed cavity	45
40% gaps and voids - fill w/R-13	2.2	per square foot	dense pack, closed cavity	45
Knee wall Insulation				
2x4 cavity Add R-11	1.4	per square foot	Open cavity, fiberglass batts	45
2x4 cavity Add R-13	1.26	per square foot	Open cavity, high density fiberglass batts	45
2x4 cavity Add R-15	1.33	per square foot	Open cavity, high density fiberglass batts	45
2x4 cavity Add R-21	1.52	per square foot	Open cavity, high density fiberglass batts	45
2x6 cavity Add R-19	1.57	per square foot	Open cavity, fiberglass batts	45
Duct Insulation				
Add R-11	5.65	per linear foot	Fiberglass batts	20
Add R-19	6.7	per linear foot	Fiberglass batts	20
Floor Insulation to R-30				
Add R-30 (R-0 -> R-30)	2.14	per square foot	Open cavity, fiberglass batts	25
Add R-19 (R-11 -> R-30)	1.86	per square foot	Open cavity, fiberglass batts	25
Add R-11 (R-19 -> R-30)	1.63	per square foot	Open cavity, fiberglass batts	25
Air Sealing				
Duct Sealing	3.07	per linear foot	In un-heated area	15
Priority Air Sealing	132.45	per 100CFM reduction	Obvious holes, crawl, garage, attic, walls	45
Mechanical Ventilation	708.1	each	Whole house/Local exhaust	45
Heating System Replacement				
Ductless Heat Pump – Single Head	4,282.55	each	Supplement permanently installed electric baseboard/wall heaters	20
90%+ Natural Gas Furnace	4,288.89	each	Replace low efficiency natural gas furnace	20
Other Measures				
Hot/Cold Water Pipe Insulation	3.49	per linear foot	In un-heated areas (crawl space, etc.)	13
Water Heater Insulation Wrap	141.32	each	In un-heated areas	13
Faucet Aerator	11.35	each	Direct install	15
Showerhead	21.15	each	Direct install	15
CFL Bulbs	8.76	each	Direct install	10
LED Bulbs	11.76	each	Direct install	20

1. Count is the number of agencies that submitted costs for a particular measure. A few measures were added to the analysis after we collected cost data from the agencies, so costs are taken from a few agencies that submitted additional costs. For these few measures, we believe the costs are reasonable for this analysis.

Exhibit 5.1A(6)

Manufactured Home Priority List Statewide Average Costs				
Measure	Avg. (\$)	Unit	Description	Measure Life
Attic/Ceiling Insulation to R-19				
			Single-wide	
Add R-19 (R-0 -> R-19)	1.42	per square foot	Ceiling blow, fiberglass	25
Add R-16 (R-3 -> R-19)	1.34	per square foot	Ceiling blow, fiberglass	25
Add R-12 (R-7 -> R-19)	1.23	per square foot	Ceiling blow, fiberglass	25
Add R-8 (R-11 -> R-19)	1.08	per square foot	Ceiling blow, fiberglass	25
Attic/Ceiling Insulation to R-31				
			Single-wide	
Add R-31 (R-0 -> R-31)	7.93	per square foot	Ceiling blow plus 2" rigid insulation	25
Add R-28 (R-3 -> R-31)	7.91	per square foot	Ceiling blow plus 2" rigid insulation	25
Add R-24 (R-7 -> R-31)	7.9	per square foot	Ceiling blow plus 2" rigid insulation	25
Add R-20 (R-11 -> R-31)	7.88	per square foot	Ceiling blow plus 2" rigid insulation	25
Attic/Ceiling Insulation to R-26				
			Double-wide	
Add R-26 (R-0 -> R-26)	1.64	per square foot	Ceiling blow, fiberglass	25
Add R-23 (R-3 -> R-26)	1.55	per square foot	Ceiling blow, fiberglass	25
Add R-19 (R-7 -> R-26)	1.42	per square foot	Ceiling blow, fiberglass	25
Add R-15 (R-11 -> R-26)	1.31	per square foot	Ceiling blow, fiberglass	25
Add R-10 (R-16 -> R-26)	1.2	per square foot	Ceiling blow, fiberglass	25
Attic/Ceiling Insulation to R-38				
			Double-wide	
Add R-38 (R-0 -> R-38)	2.03	per square foot	Ceiling blow, fiberglass	25
Add R-35 (R-3 -> R-38)	1.93	per square foot	Ceiling blow, fiberglass	25
Add R-31 (R-7 -> R-38)	1.76	per square foot	Ceiling blow, fiberglass	25
Add R-27 (R-11 -> R-38)	1.67	per square foot	Ceiling blow, fiberglass	25
Add R-22 (R-16 -> R-38)	1.52	per square foot	Ceiling blow, fiberglass	25
Wall Insulation				
2x4 cavity no insulation-fill	2.25	per square foot	dense pack, closed cavity	25
2x4 cavity 40% gaps and voids-fill	2.25	per square foot	dense pack, closed cavity	25
2x3 cavity no insulation-fill	2.25	per square foot	dense pack, closed cavity	25
2x3 cavity 40% gaps and voids-fill	2.25	per square foot	dense pack, closed cavity	25
Duct Insulation				
Add R-11	6.72	per linear foot	Fiberglass batts w/o floor insulation	15
Add R-19	7.56	per linear foot	Fiberglass batts w/o floor insulation	15
Floor Insulation to R-19				
Add R-19 (R-0 -> R-19)	2.18	per square foot	Dense pack belly	25
Add R-12 (R-7 -> R-19)	2.02	per square foot	Dense pack belly	25
Add R-8 (R-11 -> R-19)	1.47	per square foot	Dense pack belly	25
Floor Insulation to R-30				
Add R-30 (R-0 -> R-30)	2.7	per square foot	Dense pack belly	25
Add R-23 (R-7 -> R-30)	2.37	per square foot	Dense pack belly	25
Add R-19 (R-11 -> R-30)	2.18	per square foot	Dense pack belly	25
Add R-11 (R-19 -> R-30)	1.84	per square foot	Dense pack belly	25
Air Sealing				
Duct Sealing	3.56	per linear foot	In un-heated area	15
Priority Air Sealing	115.38	per 100CFM50 reduction	Obvious holes, crawl, garage, attic, walls	25
Mechanical Ventilation	730.01	each	Whole house/Local exhaust	25
Heating System Replacement				
90%+ Natural Gas Furnace	4,244	each	Replace low efficiency gas furnace	15
Other Measures				
Hot/Cold Water Pipe Insulation	3.83	per linear foot	In un-heated areas (crawl space...)	13
Water Heater Insulation Wrap	141.32	each	In un-heated areas	13
Faucet Aerator	11.35	each	Direct install	15
Showerhead	21.15	each	Direct install	15
CFL Bulbs	8.76	each	Direct install	10
LED Bulbs	11.76	each	Direct install	20

Note: Count is the number of agencies that submitted costs for a particular measure. Some measures are not installed by many agencies. Some measures were added to the analysis after cost data was collected from the agencies. In a few cases, costs are taken from a few agencies that submitted additional costs. For these few measures, we believe the costs are reasonable for this analysis.

Exhibit 5.1B WxM Ancillary Items, WRR, and H&S

WEATHERIZATION MEASURES (WxM)	Ancillary Items Cost must be included in SIR for associated individual WxM	Weatherization Related Repairs (WRR) Cost must be included in SIR for whole unit package of WxM	Health and Safety Measure (H&S) Separate cost justification. Not included in SIR
Include in Measure List Costs		Do not include in Measure List Costs	Do not include in Measure List Costs
Insulation			
Attic/Ceiling Insulation	Ventilation baffles, hatch dam, dams for heat producing devices, sealing non-IC rated fixtures, damming soffits and dropped ceilings, chimney clearances, vent clearances, single wall connector and pipes clearances, mechanical equipment retaining wall	Minor roof repair to preserve insulation, building an attic access , bird block wire, vent screening and framing	K&T inspection, K&T wiring, Open J-Box (General Electrical Repair), Garbage removal, passive ventilation, Minor repair of leaking roof that may create moisture/mold issue in new attic insulation. Secondary: sealing non-IC rated fixtures, attic hatch/rigid lid, damming soffits and dropped ceilings, chimney clearances, vent clearances, single wall connector and pipes clearances, mechanical equipment retaining wall, ventilation baffles
Mobile roof foam board Insulation (EPDM)	Membrane, boots, vents		
Wall Insulation	Drilling and sealing holes, sealing high and low openings in balloon framing, single wall connector and pipes clearances	Building structure to seal unusual openings (as in void areas between double ceilings) . Minor roof repair to preserve insulation	Minor repair of leaking roof that may create moisture/mold issue in new wall insulation.
Knee wall Insulation	String, staples	Building a knee wall access	
Duct Insulation	Support, isolation from ground, duct repair, duct replacement		
Floor Insulation	Ground cover (if installing underfloor insulation), string, lath, staples, belly patches, belly material, insulation coverage, passive venting, mobile home duct insulation	Skirt repair or replace, plumbing repair, Building a crawl space access , exterior access, vent screening and framing	Open J-Box (General Electrical Repair), Garbage or sewage removal, passive ventilation, ground cover (if install for mold/moisture), gutters, downspouts, and runners, below grade vents and penetrations in foundation walls
Air Seal			
Duct Sealing (unheated area)	In-progress testing (pressure pan test or duct blaster), repair, trunk damming, mastic, fasteners, support	Duct replacement	
Priority Air Seal (obvious holes, crawl, garage, attic)	Fasteners for patches, sealing an attic hatch/rigid lid, crawl space or knee wall access door (i.e. weather stripping) ,	Unusually large (defined by Grantee), such as more than 1 sheet of sheetrock, patching materials and labor	
Air Seal (required part of the larger air sealing)	Attic Hatch/ Rigid with Weather stripping	Items to complete proper construction such as: hold down clasps, handles, caulk for ceiling-to hatch frame seal, insulation	Demolition and/or framing for a new hatch, new ceiling trim and stop
	Crawl space or knee wall access door	Hinges, latches, insulation, 3 tab roofing for dog house style crawl access covers, Treated Lumber, Nails	Demolition of deteriorated existing frame, new framing, new trim and stop
	Caulking, weather stripping existing windows		
Mechanical Ventilation (IAQ)			damper, ducting, roof jack, wiring, insulation for existing ducts,
Heating System Replacement			
Ductless Heat Pump	wiring	Repair/replace Heat/Cool System due to damage, Inspect, clean & tune,	Repair/replace Heat/Cool System due to H&S, Inspect, clean & tune
Natural Gas Furnace 90%+	venting	Repair/replace Heat/Cool System due to damage, Inspect, clean & tune,	Repair/replace Heat/Cool System due to H&S, Inspect, clean & tune
Other Measures			
Hot/Cold Water Pipe Insulation (attic, crawl)	Panduit straps, tape	Secondary: hot and cold water pipe insulation	
Secondary:	The Work Classification DTF tried to identify for each measure if it was "Conservation," "WRR," or "H&S." This task was not easy. One of the benefits of this program is the flexibility. For measures that can be determined as any of the three: Conservation (including Ancillary Items), WRR, or H&S, the "Secondary" classification means the same measure is listed in another classification as Primary. The Primary classification is the one with preference. If the Secondary classification is used, ensure that the justification is documented in the client file.		

Exhibit 5.1.3A

Solid Fuel Burning Appliance Systems Supplemental Audit Form

Complete this form and place in client file (project file).

1. Is the system the primary heat source? Yes ___ No ___

2. What are the existing conditions of the system?

Components	Good	Fair	Poor	Health and Safety Concerns	Inoperable	Inefficient & life span less than one year
Chimney/flue system						
Wood heating unit						
Surrounding area (hearth, clearances, location)						

3. Describe recommended measure for existing situation: _____

4. What is your recommendation, based on cost and nature of the problem?

Repair Replace

5. Who is making this recommendation?

Agency Representative Heating System Subcontractor

I certify that the above information is complete and accurate.

Signature of Agency Representative *Date*

Client Information: I have received information on safe operation, proper maintenance, and clean burning for my new (or repaired) solid fuel burning appliance system.

Client Signature *Date*

Exhibit 5.1.4A

Link to Active Form *Client Health and Safety Packet*: [Exhibit-5.1.4A-Client-Health-and-Safety-Packet](#)

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[Exhibit-5.1.4A-Part-\(1\)-Client-Informed-Consent-Form](#)



Client Informed Consent Form

Client Name:	Auditor Name:
LA Project #:	Date:

Upon request, provide copy of this signed form to Client. If rental, also provide information to Owner.

Mold Assessment and Release Section:

Local Agency	<input type="checkbox"/> No mold growth identified during the energy audit. <input type="checkbox"/> During energy audit, our Auditor identified mold growth in the following areas of your home: <input type="checkbox"/> Living Rm <input type="checkbox"/> Kitchen <input type="checkbox"/> Bth Rm(s) <input type="checkbox"/> Bed Rm(s) <input type="checkbox"/> Attic <input type="checkbox"/> Crawl/Bsmnt <input type="checkbox"/> Combustion <input type="checkbox"/> Other <input type="checkbox"/> <p>The U.S. Department of Energy (DOE) generally does not allow Wx agencies to mitigate mold problems, however, some Wx actions associated with cost-effective energy saving measures may help to reduce moisture problems. The Local Wx Agency plans to install the following measures that may help resolve existing moisture problems. The work proposed should not promote new mold growth:</p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p>
Client	<p>Mold can be a problem in any home where there is an excessive amount of moisture or humidity present. An assessment of your home included a visual check for mold. This is not a mold inspection and the person making this assessment is not a certified mold inspector. Mold testing and identification of specific molds is beyond the scope of this Weatherization (Wx) program.</p> <p>Moisture disclaimer: By signing below, I acknowledge</p> <input type="checkbox"/> I received information concerning moisture & mold conditions in my home prior to Wx work. <input type="checkbox"/> I received Environmental Protection Agency's (EPA): A Brief Guide to Mold, Moisture and Your Home . <input type="checkbox"/> I will take steps to reduce excessive moisture. <input type="checkbox"/> I agree to hold the agency harmless for any future moisture or mold problems that are not associated with the weatherization work.

Asbestos Section:

Local Agency	<input type="checkbox"/> Asbestos Containing Materials (ACM) are suspected. <input type="checkbox"/> ACMs are NOT suspected. <input type="checkbox"/> Precautions will be taken to ensure the occupants' and workers' safety during Wx: <p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>ACM testing is not required. However if tests are performed, provide written asbestos test results to client.</p> <input type="checkbox"/> ACM testing will be performed and written results provided to client. <input type="checkbox"/> No ACM testing.
Client	<p>Instructions to Clients: Do not disturb suspected Asbestos Containing Materials.</p> <input type="checkbox"/> I received Environmental Protection Agency's (EPA): Asbestos information and Protect your Family links.

July 1, 2019



Client Informed Consent Form

Lead Pre-Renovation Section: Documents Federal Lead-Based Paint Renovation, Repair, & Painting Program requirements compliance.

Local Agency	<p>Provide Client Occupant with pamphlet/link within 7 and no more than 60 days prior to work starting. If provided by mail, send certified mail with read receipt showing that date received falls within guidelines.</p> <p>Renovator Self-Certification (for tenant-occupied dwellings only): I delivered pamphlet/link, but tenant signature was not obtainable: I certify I made a good faith effort to deliver the lead-hazard information pamphlet. I further certify I provided the link (herein) or left a copy of the pamphlet on the premises.</p> <p><input type="checkbox"/> Occupant declined to sign the confirmation of receipt.</p> <p><input type="checkbox"/> Occupant was unavailable to sign the confirmation of receipt.</p>
Client	<p><i>The Lead-Safe Certified Guide to Renovate Right</i> is a lead-hazard information pamphlet informing me of the potential risk of the lead-hazard exposure from renovation activity to be performed in my dwelling unit. I received this information before work began.</p> <p><input type="checkbox"/> I received Environmental Protection Agency's (EPA): <i>The Lead-Safe Certified Guide to Renovate Right</i>.</p>

Radon Section:

LA	<p><input type="checkbox"/> Zones 1 and 2 only: <i>Precautionary Measures installed as part of Wx:</i></p> <p><input type="checkbox"/> Exposed dirt floors covered/sealed <input type="checkbox"/> Floor/foundation penetrations sealed <input type="checkbox"/> Open sump pit capped</p> <p><input type="checkbox"/> Crawl space venting inspected/improved <input type="checkbox"/> Bsmt isolated (air seal) from living space <input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> Zone 3</p>
Client	<p>Weatherization achieves energy and cost savings and improved comfort, health, and safety of homes. According to the DOE sponsored study, "Weatherization and Indoor Air Quality: Measured Impacts in Single-family Homes under the Weatherization Assistance Program," a small risk of increased radon levels in homes may occur when building air tightness levels are improved. Other evidence suggests that continuous mechanical ventilation reduces radon levels in homes, counteracting any radon increase due to improved building air tightness.</p> <p><input type="checkbox"/> I am aware Weatherization may result in increased radon levels, and mechanical ventilation may counteract those increases.</p> <p><input type="checkbox"/> I have received Environmental Protection Agency's (EPA): A Citizen's Guide to Radon</p> <p><input type="checkbox"/> The Local Agency representative discussed radon related risks.</p> <p><input type="checkbox"/> I choose to go forward with Wx, and accept all radon risks of injury or damages.</p>

More Information:

- I received a link/copy the [Client Education Guide](#)
- I received a copy of the **Client Health & Safety Observed Conditions (Observed Conditions)** form.
- Links provided on **Observed Conditions** form suffice. In addition to links, I request paper pamphlets.

I have carefully read this **Client Informed Consent** form and have signed of my own free will.

Occupant Name (Printed)

Occupant Signature

Date

Auditor (or Local Agency Representative) Name (Printed)

Auditor (or LA Rep) Signature

Date

July 1, 2019

Exhibit-5.1.4A-Part-(2)-Client-Health-and-Safety-Observed-Conditions



Client Health & Safety Observed Conditions

Client Name:	Auditor Name:
LA Project #:	Date:

Provide Client with a copy of this form. If rental, also provide information to Owner.

GENERAL INFORMATION: Client Education Guide: http://www.commerce.wa.gov/wp-content/uploads/2019/07/Client-Education-Guide.pdf			
FOR YOUR HOME: Observed Potential Health & Safety Risk:	Yes	No	Describe/Comments/Actions Needed:
Health Concerns: Any obvious health conditions Wx materials might aggravate? (i.e. drywall, insulation, fiberglass, cellulose, duct mastic)	<input type="checkbox"/>	<input type="checkbox"/>	
Biological Hazards (including Mold and Moisture): (PSS #6) Any mold/moisture, sewage, or other biological hazard concerns present? EPA Booklet, <i>A Brief Guide of Mold, Moisture, and Your Home:</i> https://www.epa.gov/sites/production/files/2016-10/documents/moldguide12.pdf	<input type="checkbox"/>	<input type="checkbox"/>	
Building Structures & Roofing Issues: (PSS #24) Any obvious structural problems? (i.e. walls, ceiling/roof & floors)	<input type="checkbox"/>	<input type="checkbox"/>	
Asbestos Risks: (PSS #22) Do you suspect the presence of asbestos? (i.e. ceilings, walls, floors, exterior siding, vermiculite insulation, pipe/furnace coverings) More Asbestos Information: https://www.epa.gov/asbestos and https://www.epa.gov/asbestos/protect-your-family#identify	<input type="checkbox"/>	<input type="checkbox"/>	If yes, instruct client: Do NOT disturb suspected ACM.
Drainage Issues: (PSS #1) Any obvious signs of drainage issues? (i.e. pooled water, water damage, or other issues)	<input type="checkbox"/>	<input type="checkbox"/>	
Electrical Issues: Any obvious electrical issues? (i.e. overloaded circuits or outlets, outages, exposed wires)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fire Hazards: Any obvious, possible fire hazards in or around home? (i.e. chemical, electrical, or other)	<input type="checkbox"/>	<input type="checkbox"/>	
VOCs/Chemical Air Pollutants: (PSS #14) Do you suspect presence of Volatile Organic Compounds (VOC) or other air pollutants in the home?	<input type="checkbox"/>	<input type="checkbox"/>	
Injury Prevention Issues: Any obvious hazards that should be noted? (i.e. broken stairs, fall hazards, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	
Lead Based Paint: (PSS #20) (take pictures) Is flaking or peeling paint visible around home? If so, does it likely contain lead? Is home pre-1978? EPA Booklet, <i>The Lead-Safe Certified Guide to Renovate Right:</i> https://www.epa.gov/sites/production/files/documents/rr_english_color_book.pdf	<input type="checkbox"/>	<input type="checkbox"/>	
Pest Control Issues: (PSS #18) (take pictures) Any pests or infestations present in or around home?	<input type="checkbox"/>	<input type="checkbox"/>	
Fuel Leaks: Any fuel leaks present in or around home?	<input type="checkbox"/>	<input type="checkbox"/>	
Other: Any other noted health, safety, or specific concerns present?	<input type="checkbox"/>	<input type="checkbox"/>	
Radon Information: EPA Booklet, <i>A Citizen's Guide to Radon:</i> https://nepis.epa.gov/Exe/ZvPDF.cgi/P100F7ZO.PDF?Dockey=P100F7ZO.PDF Weatherization and Indoor Air Quality: Measured Impacts in Single-family Homes under the Weatherization Assistance Program: https://weatherization.ornl.gov/wp-content/uploads/pdf/WAPRetroEvalFinalReports/ORNL_TM-2014_170.pdf			

July 1, 2019

[Exhibit-5.1.4A-Part-\(3\)-Pollution-Source-Survey](#)



Pollution Source Survey

Client Name:	Auditor Name:
LA Project #:	Date:

Local agencies shall use Pollution Source Survey results to document justification for installation of a particular health or safety measure in a project with a note in the Scope of Work. **Example:** Note in Scope of Work Plumbing Repair measure – PSS Condition #3 *Plumbing leaks inside the home or in the crawl space, with a Rating 3 = Current Major Leak.*

Keep It Dry:

1. Seasonal water pooling in crawlspace?

<input type="checkbox"/> 0=N/A or completely dry	Notes: <i>Auto fill onto Client H&S Observed Conditions – Drainage Issues</i>
<input type="checkbox"/> 1=limited moisture	
<input type="checkbox"/> 2=some moisture	
<input type="checkbox"/> 3=major pooling	

2. Vapor barrier present in the crawlspace?

<input type="checkbox"/> 0=N/A or good condition	Notes:
<input type="checkbox"/> 1=yes w/ some gaps	
<input type="checkbox"/> 2=yes but poor condition	
<input type="checkbox"/> 3=none	

3. Plumbing leaks inside the home or in the crawlspace?

<input type="checkbox"/> 0=none/completely dry	Notes:
<input type="checkbox"/> 1=sign of past leak	
<input type="checkbox"/> 2=current minor leak	
<input type="checkbox"/> 3=current major leak	

4. Noticeable leaks or water staining on ceilings or walls?

<input type="checkbox"/> 0=no signs	Notes:
<input type="checkbox"/> 1=minor stain	
<input type="checkbox"/> 2=multiple stains	
<input type="checkbox"/> 3=major damage	

5. Condensation/moisture noticeable on windows or surfaces?

<input type="checkbox"/> 0=some, at times	Notes:
<input type="checkbox"/> 1=frequent moisture	
<input type="checkbox"/> 2=heavy/problematic	
<input type="checkbox"/> 3=major/extensive	

6. Visible mold in the home?

<input type="checkbox"/> 0=none visible	Notes: <i>Auto fill onto Client H&S Observed Conditions – Biological Hazards</i>
<input type="checkbox"/> 1=localized/small area	
<input type="checkbox"/> 2=multiple locations	
<input type="checkbox"/> 3=major/extensive	



Pollution Source Survey

7. Unusually high relative humidity (RH) levels?

<input type="checkbox"/> 0=<50% RH	Notes:
<input type="checkbox"/> 1=50-60% RH	
<input type="checkbox"/> 2=60-70% RH	
<input type="checkbox"/> 3=>70% RH	

8. Extra sources of moisture in the home? (e.g. unvented dryer, fish tanks, many houseplants)

<input type="checkbox"/> 0=none	Notes:
<input type="checkbox"/> 1=some	
<input type="checkbox"/> 2=several	
<input type="checkbox"/> 3=excessive	

Keep It Clean:

9. Condition of carpet: dirty, worn, water soaked?

<input type="checkbox"/> 0=no carpet/like new	Notes:
<input type="checkbox"/> 1=decent condition	
<input type="checkbox"/> 2=some problems	
<input type="checkbox"/> 3=old/dirty/worn	

10. Warm blooded pets (cats, dogs, hamsters, birds, etc.) inside the home?

<input type="checkbox"/> 0=no pets	Notes:
<input type="checkbox"/> 1=limited #/ lived -in	
<input type="checkbox"/> 2=some throughout	
<input type="checkbox"/> 3=many throughout	

11. Housekeeping problems? Cluttered or unsanitary?

<input type="checkbox"/> 0=clean/uncluttered	Notes:
<input type="checkbox"/> 1=normal/lived-in	
<input type="checkbox"/> 2=poor housekeeping	
<input type="checkbox"/> 3=major issues	

12. Condition of filters used in heating system?

<input type="checkbox"/> 0=N/A or new	Notes:
<input type="checkbox"/> 1=decent condition	
<input type="checkbox"/> 2=change soon	
<input type="checkbox"/> 3=missing or clogged	

Keep It Safe:

13. Do cars park in attached garage, with pollution pathways into the home?

<input type="checkbox"/> 0=N/A (no attached)	Notes:
<input type="checkbox"/> 1=limited pathways	
<input type="checkbox"/> 2=some pathways	
<input type="checkbox"/> 3=major pathways	



Pollution Source Survey

14. Paints, solvents, thinners, pesticides stored in home?

<input type="checkbox"/> 0=none in home	Notes: <i>Auto fill onto Client H&S Observed Conditions – VOC/Chemical Air Pollutants</i>
<input type="checkbox"/> 1=few	
<input type="checkbox"/> 2=several	
<input type="checkbox"/> 3=excessive	

15. Functioning carbon monoxide detectors and smoke alarms?

<input type="checkbox"/> 0=all installed/functioning	Notes:
<input type="checkbox"/> 1=few, but working	
<input type="checkbox"/> 2=inadequate/old	
<input type="checkbox"/> 3=none functioning	

Keep it Well-Ventilated: _____

16. Combustion appliances properly vented?

<input type="checkbox"/> 0=N/A or well vented	Notes:
<input type="checkbox"/> 1=minor problem	
<input type="checkbox"/> 2=significant problem	
<input type="checkbox"/> 3=not vented outside	

17. Bath and kitchen fans properly functioning?

<input type="checkbox"/> 0=excellent ventilation	Notes:
<input type="checkbox"/> 1=adequate	
<input type="checkbox"/> 2=inadequate	
<input type="checkbox"/> 3=no functioning fans	

Keep It Pest Free: _____

18. Are there signs of rodents, cockroaches, or other pests in the house, attic or crawl?

<input type="checkbox"/> 0=no signs	Notes: <i>Auto fill onto Client H&S Observed Conditions – Pest Control Issues</i>
<input type="checkbox"/> 1=few signs	
<input type="checkbox"/> 2=several signs	
<input type="checkbox"/> 3=active	

19. Insecticides or rodenticides used in the home or ductwork?

<input type="checkbox"/> 0=none used	Notes:
<input type="checkbox"/> 1=minimal use	
<input type="checkbox"/> 2=multiple locations	
<input type="checkbox"/> 3=used throughout	

Keep it Contaminant Free: _____



20. Paint peeling or flaking on floors, walls, ceilings (in pre-1978 home)?

<input type="checkbox"/> 0=none	Notes: <i>Auto fill onto Client H&S Observed Conditions – Lead Based Paint</i>
<input type="checkbox"/> 1=localized	
<input type="checkbox"/> 2=multiple locations	
<input type="checkbox"/> 3=widespread	



Pollution Source Survey

21. Environmental tobacco smoke (ETS) in the home?

<input type="checkbox"/> 0=N/A (no smoking)	Notes:
<input type="checkbox"/> 1=signs of ETS	
<input type="checkbox"/> 2=strong ETS odor	
<input type="checkbox"/> 3=excessive ETS	

22. Vermiculite or other presumed asbestos containing material (PACM) in the home?

<input type="checkbox"/> 0=no PACM	Notes: <i>Auto fill onto Client H&S Observed Conditions – Asbestos Risk</i>
<input type="checkbox"/> 1=good condition	
<input type="checkbox"/> 2=no immediate risk	
<input type="checkbox"/> 3=friable/damaged	

23. Unusually strong odors – chemical cleaners, air fresheners, mold/mildew, etc. in the home?

<input type="checkbox"/> 0=none	Notes:
<input type="checkbox"/> 1=moderate scents	
<input type="checkbox"/> 2=strong odors	
<input type="checkbox"/> 3=extreme odors	

Keep it Well Maintained:

24. Slip, trip, or fall hazards due to structure?

<input type="checkbox"/> 0=none	Notes: <i>Auto fill onto Client H&S Observed Conditions – Building Structure & Roofing</i>
<input type="checkbox"/> 1=small hazard	
<input type="checkbox"/> 2=multiple hazards	
<input type="checkbox"/> 3=major hazards	

Thermally controlled:

25. Temperature unusually warm or cold in the home?

<input type="checkbox"/> 0=normal (~60-70F)	Notes:
<input type="checkbox"/> 1=somewhat unusual	
<input type="checkbox"/> 2=very cold or hot	
<input type="checkbox"/> 3=excessive/danger	

[Exhibit-5.1.4A-Part-\(4\)-Reference-Guide-to-Pollution-Source-Survey-Home-Rating-Scale](#)

TOC

Reference Guide to Pollution Source Survey Home Rating Scale

Local agencies shall document justification for installation of a particular health or safety measure in a project with a note in the Scope of Work.

Example: Condition #3 - Plumbing Leak inside the home or in the crawl space, with a Rating 3 = Current Major Leak is noted in Plumbing Repairs measure.

Keep it Dry

1. Seasonal water pooling in crawl space?

- 0 = **N/A totally dry:** Dry vapor barrier, dry soil or concrete/rocks, no wood moisture detectable.
- 1 = **Limited moisture:** Moist soil or concrete, visual moisture on wood, no visual standing water.
- 2 = **Some moisture:** Above, less than 4sqft of visual pooling of water on soil or concrete/rocks limited to one location, no water pooled above vapor barrier, moist wood evident.
- 3 = **Major pooling:** Standing water pooled in crawl over an area greater than 4sqft, multiple pools of standing water above and under vapor barrier. Or crawl completely covered in more than 1" of standing water.

2. Is there a vapor barrier present in the crawl?

- 0 = **N/A or yes, in good condition:** 100% of the ground surface is covered with 6-mil polyethylene film. The seams are overlapped 6 inches. The polyethylene film is stapled in place.
- 1 = **Yes with some gaps:** 75% of the ground surface is covered with 6-mil polyethylene film. The seams are not overlapped and less than 6 inches of gap exist between one row of film and another. Less than 6 inches of visible soil or concrete between sheets.
- 2 = **Yes, but in poor condition:** Less than 75% of the ground surface is covered with some type of polyethylene film. The seams are not overlapped and gap greater than 6 inches exist between rows of film. Visible soil or concrete/rocks in area greater than 1200 4sq ft.
- 3 = **None:** No barrier exist between concrete/rocks and crawl space. Less than 50% of crawl covered.

3. Plumbing leaks inside the home or in the crawl space?

- 0 = **None/totally dry:** No stains, no water damage, no water detected.
- 1 = **Sign of past leak:** Evidence of water stain (such as darkened area) over a small area of floor (less than 4 square feet). Water not seen.
- 2 = **Current minor leak:** Leak or drip contained to one area, does not adversely affect the area around it. No water pooled.
- 3 = **Current major leak:** There is a steady leak adversely affecting the area around it. Pooling water around leaking plumbing and/or steadily dripping into the crawl.

4. Noticeable leaks or water staining on ceiling or walls?

- 0 = **No signs:** No water stains/no damage
- 1 = **Minor stain:** Ceiling or walls have water damage limited to less than 2 square feet of water damage or water staining (such as darkened area). No deteriorated paint or soft building materials.
- 2 = **Multiple stains:** Ceiling or walls have water damage/staining/leaks limited to 2 square feet of water damage or water or in 2 or more locations. Deteriorated paint but no visible bulging, buckling, sagging or soft building materials.
- 3 = **Major damage:** Ceiling or walls have water damage or leaks greater than 2 square feet for each instance over a total area greater than 4 square feet. Deteriorated paint. Visible bulging, buckling, sagging, lack of horizontal alignment or holes in building materials.

5. Is condensation/moisture noticeable on windows or other surfaces?

- 0 = **None observed:** Resident did not report and the observer did not notice condensation on windows or other surfaces
- 1 = **Some at times:** Condensation visible limited to fewer than 4 surfaces at specific times of day. No water pooling, no mold or water damage visible.
- 2 = **Frequent moisture:** Condensation visible throughout the day on more than 4 windows or surfaces. No water pooled around surface. Visible mold on same surfaces. No water damage visible on adjoining wood and/or drywall.
- 3 = **Heavy/problematic:** Condensation visible throughout the day on more than 4 windows or surfaces. Water pooled around the surface. Visible mold on surface and/or adjoining drywall or wood. Visible water damage to window surfaces and adjoining wood and/or drywall.

6. Visible mold in the home?

- 0 = **None visible:** No visible mold or musty odor
- 1 = **Localized/small area:** Visible mold like substance on 1-2 surfaces limited to area less than 1 square foot. Or no visible mold, but musty odor present.
- 2 = **Multiple locations:** More than 2 surfaces in the home have visible mold like substance in area limited to less than 2 square feet or strong musty odor.
- 3 = **Major/extensive:** More than 2 surfaces in the home have visible mold like substance in an area greater than 2 square feet or offensive/excessive musty odor.

7. Unusually high relative humidity (RH) levels?

Use hygrometer and note highest RH level during the home visit.

8. Extra sources of moisture (e.g. unvented dryer, fish tanks, many houseplants) in the home?

- 0 = **None:** No potential extra sources of moisture visible or detected.
- 1 = **Some:** 1-2 small sources of moisture visible or detected.
- 2 = **Several:** 2-4 small extra sources of moisture visible or detected.
- 3 = **Excessive:** More than 4 small sources of moisture visible or detected or 1 large source of moisture.

Keep it Clean

9. Condition of carpet: dirty, worn, water soaked?

- 0 = **No carpet/like new:** No carpet visible in home. Low in perfect condition and clean.
- 1 = **Decent condition:** Less than 10% of the carpet has stains, surface burns, shallow cuts, small holes or tears. The flooring is fully functional and there is no safety hazard.
- 2 = **Some problems:** Greater than 10% but less than 50% of the carpet has stains, visible dirt, surface burns, shallow cuts, small holes or tears. The flooring is fully functional and there is no safety hazard.
- 3 = **Old/dirty/worn:** More than 50% of the carpet is stained, dirty or damaged. Or damage to the carpet has exposed underlying material or sub floor visible.

10. Warm-blooded pets (cats, dogs, hamsters, birds, etc.) inside home?

- 0 = **None:** No pets. Pets present, but not allowed inside the home.
- 1 = **Limited #/location-one:** 1 pet allowed in the home. Pet is limited to one room or less than 10% of the home. Not allowed on furniture.
- 2 = **Somewhat/throughout:** 1-4 pets allowed in the home. Pets are allowed in most of the home, not to exceed 60%
- 3 = **Many/throughout:** 1-4 or more pets in the home. Pets are allowed in 100% of the home including on furniture.

11. Housekeeping problems? Cluttered or unsanitary?

- 0 = **Clean/uncluttered:** All doors and stairways of the home are accessible. Normal household activity. Home has normal, healthy housekeeping and safe and healthy sanitation.
- 1 = **Normal/lived in:** All doors and stairways of the home are accessible. Normal household activity. Clutter is not excessive. Home has normal, healthy housekeeping and safe and healthy sanitation.
- 2 = **Poor housekeeping:** Visible clutter outdoors, including items normally stored indoors, such as televisions and sofas. Excessive dust, dirty bed linens and no recent vacuuming or sweeping. Heavily soiled food preparation areas and full or odorous garbage cans. Dirty laundry exceeds three full hampers per bedroom. Strong unpleasant odors throughout the house.
- 3 = **Major issues:** Indoor clutter leads to narrow hall and stair pathways; one bedroom or bathroom isn't fully usable. Rooms are unusable. Rotting food on counters and no clean dishes or utensils in kitchen.

12. If filters used in the heating system, what is the condition of the filter (s)?

- 0 = **N/A or perfect condition:** Heating system does not require furnace filter. Baseboards, radiant heat, electric space heater, etc. Brand new, well-fitted filter installed. >1month old.
- 1 = **Decent condition:** Filter older than 1 month but less than 3 months old. Original filter color. Little visible dust.
- 2 = **Change soon:** Filter older than 3 months. Filter is dark gray color. Some light visible through filter.
- 3 = **Missing or clogged:** Heating system does require filter but none present. Filter is dark gray or black in color and clogged. No light visible through filter.

Keep it Safe

13. Do cars park in attached garage, with pollution pathways into home?

- 0 = **N/A (no attached garage):** No attached garage present. No garage present that shares a wall with the home. No cars.
- 1 = **Limited pathways:** Attached garage present. Car(s) parked in attached garage. Good seal on door between the garage and the living space. No other likely air pathways between garage and home.
- 2 = **Some pathways:** Attached garage present. Car(s) parked in attached garage. Poor seal on door between the garage and the living space. Other possible air pathways between garage and home.
- 3 = **Major pathways:** Attached garage present. Car(s) parked in attached garage. Very poor/missing seal on door between the garage and the living space. Major obvious air pathways (holes in door, wall, etc.) between garage and home.

14. Paints, solvents, thinners, pesticides stored in home?

- 0 = **None in home:** No paints, solvents, thinners, pesticides stored in the home.
- 1 = **Few:** 1-2 containers of paints, solvents, thinners and/or pesticides stored in the home. Faint chemical scent.
- 2 = **Several:** 2-4 containers of paints, solvents, thinners and/or pesticides stored in the home. Moderate chemical scent.
- 3 = **Excessive:** More than 4 containers of paints, solvents, thinners and/or pesticides stored in the home. At least one container of toxic substance stored in a place that young children could easily access. Strong chemical scent.

15. Functioning carbon monoxide detectors and smoke alarms?

- 0 = **All installed/function:** At least one smoke detector and CO detector on every level of the home, outside each bedroom and in a common living area. All are functional. Both smoke detector and CO detectors in common area powered by main electrical supply with battery back-up. Detectors less than 5 years old.
- 1 = **Few, but working:** Smoke detectors and CO detectors present and working on every level of the home, but not outside each bedroom. Both smoke detector and CO detector in common area powered by main electrical supply with battery back-up.
- 2 = **Inadequate/old:** Smoke detectors and CO detectors present but not on every level of the home, not outside each bedroom. Both smoke detector and CO detector in common area powered by main electrical supply but with no battery back-up. Detectors are older than the manufacturer's expiration date.
- 3 = **None/none functioning:** No CO detector or smoke detector present in home. Smoke detector or CO detector in home but when tested detector does not work as designed.

Keep it Well-Ventilated

16. Are combustion appliances properly vented?

- 0 = **N/A or well vented:** Electric appliances with no exhaust ventilation required. Combustion appliances exhaust vents are not misaligned, damaged, blocked or disconnected.
- 1 = **Minor problem:** Combustion appliances exhaust vents are not misaligned, damaged, blocked or disconnected. Evidence of rust and corrosion on flue pipe that could cause improper function.
- 2 = **Significant problem:** Misalignment of exhaust system on a combustion unit that causes improper or dangerous venting of gases. Evidence of rust and corrosion that could cause improper flue pipe or function. Evidence of blockage or disconnection.
- 3 = **Not vented outside:** No exhaust system present. Completely unvented combustion appliance. Reverse airflow in chimney observed. Major exhaust blockage or disconnection.

17. Are bath fans and kitchen fans functioning?

- 0 = **Excellent ventilation:** Both bath fan and kitchen fan are functioning and meet ventilation standards.
- 1 = **Adequate ventilation:** Both bath fan and kitchen fan are functioning but at least one has limited airflow.
- 2 = **Inadequate ventilation:** Both bath fan and kitchen fan are functioning but together they do not meet ventilation standards. Partial or full blockage or accumulation of dirt threatens the free passage of air so that fan does not function as designed. Functioning bath fan or functioning kitchen fan, but not both. At least one exhaust fan is not functioning.
- 3 = **No functioning fans:** Neither bath fan or kitchen fan are functioning. No bath fan or kitchen fan.

Keep it Pest-free

18. Are there signs of rodents, cockroaches or other pests in the house, attic or crawl?

- 0 = **No signs:** No roaches or roach evidence present, no rat/mice/droppings/holes, no other insects or vermin seen
- 1 = **Few signs:** Roach frass, rodent dropping or chewed holes, evidence of other insect or vermin in a single, contained area of the home.
- 2 = **Several signs:** One or more live roaches/rats/mice found in crawl but none found in house or attic. Evidence of frass or droppings in 2 or more rooms.
- 3 = **Active infestation:** Multiple roaches/rats/mice found in house/attic/crawl. Frass or droppings are thick or evident throughout the home

19. Are insecticides or rodenticides used in home or ductwork?

- 0 = **None used**
- 1 = **Minimal use:** Insecticides or rodenticides were used but not in the past 6 months. None used in the home or ductwork.
- 2 = **Multiple locations:** Insecticides or rodenticides were used in the crawl, attic or outside areas but not inside the living space of the home (including ductwork)
- 3 = **Used throughout:** Insecticides or rodenticides used in the crawl, attic, outside area and inside the living space of the home (including ductwork)

Keep it Contaminant-free

20. Paint peeling or flaking on floors, windows, walls, or ceilings?

- 0 = **None:** No evidence of paint peeling or flaking on floors windows, walls, or ceilings.
- 1 = **Localized:** Evidence of paint flaking on 1 area less than 1 square foot on a wall, ceiling, floor or windowsill.
- 2 = **Multiple locations:** Evidence of paint flaking on 2 or more areas less than a total of 2 square feet on a wall, ceiling, floor and/or windowsill.
- 3 = **Widespread:** Evidence of paint flaking on 3+ areas equal to or greater than 2 square feet on a wall, ceiling, floor and/or windowsill.

21. Environmental tobacco smoke (ETS) in the home?

- 0 = **N/A, none:** No evidence of ETS in home or in adjoining units (if applicable).
- 1 = **Signs of ETS:** Evidence of lingering tobacco smoke odor including tobacco smoke odor evident only when dust is disturbed.
- 2 = **Strong ETS:** Tobacco smoke odor noticed upon entering the home. Stained walls, curled wallpaper.
- 3 = **Excessive ETS:** Active smoking in home. Tobacco smoke odor noticed upon entering the home, on the body of residents. Lingers when ventilation fans activated or when windows/doors opened.

22. Vermiculite or other PACM (presumed asbestos containing material) present in the home?

- 0 = **No PACM:** Newer home, older home known not to have PACM hazards
- 1 = **Present, but in good condition:** Older home known to have PACM, material in good condition. Material in area of home with limited access and not in danger of being torn, disturbed or water damaged. Materials have been sealed or enclosed.
- 2 = **No immediate risk:** Older home known to have PACM, material in OK condition. Material in area of home with easy access and in danger of being torn, disturbed or water damaged. Materials have not been treated or enclosed but could potentially be treated or preserved.
- 3 = **Friable/damaged:** Older home known to have PACM. Material that has been damaged over time, crumbles easily if handled, or that has been sawed, scraped, or sanded into a powder. Material is in area of home with easy access and has been torn, disturbed or water damaged. Materials have not been treated or enclosed but given the state could not be easily done.

23. Unusually strong odors-like chemical cleaners, air fresheners, mold/mildew, etc. in the home.

- 0 = **None:** No odors noticed in home
- 1 = **Moderate scents:** No strong scents noticed upon entering the home. Any odor noticed quickly dissipate when ventilated.
- 2 = **Strong odors:** Strong odors noticed upon entering the home. Odors dissipate when ventilated but reappear when doors/windows are closed or when fans are turned off.
- 3 = **Extreme odors:** Strong odors noticed upon entering the home. Odors do not dissipate when ventilated.

Keep it Well-Maintained

24. Slip, trip or fall hazards due to structure?

- 0 = **None:** No slip/trip hazards
- 1 = **Small hazard:** Slip hazard limited to one room or area of home
- 2 = **Multiple hazards:** Slip trip or fall hazards in 1-2 rooms or areas of the home
- 3 = **Major hazards:** Slip trip or fall hazards in 3+ rooms or areas of the home or an extraordinary hazard, like the potential for a long fall.

Thermally Controlled

25. Temperature unusually warm or cold in the home?

- 0 = **Normal (~60-70F):** Not unusually warm or cold in the home
- 1 = **Somewhat unusual:** Temperature in home is greater than 70F but less than 75F. Temperature somewhat unusually cold, less than 60F but greater than 55F.
- 2 = **Very cold or hot:** Temperature in home is very hot greater than 75F but less than 85F. Temperature is very cold, less than 55F but greater than 50F.
- 3 = **Excessive/danger:** Temperatures in home is very hot greater than 85F. Temperature is very cold, less than 50F - home is uninhabitable.

Exhibit 5.1.4B

General information on Health and Safety and the Wx Program: [Client Education Guide](#)

The image displays a grid of 20 pages from a client education guide. The pages are organized into a 4x5 grid. The first page (top-left) is a cover page titled 'Washington State Energy Center Inc. Weatherization Program'. The subsequent pages contain various sections such as 'Energy efficiency', 'Energy audits', 'Energy conservation', 'Energy savings', 'Energy audits', 'Energy conservation', 'Energy savings', 'Energy audits', 'Energy conservation', 'Energy savings', 'Energy audits', 'Energy conservation', 'Energy savings', 'Energy audits', 'Energy conservation', 'Energy savings', 'Energy audits', 'Energy conservation', 'Energy savings'. Each page includes text, images, and diagrams related to energy and home maintenance. The pages are numbered 1 through 20.

Link to Active Form: [Exhibit 5.1.6A, Economic Analysis of Refrigerator Replacement](#)

Economic Analysis of Refrigerator Replacement

Blue Entries are cells that can be changed by the user

Remember to press Enter after typing each input

Check for updates at: <http://www.energytools.com>

Main Inputs

Name of Job:

Monthly Energy Cost of Existing Refrigerator, as read by Power Meter:

Annual Energy Use of Replacement Refrigerator from Energy Label:

Cost of Refrigerator Replacement, including disposal of old fridge:

Electric Rate for the Home with the Refrigerator:
(make sure this is entered into the Power Meter)

Economic Assumptions Supplied by DOE

Life of the Refrigerator: 15 years
Economic Discount Rate (real, with inflation removed): 3.50% per year

Results

Annual Energy Use of Existing Refrigerator:	1,292 kWh per year
Annual Energy Use of Replacement Refrigerator:	430 kWh per year
Energy Savings:	<u>862 kWh per year</u>
Annual Energy Cost Savings:	\$ 82 per year
Simple Payback:	6.1 years
Savings-to-Investment Ratio, SIR:	1.89



Exhibit 5.1.8

CERTIFICATE OF INSULATION							
DWELLING INFORMATION				CONTRACTOR INFORMATION			
ADDRESS OF RESIDENCE:				NAME:			
DATE INSULATION WAS INSTALLED:				ADDRESS:			
Area Insulated/ Area Identifier	Square Footage	Existing R Value	Added R Value	Final R Value	Type of Insulation & Method of Installation (Standard of Dense Pack)	Depth Installed & Settled	# of Bags/Sheets
Attic – Area 1							
Attic – Area 2							
Roof							
Floor – Area 1							
Floor – Area 2							
Heating Ducts							
Wall – Area 1							
Wall – Area 2							
Rim Joist							
Machine Water Column							
<p>I, _____ (print name), certify that this residence was insulated in conformance with all applicable codes, standards, regulations, and specifications of the Low-Income Weatherization Assistance Program, as administered by the State of Washington.</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">Weatherization Contractor Signature Date</p>							
Revised 07/2021							

Weatherization Measures (WxM) Maximum Lifetimes

See also WPN 19-4, Attachment 9 – *Maximum Lifetimes of Weatherization Measures, Table 9.2, Allowable Default ECM Lifetimes*

Type	Measure	Name	Measure Life (yr)
Building Insulation	Attic Insulation	Blown-in and Batt Insulation	30
		All other types of Attic Insulation	20
	Rim Joist Insulation	Sill Box or Rim Joist Insulation	20
	Foundation Wall	Foundation Wall Insulation	20
	Floor Insulation	Slab Insulation	20
		Loose & Batt installed in fully enclosed airtight cavity	30
		Rigid Insulation	20
	Wall Insulation	All types (except Rigid), NOT installed in fully enclosed airtight cavity	20
		Dense pack Insulation	30
		Rigid Insulation	
	Batt (full-cavity) installed in fully enclosed airtight cavity	20	
	All other types of Wall Insulation		
	Knee wall Insulation	Loose & Batt installed in fully enclosed airtight cavity	30
Rigid Insulation		20	
All types (except Rigid), NOT installed in fully enclosed airtight cavity			
Duct Insulation	Duct Insulation	20	
MH Skirting	Manufactured Home Skirting	10	
White Roof Coating	White Roof Coating	7	
Radiant Barrier	Radiant Barrier	15	
Infiltration	Air Sealing	Whole house air sealing	10
		Prescriptive air sealing	
	Duct Sealing	Duct Sealing	10
Doors and Windows	Windows	Window Replacement	20
		Storm Window	15
	Shading	Window shading: Awning	10
		Sun Screen: Fabric or Screen	10
		Sun Screen: Louvered	15
		Window Film	15
	Doors	Door Replacement	20
		Storm Door	10

Exhibit 5.2.5A

WxM Maximum Lifetimes

Type	Measure	Name	Measure Life (yr)
HVAC Systems	Heating System Replacement	Fossil fuel fired Furnaces and Boilers, Standard and Condensing	20
		All other Heating Systems (except Heat Pumps)	18
		Heat Pump Replacement (including DHPs)	15
	Tune-up	Heating system clean and tune-up	3
	Thermostat	Smart/Programmable Thermostat	15
		Thermal vent damper	10
		Electric vent damper	10
		Intermittent Ignition Device (IID)	10
		Electric vent damper AND IID	10
		Flame retention burner	10
	Air Conditioner Replacement	Air Conditioner Replacement	15
	Tune-up	Air Conditioner clean and tune-up	3
	Evaporative Cooler	15	
Baseloads	Lighting Retrofit	Fluorescent and Compact Fluorescent	10,000 hrs
		LED	30,000 hrs
		Halogen	4,000 hrs
	Refrigerator	Refrigerator Replacement	15
	Water Heater	Water Heater Replacement	13
		Water Heater setpoint reduction	13
		Water Heater tank insulation	13
		Water Heater pipe insulation	13
	Low flow showerhead	15	

Exhibit 5.2.7A

[Exhibit-5.2.7A-Deemed-Measures-Priority-List-DMPL.xlsx](#)

Envelope Efficiency Measures: Required					Notes
Do?	Thermal Boundary	Existing Condition - Effective R-		DMPL Weatherized - Rated R-value ¹	(Actual Cost)
Single Family	● Attic Insulation	R-19 or below		R-38, or R-49 (depending on attic space)	
		● Wall Insulation	Closed Cavity	No insulation No substantial contact	Dense Pack
	Thermal & Pressure boundaries are not aligned			Dense Pack	
	Open Cavity		No insulation No substantial contact	Fill Cavity	
			Thermal & Pressure boundaries are not aligned	Fill Cavity	
	● Floor Insulation support per Floor Matrix	No insulation No substantial contact		Fill cavity	
Thermal & Pressure boundaries are not aligned		Fill cavity			
Mobile Home	● Attic Insulation	R-17 or below		R-22, R-30, or maximum possible	
	● Floor Insulation Assure support to maintain substantial contact	No insulation No substantial contact		Fill cavity, R-22, or maximum possible	
		Thermal & Pressure boundaries are not aligned		Fill cavity, R-22, or maximum possible	
Multifamily Low-Rise	● Attic Insulation	R-19 or below		R-38, or R-49 (depending on attic space)	
		R-20 to R-38		R-49	
	● Wall Insulation	Closed Cavity	No insulation No substantial contact	Dense Pack	
			Thermal & Pressure boundaries are not aligned	Dense Pack	
		Open Cavity	R-11 or below	Dense Pack (air seal and insulate)	
			No insulation No substantial contact	Fill Cavity	
● Floor Insulation support per Floor Matrix	Thermal & Pressure boundaries are not aligned		Fill Cavity		
	No insulation No substantial contact		Fill cavity		
Multifamily Mid/High-Rise	● Attic Insulation	R-5 or below		R-38, or R-49 (depending on attic space)	
	● Wall Insulation	Closed Cavity	No insulation No substantial contact	R-11, R-19, or Dense Pack	
			Thermal & Pressure boundaries are not aligned	R-11, R-19, or Dense Pack	
		Open Cavity	No insulation No substantial contact	R-11, R-19, or Fill Cavity	
Thermal & Pressure boundaries are not aligned			R-11, R-19, or Fill Cavity		
Pipe & Duct Insulation	Duct Insulation	Any	Any ducts in Conditioned Space	No DMPL Measure	
		Rigid	...ducts in	R-7 or below	R-11
		Flex	Unconditioned	R-7 or below	R-8
		Any	Space	R-8 or greater	No DMPL Measure
	Water Distribution Pipe	No pipe insulation		R-3	

Exhibit 5.2.7A

Deemed Measures Priority List

Deemed Measures Priority List (DMPL)*

pg 2 of 3

7/1/2021

Done?	Pressure Boundary	Existing Condition	DMPL Weatherized	BPA Cost Caps	
	• Priority Air Sealing (Prescriptive)	Large obvious holes	Seal		
	• Blower Door Assisted Air Sealing (Whole House)	Non-obvious Leaks	Seal to Cost Effective Guidelines (CEG)		
	• Duct Sealing ext or Performance Tested Comfort Systems (PTCS)	Supply	1 Pascal, or greater	NTE \$500	
		less than 1 Pascal	Seal, if combustion safety issue		
		Returns	5 Pascal, or greater		Seal
		less than 5 Pascal	Seal, if combustion safety issue		
	Recessed Can Lights	IC Rated Air Tight Can	No DMPL Measure		
		Non-IC Rated Can	IC Rated Air Tight Can		
		Non-IC Rated Can	Build the box		

Heating/Cooling System: Repair³ Allowed if more cost-effective. If Replacing, Required to Replace with an Efficient System.

Done?	Replacement	Existing Condition	DMPL Weatherized	BPA Cost Caps
	• Replacing Heating/Cooling Systems	1. failing , inadequate 2. inefficient equipment, or 3. Oil/LP	Replace with Efficient System: DHP, Ducted Mini-Split, Heat Pump 90% Nat Gas (if apt)	DHP or PTCS: NTE \$3800
		Emergency Heating (or Cooling) Needed	Replace with Efficient System: DHP, Ducted Mini-Split, Heat Pump, 90% Nat Gas (if apt), Electric Furnace (if necessary) Required: Full Wx Audit within 60 days & Duct Sealing	

Windows and Doors: Comply with Policy 5.4.5, *Windows and Doors* and justify replacements

Done?	Existing Condition	DMPL Weatherized	BPA Cost Caps
Single Family Mobile Home MF Low-Rise	Prime Window	U-factor 0.30 or less SHGC 0.40 or less	NTE \$20/sf
	Low-E Storm Window	Emissivity 0.22 or less EXTERIOR: Air Leakage Rating 1.5 cfm/sf or less INTERIOR: Air Leakage Rating 0.5 cfm/sf or less	NTE \$10/sf
	Patio Door Sliding Glass Door	U-factor 0.30 or less SHGC 0.40 or less	NTE \$20/sf
	Insulated Door Exterior	Metal, insulated core minimum R-6, match the style of existing, where practical	NTE \$400/door
Multifamily Mid/High-Rise	Prime Window	U-factor 0.30 or less SHGC 0.40 or less	NTE \$20/sf

DMPL Legend

★	DOE Funding Prohibited	Funding allowed: MM, LIHEAP, BPA (for BPA territory electrically heated homes), Utility (if approved) The Priority List approach is NOT allowable for any project using DOE Funding for an installed measure.
●	Major Measure	Major Measures Required if existing condition met. Document justification in project file if measures NOT performed.
●	Exception: Major Measure IF	Duct sealing is on ducts outside the thermal boundary. Heating Systems if existing is failing or inefficient.
1	Thermal - Insulation	Choose high density insulation when cost is practical
2	Effective R-values	Auditor's estimation of actual real world thermal resistances provided by the Existing insulation in cavity only (within assembly, not including assembly). Area weighted average calculation may be used to estimate Effective R-values.
3	Repairs	See Policy 5.2.7, Deemed Measures Priority List, Section 7. Determining Repair Allowance

Exhibit 5.2.7A

Deemed Measures Priority List

Deemed Measures Priority List (DMPL)*

pg 3 of 3

7/1/2021

Given	Installed	Low-Cost/No-Cost (LC/NC)		
		Existing Condition	DMPL Weatherized	BPA Cost Caps
		General Heat Waste Reduction (GHWR)		
		Recommended: Allowed on a "See it, Do it" level, subject to funding		Installed= GHWR Given=LC/NC
		Water heater pipe insulation <i>1" 6" (hot & cold) pipe exiting water</i>	No pipe insulation	R-3
		Faucet aerators	1.3 gpm and above	1.2 gpm
		Low-flow showerheads	1.6 gpm and above	1.5 gpm
		Limited weatherstripping <i>to increase comfort</i>	Nonexistent or Ineffective weatherstrip & door sweep	Install weatherstrip & door sweep
		Furnace & Air Conditioner filters	Disposable	Provide 6
			Washable - cut to fit	Provide 2
			Operable Electronic	No DMPL Measure
		Water Heater Temperature	Water temperature too hot or cold	Adjust water temperature to 120°F
		LEDs replacement bulbs	Incandescent Bulbs	Replace w/ LED Bulbs
		Thermostat	Non-programmable, non-smart, old mercury	Programable or Smart Thermostat
		Walk-off mat (4)	Contaminants (dirt, lead, pollen) tracked-in	Provide up to 4 mats (front, back, int, ext)
		Hygrometer	Excess Moisture	Provide low-cost hygrometer
		Client Education (green cleaning kit)	All	Provide Client Education (energy,H&S) green cleaning kit

Done?	Health & Safety Measures		
	Smoke Detectors	None present, Not functional	Install smoke detectors
	CO Detectors	None present, Not functional	Install CO detectors
	Slip, trip, & fall prevention	Tripping hazards, unsafe situation	Fix minor repair & Install grab bars, handrails, tub stickers
	Pest mitigation	Pest detritus & damage	IPM (intergrated pest management) implemented.
	Minor Moisture Controls	Moisture evidence & damage	Dryer vents, Downspouts, Sump pumps, Dehumidifier
	Mechanical Ventilation	Poor IAQ, pollutants, moisture	Comply with ASHRAE 62.2 - Exhibit 9.3 MVW
	HVAC System Cleaning	Dust, dirt, & pest detritus	Clean & tune equipment, vacuum ducts
	Basic crawlspace improvements	Ground cover, Debris, Standing water, Haza	Install 6mil Poly, clear of debris, drainage, elec hazard free

Done?	Appliances: Optional			
		Existing Condition	DMPL Weatherized	BPA Cost Caps
	Refrigerator	1. 30+ years 2. Failing 3. Refrigerator Database justified, or 4. Metering justified	Replace with Energy Star rated, or equivalent	
	Freezer	1. 30+ years 2. Failing 3. Refrigerator Database justified, or 4. Metering justified	Replace with Energy Star rated, or equivalent	
	Microwave	Non-funtional Microwave	Replace	
		No Microwave present	Allowed	
	Washer/Dryer	1. 30+ years 2. Failing, or 3. Not Energy Star rated	Replace with Energy Star rated, or equivalent	
	Water Heater	1. 30+ years 2. Failing	Replace with Energy Star rated, or equivalent Uniform Energy Factor (UEF)=3.0, or better	NTE \$1700
		3. Not Energy Star rated, or 4. Not insulated	Replace with Heat Pump Water Heater, if appropriate installation available	

Weatherization Deferral Form

Project Number

Audit Date

Client Name

Address

City & Zip Code

Home or Message phone

Work Phone

Deferral of weatherization work on the above home is based on the following conditions:

Recommended measures for remedying the existing conditions are as follows:

Exhibit 5.5A
Weatherization Deferral Form
Page 2 of 2

I certify that the above information is complete and accurate.

Signature of Agency Representative

Date

Client Information: I understand weatherization work has been deferred on my home for the above reasons. I understand the conditions under which weatherization work may continue. I understand I must contact the weatherization agency within 12 months of original application date if conditions have changed and that these changes may allow work to resume. I understand if I contact the weatherization agency more than 12 months after the original application date I need to reapply for weatherization services.

Client Signature

Date

Exhibit 5.S3A

Link to Active Form: [Exhibit 5.S3A, Diagnostic Test Report](#)



Diagnostic Test Report

0						
Client Name:						
0						
Address:						
Pre Blower Door:						
i.	Client Eligibility Date:					
ii.	Audit Date:					
iii.	Client Interview Performed?					Yes No
iv.	Pollution Source Survey Completed?					Yes No
v.	Contaminants present that would either prohibit blower door test completely or require pressurization test:					
vi.	Technician:					
vii.	Date:					
CALCULATIONS			Pre	In-Progress	Post	
1	Calculated total square footage of heated area					
2	Calculated volume of conditioned space					
BASELINE CONDITIONS & HOUSE TIGHTNESS - Blower door			Pre	In-Progress	Post	
3	Primary heat source fuel type (example: nat. gas, electric, propane, wood)					
4	Windspeed MPH					
5	Outside temperature °F					
6	Blower door location					
7	Baseline without blower door on in pa (stack effect)					
8	Blower door configuration: O=open fan A=ring A B=ring B LF= low flow ring					
9	Total CFM50					
ZONAL PRESSURES - Blower door			Pre	In-Progress	Post	
	ATTIC	WRT house				
	CRAWLSPACE	WRT house				
	GARAGE	WRT house				
	OTHER:	WRT house				
	OTHER:	WRT house				
	OTHER:	WRT house				
11	Location of existing ducts: A=inside B=outside C=inside/outside					
12	12. Duct Pressure Test - Blower Door					
13	Location		13. Room Pressure - HVAC fan only		Pressure Pan: House WRT Duct	
		S/ Supply R/Return	Room WRT main body		Pre	In Progress Post
			Pre	Post		
a.						
b.						
c.						
d.						
e.						
f.						
g.						
h.						
i.						
j.						
k.						
l.						
TESTING AIRHANDLER (HVAC) EFFECTS: HVAC fan only			Pre	In-Progress	Post	
14	Dominant Duct Leak Test: Main Body WRT outside (all interior doors open)					
15	All Doors Closed Effect: Main Body WRT outside (all interior doors closed)					
16	Duct location after Wx and Repairs: A=inside B=outside C=inside/outside					
17	Electric furnace heat rise test (supply°F–return°F) acceptable range:>40°to<70°					
18	Return house to pre test conditions (Check box when done)					<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
NOTES/DOCUMENTATION:						

Revised July 2016

Diagnostic Test Report Quick Reference

Pressure Pan Tests

In typical mobile home duct configurations, pre pressure pan tests help locate areas of significant leakage or disconnected duct work. After belly is filled with insulation, post pressure pan tests results may not be useful.

In site built homes with supply and return duct systems enclosed entirely within the thermal and pressure boundaries, pressure pan tests are not required.

Dominant Duct Leak Test

In typical mobile home duct configurations, dominant duct leak tests are especially useful. You can quantify the amount of duct leakage by using the Air Leakage Chart (aka Tooley Chart) if the return is isolated in the conditioned space and the supplies are isolated in the belly. No more than 100CFM of total supply duct leakage is recommended.

In site built homes with supply and return duct systems enclosed entirely within the thermal and pressure boundaries, dominant duct leak tests are not required.

Air Leakage Chart

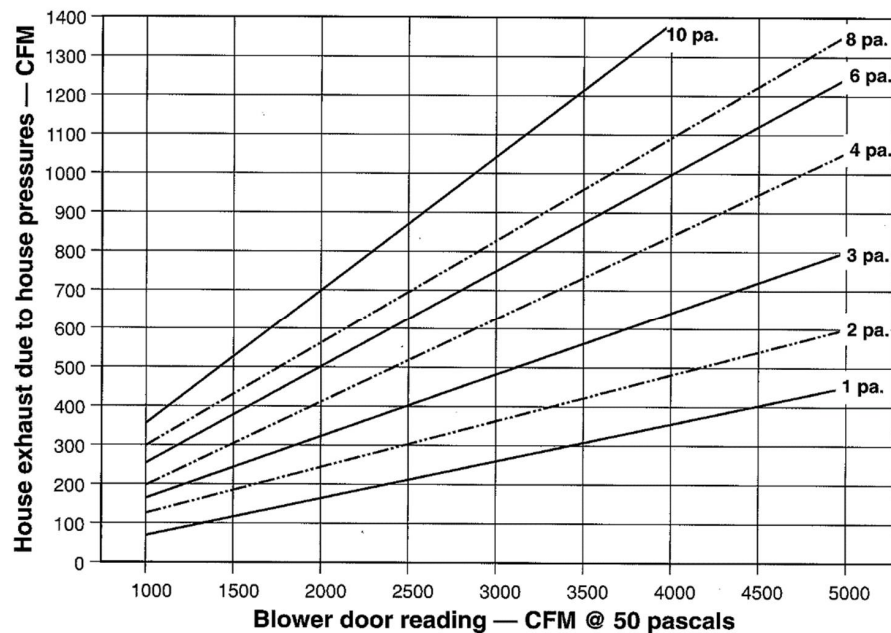


Exhibit 5.S3B

State of Washington, Weatherization Assistance Program

Technical Support Document (TSD)

Diagnostic Test Report

This document is intended to support in detail the Diagnostic Test Report. The Diagnostic Test Report shall be filled out in detail for each completed project. You shall document in the comments section of the Diagnostic Test Report any special circumstances or health and safety related concerns that might help someone understand the condition of the home (pre- and post-), as well as the concerns expressed by the occupants, or the agency concerns for the occupants safety at the time testing was performed.

The testing procedure outlined in this document is intended to be the minimum tests needed to understand the condition of the home.

Pre Blower Door

i. Client Eligibility date:

Enter date Client was determined eligible. Ensure both Client Eligibility and Energy Audit dates are within the Period of Eligibility. See [Section 1.3.2, Setting Period of Eligibility](#)

ii. Audit Date:

Enter date Energy Audit was performed.

iii. Client Interview Performed?

Answer yes/no

iv. Pollution Source Survey Completed?

Answer yes/no

v. Contaminants Present that would either prohibit blower door test completely, or require pressurization test:

(including but not limited to: Lead, Friable Asbestos, Mold, Smokers, Pets, Sewage, etc)

Document any contaminants or conditions that would prevent blower door testing or require pressurization testing.

vi. Technician:

Enter name of Technician performing: Pre, In-Progress, and Post diagnostic testing.

vii. Date:

Enter date Technician is performing: Pre, In-Progress, and Post diagnostic testing.

Exhibit 5.S3B

Calculations

Line #1

Calculated total square footage of heated area

Measure and multiply the length and width of the floor area within the temperature boundary to determine the total floor area of the conditioned space.

Line #2

Calculated volume of the conditioned space

Multiply the calculated floor area by the height to determine the total volume of the conditioned space.

Baseline Conditions & House Tightness – Blower Door

Line #3

Primary heat source fuel type

(example: nat gas, elec, propane, oil, wood)

Determine by interviewing (not their HIF or Wx application) the occupants, observing their habits and analyzing their heating bills what their primary heat source is and circle the type of fuel that is used in the appliance. Document the type (boiler, woodstove, forced air etc.) in the comments section.

Line #4

Windspeed MPH

Record or estimate wind speed before setting up the blower door. Measure the wind speed with a wind gauge (record if there is apparent steady or gusting wind).

Line #5

Outside temperature °F

Record outside temperature in degrees Fahrenheit

Line #6

Blower door location

Record which doorway the blower door was mounted in for testing procedures. Mount the blower door in the doorway which has the least obstructions in the pathway of airflow (of the blower door) both inside and outside.

Note: Blower door set up procedure: follow manufacturer's instructions.

Exhibit 5.S3B

Line #7

Baseline without blower door on in pa (stack effect)

Measure the house with reference to outside without the blower door running. Make sure the blower door fan is covered and the house is prepared for blower door testing.

Line #8

Blower door configuration

O=open fan A=ring A B=ring B LF=low flow ring

Record which ring or configuration (number of holes unplugged) the blower door was set up in for testing lines 13 through 16.

Note: Always use the smallest ring possible to get the highest fan pressure when performing blower door testing. The higher the fan pressure the more accurate the test.

Line #9

Total CFM50

Prepare the house for blower door testing. Normally test should be taken in the negative pressure mode, if positive pressure is used for testing note in the comments section and set up the house per manufacturer's specifications in the blower door manual.

Zonal Pressures – Blower Door

Line# 10

Zonal Pressures

Hook up your manometer as indicated on the field form for each test and record the pressure. Be sure to take verifying tests (house WRT zone, zone WRT outside, etc.). Start in a clockwise direction and describe room on the adjacent line and record pressures, zone WRT outside (confirming test: zone WRT outside).

Line #11

Location of existing ducts:

A=inside B=outside C=inside/outside

Determine and record where the duct system was designed to be located originally, inside the thermal boundary, outside the thermal boundary, or a combination of inside and outside.

Exhibit 5.S3B

Duct Pressure Test – Blower Door

Line #12

Duct Pressure Test – Pressure Pan

House WRT Duct (clockwise from front door)

Face the front door looking out. Record (down to tenths) whether the duct tested is a supply or return duct and what zone it is located in from line #15. Record whether it is located inside or outside the intended thermal envelope (by design).

Testing Air Handler Effect – HVAC fan only

The tests performed in lines 13 through 15 are performed with only the furnace air handler fan on. The blower door or any exhaust fans should be turned off during these tests. These tests indicate the effect of the air supply and return on pressures in rooms and the house.

Line #13

Room Pressure:

Room WRT Main Body (interior doors closed)

This testing is to see if there are large pressure differentials between rooms of the home that could possibly cause a problem to the operation of the combustion appliance or cause moisture damage the structure of the house.

Line #14

Dominant Duct Leak Test:

Main Body WRT Outside (all interior doors open)

Record the pressure of the main body of the house WRT outside with all interior doors open.

Exhibit 5.S3B

Line #15

All Doors Closed Effect:

Main Body WRT outside (all interior doors closed)

Now close all the interior doors and record main body WRT outside.

Line #16

Duct location after Wx and repair:

A=inside B=outside C=inside/outside

Did you change the location of the ducts or are they in the same place as before? If as a result of the retrofit the location (inside to outside, outside to inside, etc.) of the duct system has been changed document in the comments section.

Line #17

Electric furnace heat rise test:

Heat Rise = supply°F – return°F

With the electric furnace running, measure the temperature in the supply air plenum and return air plenum. Subtracting the return plenum temperature from the supply air temperature equals the “heat rise”. Take these temperature measurements in the plenums as close to the furnace as possible. Record in degrees Fahrenheit. The manufacturer’s acceptable range for heat rise for the unit is often on the nameplate of the furnace.

****Action level:** If the heat rise (the difference between return air temp at the plenum and supply air temp at the plenum) is outside the manufacturer’s acceptable range the system fails and there shall be a referral made for further analysis by a furnace technician. If the heating unit has not been serviced within the last twelve months, a furnace clean and tune is recommended.

Exception: If manufacturer’s acceptable heat rise range is unavailable, the default acceptable heat rise range is greater than 40° and less than 70° Fahrenheit.

Line #18

RETURN HOUSE Pre Test Conditions

Check box when done.

ASTM E 84

Standard test method for surface burning characteristics of building materials.

The Flame Spread Index and Smoke Developed Index values obtained by the ASTM E 84 test are used by code officials and regulatory agencies in the acceptance of interior finish materials for various applications. The most widely accepted classification system is described in the National Fire Protection Association publication NFPA 101 *Life Safety Code*

1. 2006 International Building Code

- a. Section 803 Wall and Ceiling Finishes, Paragraph 803.1 General states, "Interior wall and ceiling finishes shall be classified in accordance with ASTM E 84. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.
 - i. Class A: Flame Spread 0-25; smoke-developed 0-450
 - ii. Class B: Flame Spread 26-75; smoke-developed 0-450
 - iii. Class C: Flame Spread 76-200; smoke-developed 0-450

Class A, B, and C correspond to type I, II, and III respectively in other codes such as SBCCI, BOCA, ICBO. They do not preclude a material being otherwise classified by the authority of jurisdiction.

2. NFPA 101®, Life Safety Code®

- a. Chapter 10 Interior Finish, Contents, and Furnishings, Paragraph 10.2.3 Interior Wall or Ceiling Finish Testing and Classification states, "Interior wall or ceiling finish that is required elsewhere in this Code to be Class A, Class B, or Class C shall be classified based on test results from NFPA 255, ASTM E 84, or UL 723."

Exhibit 5.S7A
Work Order and Procedures for Electric Furnace
Link to Active Form: [Exhibit 5.S7A, Work Order and Procedures for Electric Furnace](#)

<p><i>Homeowner Information</i></p> <p>Name _____</p> <p>Address _____</p> <p>City _____</p> <p>Phone # _____</p> <p>Job No. _____</p>	<p><i>Agency Name and Address</i></p> <p>Phone No. () _____</p> <p>Auditor/Inspector Name _____</p>
<p>WORK ORDER <i>The following contractor/vendor is hereby authorized to complete a clean and tune as prescribed below.</i></p> <p>Contractor/Vendor: _____</p>	

ELECTRIC FURNACE

I. CLEAN

A. Air Handling

- 1. Clean and vacuum blower, return cabinet & filter rack so that they are free of dirt, grease, & any other foreign matter.
- 2. Clean and vacuum all supply and return registers and immediate duct openings.
 Disregard #3, if weatherization issue, CAC will do this procedure.
- 3. Inspect filter. If permanent type, clean as per manufacturer's recommendations.
 If disposable type, replace filter with new filter.

Filter size: _____ x _____ x _____

II. TUNE

B. Air Handling

- 1. Check blower and motor bearings. Lubricate as needed.
- 2. Check belt condition (replace if cracked or worn) and adjust for proper tension.
- 3. Measure heat rise and adjust blower speed to match manufacturer's recommended heat rise.
- 4. Set fan switch (if possible) so that blower comes on at 110 degrees and goes off at 100 degrees.
 Set limit at no higher than 240 degrees if limit is adjustable.
- 5. Balance supply distribution for individual homeowners comfort.
- 6. Check and record AMP readings on elements and sequencers

CONTRACTOR/VENDOR CERTIFICATION	
Are all sequencers operating as designed? Yes No	Record below the Amp readings on both elements & sequencers: _____/_____/_____ Elements Amp Reading _____/_____/_____ Sequencers Amp Reading
Temperature Rise _____	Signed _____
COMMENTS: _____ _____ _____	

AUDITOR/INSPECTOR VERIFICATION	
Temperature Rise _____	Signed _____
COMMENTS: _____ _____ _____	

Exhibit 5.S7B

Work Order and Procedures for Gas Furnace

Link to Active Form: [Exhibit 5.S7B, Work Order and Procedures for Gas Furnace](#)

<p><i>Homeowner Information</i></p> <p>Name _____</p> <p>Address _____</p> <p>City _____</p> <p>Phone # _____</p> <p>Job No. _____</p>	<p><i>Agency Name and Address</i></p> <p>Phone No. () _____</p> <p>Auditor/Inspector Name _____</p>
<p>WORK ORDER <i>The following contractor/vendor is hereby authorized to complete a clean and tune as prescribed below and on Page 2 of this Work Order.</i></p> <p>Contractor/Vendor: _____</p>	

GAS FURNACE

I. CLEAN

A. Combustion Area

- 1. Brush down all dirt, soot and rust from heat exchanger sections.
- 2. Brush down and vacuum all flue passageways within the furnace.
- 3. Remove ribbon burners or burner tubes and brush down to remove dirt, soot, loose rust and clean all flame ports. Inspect for cracks in tubes.
- 4. Clean gas orifices and assure proper size.
- 5. Brush down and vacuum remainder of combustion chamber so that it is free of dirt, soot and loose rust.
- 6. Clean pilot orifices and test thermocouple.
- 7. Blow out all condensation lines in furnace, blow out trap / flush.

B. Flue

- 1. Inspect flue pipe from furnace to chimney for rust, weak spots and leaks.
- 2. Clean and vacuum flue pipe and reinstall in a secure manner.

C. Air Handling

- 1. Clean and vacuum heat exchanger if accessible.
- 2. Clean and vacuum blower, return cabinet and filter rack so that they are free of dirt, grease, and any foreign matter.
- 3. Clean and vacuum all supply and return registers and immediate duct openings.
 - Disregard #3, if weatherization issue, CAC will do this procedure.
- 4. Inspect filter. If permanent type, clean as per manufacturer's recommendations. If disposable type, replace with a new filter.

Filter Size: _____ x _____ x _____

II. COMMENTS:

III.

IV. TUNE

A. Combustion

- 1. Adjust gas output to 3.5" natural or 10.5" L.P.W.C. in the manifold and then clock meter (if possible) to assure the input is within 2% of rated input. NOTE: If gas pressure is correct, and clocked input is more than 2% lower than rated input, check orifices for proper size unless derating is desired. If furnace is over firing and gas pressure is correct, then change to lower orifice size.
- 2. Adjust primary air shutter to obtain highest CO2 or lowest O2 in the flue (before diverter) without making CO and still maintaining a steady blue flame with slight yellow tips. There must not be any lifting, floating, or jumping flames, or adjust primary air shutter to obtain best flame with lowest possible stack temp without making CO.

Exhibit 5.S7B
Work Order and Procedures for Gas Furnace

GAS FURNACE (continued)

- 3. Adjust pilot flame just high enough to activate the thermocouple and ignite burner without delay.
- 4. Furnaces with electronic pilot should ignite without delay.
- 5. Check igniter to assure that it will lock out after first or second attempt to ignite pilot (LP only).
- 6. Measure amperage of the gas valve and any other low voltage equipment on the circuit and set thermostat heat anticipator to match.
- 7. Calibrate thermostat and thermostat thermometer to within 1 degree at 72 degree setting.
- 8. Take ohm reading of igniter.

B. Air Handling

- 1. Check blower and motor bearings. Lubricate as needed.
- 2. Check belt condition (replace if cracked or worn) and adjust for proper tension.
- 3. If stack temperature is above 450 degrees net, increase blower speed to deliver more heat & lower stack temperature. NOTE: Stack temperatures should not be below 350 degrees net. If so, decrease blower speed slightly (NOTE: This may not work on all furnaces) or adjust blower to obtain greatest rise at the supply plenum.
- 4. Set fan switch (if possible) so that blower comes on at 110 degrees and goes off at 100 degrees. Set limit at no higher than 240 degrees if limit is adjustable.
- 5. Balance supply distribution for individual homeowners comfort.

COMMENTS:

CONTRACTOR/VENDOR CERTIFICATION

Final Stack Temp _____ CO² or O² _____ igniter ohms _____
Clocked Input (Where Applicable) _____ CO _____ PPM
Anticipator Setting _____ SSE _____ %
Temperature Rise _____ **Signed** _____

COMMENTS:

AUDITOR/INSPECTOR VERIFICATION

Final Stack Temp _____ CO² or O² _____
Clocked Input (Where Applicable) _____ CO _____ PPM
Anticipator Setting _____ SSE _____ %
Temperature Rise _____ **Signed** _____

COMMENTS:

Exhibit 5.S7C

Work Order and Procedures for Oil Furnace

Link to Active Form: [Exhibit 5.S7C, Work Order and Procedures for Oil Furnace](#)

<p><i>Homeowner Information</i></p> <p>Name _____</p> <p>Address _____</p> <p>City _____</p> <p>Phone # _____</p> <p>Job No. _____</p>	<p><i>Agency Name and Address</i></p> <p>Phone No. () _____</p> <p>Auditor/Inspector Name _____</p>
<p>WORK ORDER <i>The following contractor/vendor is hereby authorized to complete a clean and tune as prescribed below and on Page 2 of this Work Order.</i></p> <p>Contractor/Vendor: _____</p>	

OIL FURNACE

I. CLEAN

A. Combustion Area

- 1. Brush down all dirt, soot and rust from heat exchanger sections.
- 2. Brush down and vacuum all flue passageways within the furnace.
- 3. Remove draw assembly clean and align ignition electrodes..
- 4. Clean blast tube and flame head.
- 5. Replace nozzle with same size or lower size if derating is possible or desirable.
- 6. Brush down and vacuum remainder of combustion chamber so that it is free of dirt, soot and loose rust.
- 7. Replace oil line filter cartridge.

B. Flue

- 1. Inspect flue pipe from furnace to chimney for rust, weak spots and leaks.
- 2. Clean and vacuum flue pipe and reinstall in a secure manner.
- 3. Clean and check barometric damper for proper operation.

C. Air Handling

- 1. Clean and vacuum heat exchanger if accessible.
- 2. Clean and vacuum blower, return cabinet, and filter rack so that they are free of dirt, grease, and any foreign matter.
- 3. Clean and vacuum all supply and return registers and immediate duct openings.
- 4. Inspect filter. If permanent type, clean as per manufacturer's recommendations. If disposable type, replace with a new filter.

COMMENTS:

II. TUNE

A. Combustion

- 1. Seal all joints, cracks and openings that would allow air to infiltrate into the combustion area of the furnace.
- 2. Adjust barometric damper so that a reading of .02-.09" W.C. at the breech is obtained.
- 3. Adjust primary air shutter to obtain highest CO2 the flue (before barometric damper) with a smoke of 0 to 2 while still maintaining a steady flame. (0-1 on the flame retention burners)
- 4. Measure amperage of primary control and set thermostat heat anticipator to match.
- 5. Calibrate thermostat thermometer to within 1 degree at 72 degree setting.

Exhibit 5.S7C
Work Order and Procedures for Oil Furnace

OIL FURNACE (continued)

B. Air Handling

- 1. Check blower and motor bearings. Lubricate as needed.
- 2. Check belt condition (replace if cracked or worn) and adjust for proper tension.
- 3. If stack temperature is above 550 degrees, increase blower speed to deliver more heat and lower stack temperature.
NOTE: Stack temperatures should not be below 350 degrees net. If so, decrease blower speed slightly (NOTE: This may not work on all furnaces) or adjust blower to obtain greatest rise at the supply plenum.
- 4. Set fan switch (if possible) so that blower comes on at 120 degrees and goes off at 100 degrees. Set limit at no higher than 240 degrees if limit is adjustable.
- 5. Test fan and limit control for proper operation.
- 6. Adjust supply register on plenum (if so equipped) to supply between 100 and 125 CFM.
- 7. Balance supply distribution for individual homeowners comfort.

COMMENTS:

CONTRACTOR/VENDOR CERTIFICATION

I certify that the work specified above (see items checked in Clean and Tune sections) has been completed and that all requirements have been met.

A post-clean and tune efficiency rating of _____% has been achieved.

Net Stack Temp _____ CO2 or O2 _____ Smoke _____

Signed _____

COMMENTS:

AUDITOR/INSPECTOR VERIFICATION

I certify that the work specified above (see items checked in Clean and Tune sections) has been completed and that all requirements have been met.

A post-clean and tune efficiency rating of _____% has been achieved.

Net Stack Temp _____ CO2 or O2 _____ Smoke _____

Signed _____

COMMENTS:

Exhibit 5.S7D

Work Order and Procedures for Oil Retrofit

Link to Active Form: [Exhibit 5.S7D, Work Order and Procedures for Oil Retrofit](#)

<p><i>Homeowner Information</i></p> <p>Name _____</p> <p>Address _____</p> <p>City _____</p> <p>Phone # _____</p> <p>Job No. _____</p>	<p><i>Agency Name and Address</i></p> <p>Phone No. () _____</p> <p>Auditor/Inspector Name _____</p>
<p>WORK ORDER <i>The following contractor/vendor is hereby authorized to complete a clean and tune as prescribed below and on the following pages of this Work Order.</i></p> <p>Contractor/Vendor: _____</p>	

OIL RETROFIT

I. CLEAN

A. Combustion Area

- 1. Remove existing burner unit.
- 2. Brush down all dirt, soot and rust from heat exchanger sections.
- 3. Brush down and vacuum all flue passageways within the boiler or fireplace.
- 4. Brush down and vacuum remainder of combustion chamber so that it is free of dirt, soot and loose rust.

B. Flue

- 1. Inspect flue pipe from furnace to chimney for rust, weak spots and leaks.
- 2. Clean and vacuum flue pipe and reinstall in a secure manner. NOTE: Depending on the size of the original flue pipe, it might be desirable to install a new flue pipe of smaller diameter.
- 3. Inspect, repair and/or replace barometric damper to operate as designed.

C. Air Sealing

- 1. Seal all joints and seams that would allow air from the room or surrounding area to enter any part of the combustion side of the heating unit.
- 2. Seal any and all doors or access covers between the combustion areas and the outside of the heating unit.

D. Distribution (Boilers)

- 1. Inspect and test pressure relief valve.
- 2. Inspect circulator pump for safe and effective operation paying close attention to couplings and motor condition.
- 3. Purge expansion tank.
- 4. Check condition of water. If it is rusty or has a high level of sludge, then drain, flush and refill the system adding proper treatment.
- 5. Check operation of radiator valves.

OR

D. Distribution (Air Furnaces)

- 1. Clean and vacuum blower, return cabinet, and filter rack so that they are free of dirt, grease, and any foreign matter.
- 2. Clean out (if needed) supply and return registers and grilles.
- 3. Seal up any large openings or damage to duct work.

COMMENTS:

Exhibit 5.S7D
Work Order and Procedures for Oil Retrofit

OIL Retrofit (continued)

II. INSTALLATION AND TUNING

A. Installation

- 1. Install a power oil flame retention burner, which is capable of hot gas recirculation.
- 2. Seal around blast tube, flange and adaptor plate. NOTE: Pay close attention to resizing new burner for correct post weatherization heat loss.

B. Combustion

- 1. Minimum S.S.E. of 80%.
- 2. Adjust primary air shutter to obtain a minimum CO2 of 11%, but not higher than 12.5%, or O2 lowest not more than 7% in the flue without making smoke. NOTE: Net stack temp must not be less than 375 degrees F.
- 3. Measure amperage of primary control combined with any other load that may be on the low voltage control circuit and set thermostat heat anticipator to match.
- 4. Calibrate thermostat and thermostat thermometer to within 1 degree at 72 degree setting.

C. Distribution Boilers

- 1. Bleed all radiators to insure no air is in the system on hot water systems.
- 2. Lubricate circulator pump as needed.
- 3. Check operation of zone control valves if any. Lubricate as needed.
- 4. Check each radiator for output.

D. Air Handling

- 1. Check blower and motor bearings. Lubricate as needed.
- 2. Check belt condition (replace if cracked or worn) and adjust for proper tension.
- 3. If stack temperature is above 450 degrees net, increase blower speed to deliver more heat and lower stack temperature. NOTE: Stack temperatures should not be below 350 degrees net..If so, decrease blower speed slightly (NOTE: This may not work on all furnaces) or adjust blower to obtain greatest temp rise at the supply plenum.
- 4. Set fan switch (if possible) so that blower comes on at 120 degrees and goes off at 100 degrees. Set limit at no higher than 240 degrees if limit is adjustable.
- 5. Balance supply distribution for individual homeowners comfort.

COMMENTS:

CONTRACTOR/VENDOR CERTIFICATION

Final Stack Temp _____ (Before Barometer Damper) CO2 or O2 _____ Smoke _____

Anticipator Setting _____ Draft cy/c SSE _____

Signed _____

COMMENTS:

AUDITOR/INSPECTOR VERIFICATION

Stack Temp _____ CO2 or O2 _____ Smoke _____

Signed _____

COMMENTS:

Exhibit 5.S7E

Work Order and Procedures for Heat Pump (HP) / Air Conditioner (AC)

Link to Active Form: [Exhibit 5.S7E, Work Order and Procedures for Heat Pump / Air Conditioner](#)

<p><i>Homeowner Information</i></p> <p>Name _____</p> <p>Address _____</p> <p>City _____</p> <p>Phone # _____</p> <p>Job No. _____</p>	<p><i>Agency Name and Address</i></p> <p>Phone No. () _____</p> <p>Auditor/Inspector Name _____</p>
<p>WORK ORDER <i>The following contractor/vendor is hereby authorized to complete a clean and tune as prescribed below and on the following pages of this Work Order.</i></p> <p>Contractor/Vendor: _____</p>	

HEAT PUMP / AIR CONDITIONER UNIT

III. CLEAN

A. Air Handling

- 1. Clean indoor coil.
- 2. Flush trap and condensation drain.

B. Condensation Unit

- 1. Clean coil, case and blade.
- 2. Clean out debris inside unit.
- 3. Clean pad.

II. TUNE

A. Air Handling

- 1. Check for air leaks.

B. Condensation Unit

- 1. After 15 minutes runtime, check temperatures, pressures and superheat / sub-cool.
- 2. Clean / replace contactor if necessary.
- 3. Check ALL capacitors.
- 4. Check volts and amps on compressor and fan.
- 5. Cycle defrost.
- 6. Cycle reversing valve.
- 7. Record temperature split – heating _____ / cooling _____
- 8. Level if necessary.

COMMENTS:

CONTRACTOR/VENDOR CERTIFICATION	Signed _____
COMMENTS:	

AUDITOR/INSPECTOR VERIFICATION	Signed _____
COMMENTS:	

Safety Label of Domestic Water Heaters

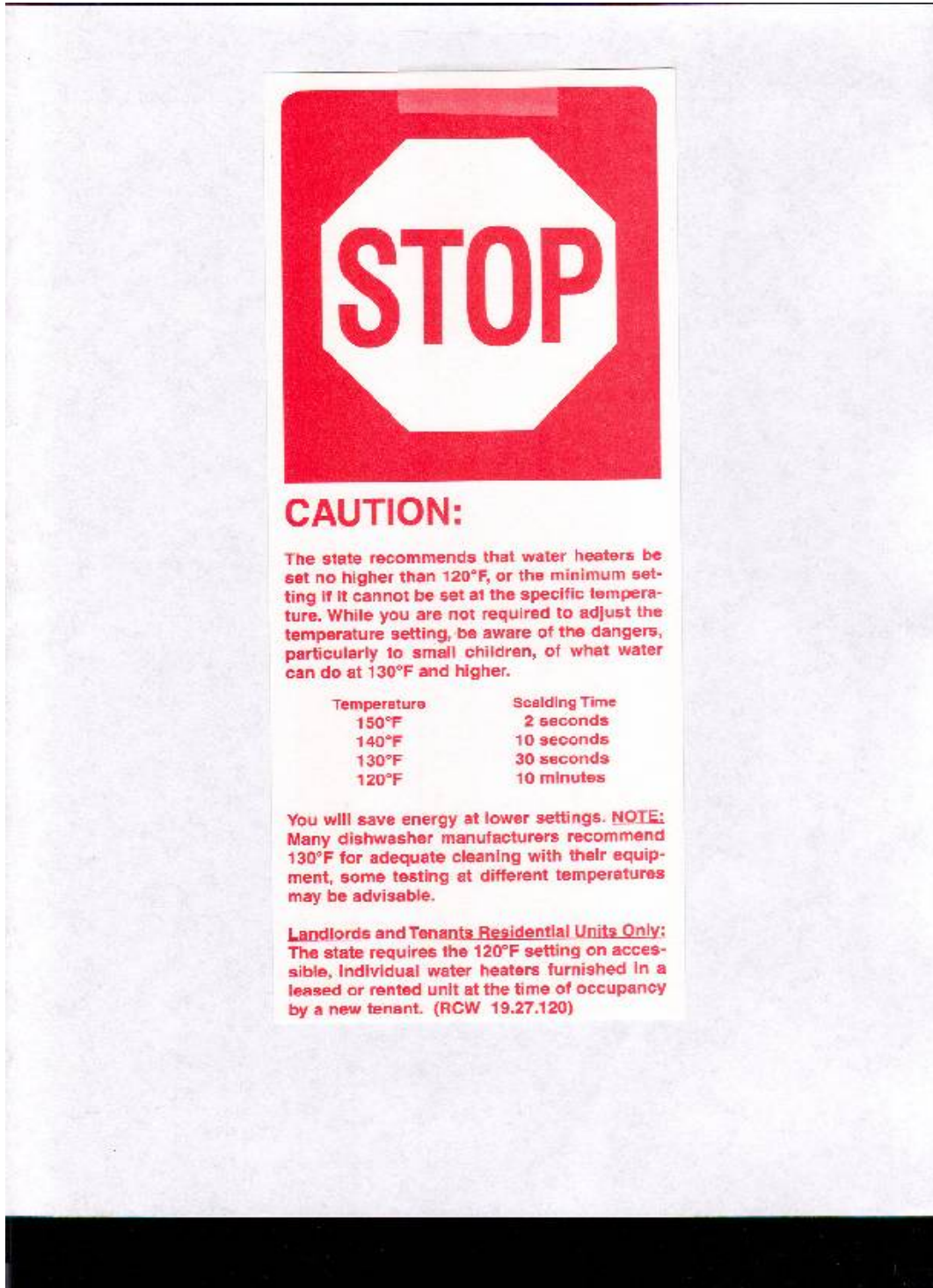


Exhibit 5.S9

Cost-Effective Guidelines *example*

BLOWER DOOR AIR SEALING - SITE WORKSHEET

Client Name: _____ 0 Targeted BAS from Audit : _____ 0

No. of Visit(s): _____ Date: _____ Tester: _____

Conditions: _____ Low Flow Plate: _____

Has blown-in wall insulation been installed after initial audit?: _____

Initial Readings @ 50CFM From Audit

Average CFM50
1st 2nd 3rd

Do ALL Priority Air Sealing measures then conduct CEG
 Yes No NA Seal all distribution and return HVAC ducts including plenums, boots & registers.
 Yes No NA Replace all broken glass or missing panes in prime windows.
 Yes No NA Seal all leaks in the building envelope, per Policy 5.3.1-SF-3. Priority Air Sealing

1st Post-Priority Air Sealing Readings @ 50CFM

Average CFM50
1st 2nd 3rd

After **Priority Air Sealing**, **PROCEED** with Blower Door Assisted Air Sealing under the **Cost Effective Guideline of 100 CFM per hour per person**. Check CFM reading at least each hour to insure work is still cost effective.
 When 100 CFM per hour per person can no longer be achieved, **STOP**.

X
Start Time - End Time = Time Spent No. of workers = Total Man Hrs.

2nd Post-Test Readings @ 50CFM

Average CFM50
1st 2nd 3rd

3rd Post-Test Readings @ 50CFM

Average CFM50
1st 2nd 3rd

4th Post-Test Readings @ 50CFM

Average CFM50
1st 2nd 3rd

All PRIORITY A/S has been completed
 Conducted CEG as outlined above, CFM50 reduction is no longer cost effective (explain).

COMMENTS: _____

Exhibit 5.S10

STANDARDS FOR WEATHERIZATION MATERIALS

If the standards listed in this appendix conflict with those required by current local codes, the local code shall have precedence and a copy of the applicable section will be retained with procurement records.

The following Government standards are produced by the Consumer Product Safety Commission and are published in title 16, Code of Federal Regulations:

Thermal Insulating Materials for Building Elements Including Walls, Floors, Ceilings, Attics, and Roofs Insulation—organic fiber—conformance to Interim Safety Standard in 16 CFR part 1209;

Fire Safety Requirements for Thermal Insulating Materials According to Insulation Use—Attic Floor—insulation materials intended for exposed use in attic floors shall be capable of meeting the same flammability requirements given for cellulose insulation in 16 CFR part 1209;

Enclosed spaces—insulation materials intended for use within enclosed stud or joist spaces shall be capable of meeting smoldering combustion requirements in 16 CFR part 1209.

The following standards which are not otherwise set forth in part 440 are incorporated by reference and made part of part 440. The following standards have been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on January 3, 2002 and a notice of any change in these materials will be published in the FEDERAL REGISTER. The standards incorporated by reference are available for inspection at the Office of the Federal Register Information Center, 800 North Capitol Street, Suite 700, Washington, DC 20001.

The standards incorporated by reference in part 440 can be obtained from the following sources:

Air Conditioning and Refrigeration Institute, 4301 N. Fairfax Drive, Suite 425, Arlington, VA 22203; (703) 524-8800; www.ari.org.

American Architectural Manufacturers Association, 1827 Walden Office Square, Suite 104, Schaumburg, Illinois 60173-4268; (847) 303-5664; www.aamanet.org.

American Gas Association, 400 N. Capitol Street, NW, Washington, DC 20001; (202) 824-7000; www.aga.org.

American National Standards Institute, Inc., 11 West 42nd Street, New York, NY 10036; (212) 642-4900; www.ansi.org.

American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990; (212) 591-7722; www.asme.org.

American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959; (610) 832-9585; www.astm.org.

Association of Home Appliance Manufacturers, 1111 19th Street, NW, Suite 402, Washington DC, 20036; (202) 872-5955; www.aham.org.

Federal Specifications, General Services Administration, General Services Administration, Federal Supply Service, Office of the CIO and Marketing Division, Room 800, 1941 Jefferson Davis Hwy., Arlington, VA 22202; (703) 305-6288; www.gsa.gov.

Gas Appliance Manufacturers Association, 2107 Wilson Boulevard, Suite 600, Arlington, Virginia 22201; (703) 525-7060 www.gamanet.org.

National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1847, Rosslyn, VA 22209; (703) 841-3200; www.nema.org.

National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101; (617) 770-3000; www.nfpa.org.

Sheet Metal and Air Conditioning Contractors Association, 4201 Lafayette Center Drive, Chantilly, Virginia 20151-1209; (703) 803-2980; www.smacna.org.

Solar Rating and Certification Corporation, c/o FSEC, 1679 Clearlake Road, Cocoa, FL 32922-5703; (321) 638-1537; www.solar-rating.org.

Steel Door Institute, 30200 Detroit Road, Cleveland, OH 44145-1967; (440) 899-0010; www.steeldoor.org.

Steel Window Institute, 1300 Sumner Avenue, Cleveland, OH 44115-2851; (216) 241-7333; www.steelwindows.com.

Tubular Exchanger Manufacturers Association, 25 North Broadway, Tarrytown, NY 10591; (914) 322-0040; www.tema.org.

Underwriters Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096; (847) 272-8800; www.ul.com.

Window & Door Manufacturers Association, 1400 East Touhy Avenue, Suite 470, Des Plaines, IL 60018; (800) 223-2301; www.nwwda.org.

More information regarding the standards in this reference can be obtained from the following sources:

Environmental Protection Agency, 401 M Street, NW, Washington, DC 20006; (202) 554-1080; www.epa.gov.

National Institute of Standards and Technology, U.S. Department of Commerce, Gaithersburg, MD 20899; (301) 975-2000; www.nist.gov.

Weatherization Assistance Program, Office of Building Technology Assistance, Energy Efficiency and Renewable Energy, 1000 Independence Avenue, SW, EE-42, Washington, DC 20585-0121; (202) 586-4074; www.eere.energy.gov/weatherization.

**Exhibit 5.S10
Standards for Weatherization Materials**

**THERMAL INSULATING MATERIALS FOR BUILDING
ELEMENTS INCLUDING WALLS, FLOORS,
CEILINGS, ATTICS, AND ROOFS**

[Standards for conformance]	
Insulation--mineral fiber:	
Blanket insulation.....	ASTM ¹ C665-01e1.
Roof insulation board.....	ASTM C726-05.
Loose-fill insulation.....	ASTM C764-04.
Insulation--mineral cellular:	
Vermiculite loose-fill insulation	ASTM C516-02.
Perlite loose-fill insulation.....	ASTM C549-02.
Cellular glass insulation block	ASTM C552-03.
Perlite insulation board.....	ASTM C728-05.
Insulation--organic fiber:	
Cellulosic fiber insulating board.....	ASTM C208-95 (2001).
Cellulose loose-fill insulation..	ASTM C739-03e1.
Cellulose wet-spray insulation	ASTM C1149-02 or ASTM C1497-04.
Insulation--organic cellular:	
Preformed block-type polystyrene insulation.....	ASTM C578-05.
Rigid preformed polyurethane insulation board...	ASTM C591-01.
Faced rigid cellular polyurethane or polyisocyanurate insulation board.	ASTM C1289-05.
Spray-applied rigid cellular polyurethane insulation.....	ASTM C1029-05.
Spray-applied bio-based polyurethane semi-open celled insulation.....	ASTM C1029-05, as amended by Table 2 of ICC ² AC12.
Insulation--composite boards:	
Mineral fiber insulation board.	ASTM C726-05.
Perlite board.....	ASTM C728-05.
Gypsum board and polyurethane or polysocyanurate composite board.....	ASTM C1289-05.
Materials used as a patch to reduce infiltration through the building envelope.....	Commercially available.

¹ ASTM indicates American Society for Testing and Materials.
² ICC indicates International Code Council.

**THERMAL INSULATING MATERIALS FOR PIPES,
DUCTS, AND EQUIPMENT SUCH AS BOILERS AND
FURNACES**

[Standards for conformance]	
Insulation--mineral fiber:	
Preformed pipe insulation.....	ASTM ¹ C547-03.
Blanket and felt insulation (industrial type).....	ASTM C553-02.
Glass fiber felt insulation.....	ASTM C1086-96 (2004).
Blanket insulation and blanket type pipe insulation (metal-mesh covered, industrial type).....	
Block and board insulation.....	ASTM C592-04.
Spray applied mineral fiber thermal and sound absorbing insulation.....	ASTM C612-04.
High-temperature fiber blanket insulation.....	ASTM C1014-03.
Duct work insulation.....	ASTM C892-00.
Duct work insulation.....	ASTM C1290-00.
Insulation--mineral cellular:	
Calcium silicate block and pipe insulation.....	ASTM C533-95.
Cellular glass insulation.....	ASTM C552-00.
Expanded perlite block and pipe insulation.....	ASTM C610-99.
Insulation--organic cellular:	
Preformed flexible elastomeric cellular insulation in sheet and tubular form.....	ASTM C534-99.
Unfaced preformed rigid cellular polyurethane insulation.....	ASTM C591-00.
Foil-faced flexible polyethylene sheet insulation.....	ASTM C1224-03.
Insulation skirting.....	Commercially available.

¹ ASTM indicates American Society for Testing and Materials.

**FIRE SAFETY REQUIREMENTS FOR INSULATING
MATERIALS ACCORDING TO INSULATION USE**

[Standards for conformance]	
Attic floor	Insulation materials intended for exposed use in attic floors shall be capable of meeting the same smoldering combustion requirements given for cellulose insulation in ASTM ¹ C739-03e1.

¹ ASTM indicates American Society for Testing and Materials.

**Exhibit 5.S10
Standards for Weatherization Materials**

**FIRE SAFETY REQUIREMENTS FOR INSULATING
MATERIALS ACCORDING TO INSULATION USE
Continued**

[Standards for conformance]	
Enclosed space	Insulation materials intended for use within enclosed stud or joist spaces shall be capable of meeting the same smoldering combustion requirements given for cellulose insulation in ASTM ¹ C739-03e1.
Exposed interior walls and ceilings	Insulation materials, including those with combustible facings, which remain exposed and serve as wall or ceiling interior finish, shall have a flame spread classification not to exceed 150 (per ASTM E84-05).
Exterior envelope walls and roofs	Exterior envelope walls and roofs containing thermal insulation shall meet applicable local government building code requirements for the complete wall or roof assembly.
Pipes, ducts, and equipment	Insulation materials intended for use on pipes, ducts, and equipment shall be capable of meeting a flame spread classification not to exceed 150 (per ASTM E84-05).

¹ ASTM indicates American Society for Testing and Materials.

STORM WINDOWS

[Standards for conformance]	
Storm windows: All storm windows	AAMA/NWWDA ¹ 101/I.S. 2-97.
Aluminum frame storm windows.....	AAMA ² 1002.10-93.
Rigid vinyl frame storm windows.....	ASTM ³ D4726-02.
Frameless plastic glazing storm	Required minimum thickness for windows is 6 mil (0.006 inches).
Movable insulation systems for windows...	Commercially available.

¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

² AAMA indicates American Architectural Manufacturers Association.

³ ASTM indicates American Society for Testing and Materials.

REPLACEMENT WINDOWS

[Standards for conformance]	
Replacement windows: All windows.....	AAMA/NWWDA ¹ 101/I.S. 2-97.
Steel frame windows	Steel Window Institute recommended specifications for steel windows, Dec 2002.
Rigid vinyl frame windows	ASTM ² D4726-02

¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

² ASTM indicates American Society for Testing and Materials.

STORM DOORS

[Standards for conformance]	
Storm doors: All storm (glass) doors....	AAMA/NWWDA ¹ 101/I.S. 2-97.
Aluminum frame storm doors	AAMA ² 1102.7-89.
Sliding glass storm doors	AAMA 1002.10-93.
Rigid vinyl storm doors	ASTM ³ D3678-97 (2001) and D4726-02.
Vestibules: Materials to construct vestibules	Commercially available.

¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

² AAMA indicates American Architectural Manufacturers Association.

³ ASTM indicates American Society for Testing and Materials.

**Exhibit 5.S10
Standards for Weatherization Materials**

REPLACEMENT DOORS

[Standards for conformance]

Replacement doors:	
All replacement doors .	AAMA/NWWDA ¹ 101/I.S. 2-97.
Steel doors.....	ANSI ² A250.8-03.
Wood doors:	
Flush doors	ANSI/NWWDA ³ I.S. 1-97 (Amendment, exterior door provisions).
Stile and rail doors...	NWWDA ⁴ I.S. 6-97.

¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

² ANSI indicates American National Standards Institute.

³ ANSI/NWWDA indicates American National Standards Institute/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

⁴ NWWDA indicates National Wood Window & Door Association (now the Window & Door Manufacturers Association).

WEATHERSTRIPPING

[Standards for conformance]

Weatherstripping	Commercially available.
Door sweeps	Commercially available.
Vapor retarders	Selected according to the provisions cited in ASTM ¹ C755-03. Permeance not greater than 1 perm when determined according to the desiccant method described in ASTM E96-00e1.
Items to improve attic ventilation.....	Commercially available.

¹ ASTM indicates American Society for Testing and Materials.

HEAT EXCHANGERS

[Standards for conformance]

Heat exchangers, water-to-water and steam-to-water	ASME ¹ Boiler and Pressure Vessel Code, 2004, Sections II, V, VIII, IX, and X, as applicable to pressure vessels. Standards of Tubular Exchanger Manufacturers Association, Eighth Edition, 1999.
Heat exchangers with gas-fired appliances ² ...	ANSI/UL ³ 462, Second Edition, 1993.

¹ ASME indicates American Society for Mechanical Engineers.

² The heat reclaimer is for installation in a section of the vent connector from appliances equipped with draft hoods or appliances equipped with powered burners or induced draft and not equipped with a draft hood.

³ ANSI/UL indicates American National Standards Institute/Underwriters Laboratories.

CAULKS AND SEALANTS

[Standards for conformance]

Caulks and sealants:	
Glazing compounds for metal sash	Commercially available.
Oil and resin base caulks	Commercially available.
Acrylic (solvent type) sealants	ASTM C920-05.
Butyl rubber sealants	FS ² Commercial Item Description A-A-272 (10/19/99).
Chlorosulfonated polyethylene sealants	ASTM C920-05.
Latex sealing compounds.....	ASTM C834-05.
Elastomeric joint sealants (normally considered to include polysulfide, polyurethane, and silicone)	ASTM C920-05.
Preformed gaskets and sealing materials	ASTM C509-00.
Duct sealing mastic.....	UL ³ 181A, Third Edition, 2005 and UL 181B, Second Edition, 2005.

¹ ASTM indicates American Society for Testing and Materials.

² FS indicates Federal Specifications.

³ UL indicates Underwriters Laboratories.

**Exhibit 5.S10
Standards for Weatherization Materials**

BOILER/FURNACE CONTROL SYSTEMS

[Standards for conformance]	
Automatic set back thermostats	Listed by UL ¹ . Conformance to NEMA ² DC3-2003.
Line voltage or low voltage room thermostats	Listed by UL. Conformance to NEMA DC3-2003.
Clock thermostats.....	Listed by UL. Conformance to NEMA DC3-2003.
Automatic gas ignition systems.....	ANSI ³ Z21.21-2001. AGA ⁴ Laboratories Certification Seal.
Energy management systems.....	Listed by UL.
Hydronic boiler controls..	Listed by UL.
Other burner controls	Listed by UL.

¹ UL indicates Underwriters Laboratories.
² NEMA indicates National Electrical Manufacturers Association.
³ ANSI indicates American National Standards Institute.
⁴ AGA indicates American Gas Association.

WATER HEATER MODIFICATIONS

[Standards for conformance]	
Insulate tank and distribution piping	(See insulation section of this appendix)
Install heat traps on inlet and outlet piping.....	Applicable local plumbing code.
Install/replace water heater heating elements	Listed by UL ¹ .
Electric, freeze-prevention tape for pipes	Listed by UL.
Install stack damper, gas-fueled	ANSI ² Z21.66-1996, including Exhibits A & B, and ANSI Z223.1-2003 (same as NFPA ³ 54-2002 and International Fuel Gas Code -2003).

¹ UL indicates Underwriters Laboratories.
² ANSI indicates American National Standards Institute.
³ NFPA indicates National Fire Prevention Association.

**WATER HEATER MODIFICATIONS
Continued**

[Standards for conformance]	
Install stack damper, oil-fueled	UL ¹ 17, Third Edition, 1994, NFPA ² 31-2001, NFPA 211-2003 (same as ANSI ³ A52.1), and ANSI/ NFPA 70-2005 (same as IEEE ⁴ National Electrical Code).
Install water flow modifiers	Commercially available.

¹ UL indicates Underwriters Laboratories.
² NFPA indicates National Fire Prevention Association.
³ ANSI indicates American National Standards Institute.
⁴ IEEE indicates Institute of Electrical and Electronics Engineers.

REPLACEMENT WATER HEATERS

[Standards for conformance]	
Electric (resistance) water heaters	10 CFR ¹ 430 and UL ² 174.
Heat pump water heaters	UL 1995, Third Edition, 2005. Electrical components to be listed by UL.
Gas water heaters: Rated #75 kBtu/hr	10 CFR 430 and ANSI ³ Z21.10.1-2005.
Rated >75 kBtu/hr.....	ANSI Z21.10.3-2004.
Oil water heaters	UL 732, Fifth Edition, 1995.

¹ CFR indicates Code of Federal Regulations.
² UL indicates Underwriters Laboratories.
³ ANSI indicates American National Standards Institute.

SOLAR WATER HEATING SYSTEMS¹

[Standards for conformance]	
Solar water heating systems including forced circulation, integral collector storage, thermo-syphon, and self-pumping systems	System must be certified per SRCC ² OG 300, May 2002.

¹ Solar water heating systems for weatherization-eligible households should be hybrid systems with a back-up source of hot water.
² SRCC indicates Solar Rating and Certification Corporation.

**Exhibit 5.S10
Standards for Weatherization Materials**

WASTE HEAT RECOVERY DEVICES

[Standards for conformance]

Desuperheater/water heaters.....	ARI ¹ 470-2001 and UL 1995, Third Edition, 2005.
Condensing heat exchangers.....	Commercially available components installed per manufacturers' specifications. NFPA ² 211-2003 (same as ANSI A52.1) may apply in certain instances. See also the Heat Exchangers section of this appendix.
Heat pump water heating heat recovery systems	UL 1995, Third Edition, 2005. Electrical components to be listed by UL.
Energy recovery equipment.....	Energy Systems Analysis and Management, 1997 (SMACNA ³).

¹ ARI indicates Air Conditioning and Refrigeration Institute.

² NFPA indicates National Fire Prevention Association.

³ SMACNA denotes Sheet Metal and Air Conditioning Contractors' National Association.

**BOILER REPAIR AND MODIFICATIONS/
EFFICIENCY IMPROVEMENTS**

[Standards for conformance]

Install gas conversation burners.....	ANSI ¹ Z21.8-1994 (for gas- or oil-fired systems), ANSI Z21.17-1998, and ANSI Z223.1-2003 (same as NFPA ² 54-2002 and International Fuel Gas Code). AGA ³ Laboratories Certification Seal.
Replace oil burner	UL ⁴ 296, Tenth Edition, 2003 and NFPA 31-2001.
Install burners (oil/gas)...	ANSI Z223.1-2003 for gas equipment and NFPA 31-2001 for oil equipment.

¹ ANSI indicates American National Standards Institute.

² NFPA indicates National Fire Prevention Association.

³ AGA indicates American Gas Association.

⁴ UL indicates Underwriters Laboratories.

**BOILER REPAIR AND MODIFICATIONS/
EFFICIENCY IMPROVEMENTS—Continued**

[Standards for conformance]

Re-adjust boiler water temperature or install automatic boiler temperature reset control	ASME ¹ CSD-1-2004, ANSI ² Z223.1-2003, and NFPA ³ 31-2001.
Replace/modify boilers ...	ASME Boiler and Pressure Vessel Code, 2004, Section II, IV, V, VI, VIII, IX, and X. Boilers must be Hydronics Institute Division of GAMA ⁴ equipment.
Clean heat exchanger, adjust burner air shutter(s), check smoke no. on oil-fueled equipment. Check operation of pump(s) and replacement filters	Per manufacturers' instructions.
Replace combustion chambers	Refractory linings may be required for conversions.
Replace heat exchangers, tubes	Protection from flame contact with conversion burners by refractory shield.
Install/replace thermo-static radiator valves...	Commercially available. One-pipe steam systems require air vents on each radiator; see manufacturers' requirements.
Install boiler duty cycle control system.....	Commercially available. ANSI/NFPA 70-2005 (same as IEEE ⁵ National Electrical Code) and local electrical code provisions for wiring.

¹ ASME indicates American Society for Mechanical Engineers

² ANSI indicates American National Standards Institute.

³ NFPA indicates National Fire Prevention Association.

⁴ GAMA indicates Gas Appliance Manufacturers Association.

⁵ IEEE indicates Institute of Electrical and Electronics Engineers.

**Exhibit 5.S10
Standards for Weatherization Materials**

**HEATING AND COOLING SYSTEM REPAIRS AND
TUNE-UPS/EFFICIENCY IMPROVEMENTS**

**HEATING AND COOLING SYSTEM REPAIRS AND
TUNE-UPS/EFFICIENCY IMPROVEMENTS—
Continued**

[Standards for conformance]		[Standards for conformance]	
Install duct insulation	ASTM ¹ C612-04 (see insulation sections of this appendix).	Reduce excess combustion air:	
Reduce Input of burner; derate gas-fueled equipment	Local utility company and procedures if applicable for gas-fueled furnaces and ANSI ² Z223.1-2003 (same as NFPA ³ 54-2002) including Appendix H.	A: Reduce vent connector size of gas-fueled appliances	ANSI ¹ Z223.1-2003 (same as NFPA ² 54-2002) Part 9 and Appendices G&H.
Repair/replace oil-fired equipment	NFPA 31-2001.	B: Adjust barometric draft regulator for oil fuels	NFPA 31-2001 and per furnace and boiler manufacturers' instructions.
Replace combustion chamber in oil-fired furnaces or boilers	NFPA 31-2001.	Replace constant burning pilot with electronic ignition device on gas-fueled furnaces or boilers	ANSI Z21.71-2005.
Clean heat exchanger and adjust burner; adjust air shutter and check CO ₂ and stack temperature. Clean or replace air filter on forced air furnace	ANSI Z223.1-2003 (same as NFPA 54-2002) including Appendix H.	Readjust fan switch on forced air gas- or oil-fueled furnaces	Applicable sections on Appendix H of ANSI Z223.1-2003 (same as NFPA 31-2002) for gas furnaces and NFPA 31-2001 for oil furnaces.
Install vent dampers for gas-fueled heating systems	Applicable sections of ANSI Z223.1-2003 (same as NFPA 54-2002) including Appendix H, I, J, and K. ANSI Z21.66-1996 and Exhibits A&B for electrically operated dampers.	Replace burners	See install burners (oil/gas).
Install vent dampers for oil-fueled heating systems	Applicable sections of NFPA 31-2001 for installation and in conformance with UL ⁴ 17, Third Edition, 1994.	Install/replace duct furnaces (gas)	ANSI Z223.1-2003 (same as NFPA 31-2002).
		Install/replace heat pumps	ARI ³ 210/240-2003. UL ⁴ 1995 Third Edition, 2005.
		Replace air diffusers, intakes, registers, and grilles	Commercially available.
		Install/replace warm air heating metal ducts	UL 181, Tenth Edition 2005, including UL 181A, Third Edition 2005 and 181B, Second Edition, 2005.
		Filter alarm unit	Commercially available.

¹ ASTM indicates American Society for Testing and Materials.

² ANSI indicates American National Standards Institute.

³ NFPA indicates National Fire Prevention Association.

⁴ UL indicates Underwriters Laboratories.

¹ ANSI indicates American National Standards Institute.

² NFPA indicates National Fire Prevention Association.

³ ARI indicates Air-Conditioning and Refrigeration Institute.

⁴ UL indicates Underwriters Laboratories.

**Exhibit 5.S10
Standards for Weatherization Materials**

**REPLACEMENT FURNACES, BOILERS, AND
WOOD STOVES**

[Standards for conformance]	
Chimneys, fireplaces, vents and solid fuel burning appliances.....	NFPA ¹ 211-2003 (same as ANSI ² A52.1).
Gas-fired furnaces.....	ANSI Z21.47-2004 and ANSI Z223.1-2003 (same as NFPA 54-2002).
Oil-fired furnaces.....	UL ³ 727, Eighth Edition, 1994 and NFPA 31-2001.
Liquefied petroleum gas storage.....	NFPA 58-2004.
Ventilation fans: Including electric attic, ceiling, and whole-house fans.....	UL 507, Ninth Edition, 1999.

¹ NFPA indicates National Fire Prevention Association.
² ANSI indicates American National Standards Institute.
³ UL indicates Underwriters Laboratories.

ELECTRIC MOTORS AND MOTOR CONTROLS

[Standards for conformance]	
All electric motors.....	UL ¹ 1004, Fifth Edition, 1994.
Variable-speed drives.....	Listed by UL.

¹ UL indicates Underwriters Laboratories.

AIR CONDITIONERS AND COOLING EQUIPMENT

[Standards for conformance]	
Air conditioners: Central air conditioners ... Room size units	ARI ¹ 210/240-2003. ANSI/AHAM ² RAC 1-2003.
Other cooling equipment: Including evaporative coolers, heat pumps, and other equipment....	UL ³ 1995, Third Edition, 2005.

¹ ARI indicates Air Conditioning and Refrigeration Institute.
² ANSI/AHAM indicates American National Standards Institute/Association of Home Appliance Manufacturers.
³ UL indicates Underwriters Laboratories.

**SCREENS, WINDOW FILMS, AND REFLECTIVE
MATERIALS**

[Standards for conformance]	
Insect screens.....	Commercially available.
Window films.....	Commercially available.
Shade screens: Fiberglass shade screens.....	Commercially available.
Polyester shade screens.	Commercially available.
Rigid awnings: Wood rigid awnings	Commercially available.
Metal rigid awnings	Commercially available.
Louver systems: Wood louver awnings.....	Commercially available.
Metal louver awnings	Commercially available.
Reflective roof coating.....	Energy Star criteria for reflective roof products.

REFRIGERATORS

[Standards for conformance]	
Refrigerator/freezers (does not include freezer-only units)	UL ¹ 250. Replaced units must be disposed of properly per Clean Air Act 1990, Section 608, as amended by 40 CFR ² 82, May 14, 1993.

¹ UL indicates Underwriters Laboratories.
² CFR indicates Code of Federal Regulations.

FLUORESCENT LAMPS AND FIXTURES

[Standards for conformance]	
Compact fluorescent lamps	ANSI/UL ¹ 542, Eighth Edition, 1999, and UL 1993, First Edition, 1993.
Fluorescent lighting fixtures	UL 1598, Second Edition, 2004.

¹ ANSI/UL indicates American National Standards Institute/Underwriters Laboratories.

Exhibit 6

Link to Fund Matrix: [Exhibit 6.0, Fund Matrix](#)

Fund Matrix

This Weatherization (Wx) Program Fund Matrix is intended as a quick check tool to help Local Agencies determine funding allowances, budget and measure categories, and SIR requirements when identifying measures.

All requirements & allowable expenses defined in the current contracts, policies, and specifications take precedence.

Revised July 2022

Page 1 of 11		Fund Matrix		Energy		Health		Repair	
MEASURES or ACTIVITIES	Savings to Investment Ratio (SIR) requirements and Measure Category will vary depending on your reason, justification, and benefit for the measure.	SIR Required	Ind Meas SIR & Package SIR	Package SIR	No SIR assumed	No SIR	No SIR	Package SIR	No SIR
		Measure Category	WxM	Infiltration	GHWR	H&S	+H	WRR	NSR
Title Reference	Specifics/Limitations/Allowances Highlights only See Policy, Specification, or Exhibit for full requirements	Fund Source	Weatherization Measure Conductive, Mechanical	Infiltration Reduction Infiltration: Duct Leakage	General Heat/Waste Reduction Inc: Low Cost/No Cost (L/C/NC)	Health & Safety	Plus Health (Wx+H State Funding only)	Weatherization-Related Repair Incidental Repair	WRRed: Wx Readiness, Tier 2, WRR w/o SIR (State & LIHEAP)
Thermal Boundary - Conductive									
Attic Insulation Policy 5.4.2		DOE	X						
		BIL	X						
		LIHEAP	X						
		ARP	X						
		BPA State	X X						
Wall Insulation Policy 5.4.3	If dense pack, then infiltration reduction benefit also.	DOE	X	X					
		BIL	X	X					
		LIHEAP	X	X					
		ARP	X	X					
		BPA State	X X	X X					
Floor Insulation Policy 5.4.4		DOE	X						
		BIL	X						
		LIHEAP	X						
		ARP	X						
		BPA State	X X						
Crawlspace Imp Ancillary to Floor Ins Policy 5.4.4 Exhibit 5.1B		DOE	X			X			
		BIL	X			X			
		LIHEAP	X			X			
		ARP	X			X			
		BPA State	X X			X X	X		
Duct Insulation Policy 5.6.1		DOE	X						
		BIL	X						
		LIHEAP	X						
		ARP	X						
		BPA State	X X						
Pipe Insulation Policy 5.7.2		DOE	X						
		BIL	X						
		LIHEAP	X						
		ARP	X						
		BPA State	X X						

**Exhibit 6
Program Fund Matrix**

Page 2 of 11	Fund Matrix		SIR	IM & P	P	No	No	No	P	No
MEASURES	Specifics/Limitations/Allowances	Fund Source	WxM	Infil	GH WR	H&S	+H	WRR	NSR	
Pressure Boundary - Infiltration										
Air Sealing Policy 5.3.1		DOE	X	X						
		BIL	X	X						
		LIHEAP	X	X						
		ARP	X	X						
		BPA State	X X	X X						
Duct Sealing		DOE	X	X						
		BIL	X	X						
		LIHEAP	X	X						
		ARP	X	X						
		BPA State	X X	X X						
Recessed Can Lights Policy 5.4.2 Policy 5.7.4	Labor, hardware/bulb replacement - LC/NC Fixture & Torchiere lamp for energy efficiency - WxM No max limit on LED bulbs BPA: May include non-electrically heated, low-income homes in BPA service territory.	DOE	X	X	X					
		BIL	X	X	X					
		LIHEAP	X	X	X					
		ARP	X	X	X					
		BPA State	X X	X X	X X					
Heating/Cooling System - Mechanical										
Air Conditioning and Heating Systems Policy 5.5.1	Repair, replace, or new install for failing, inadequate, or inefficient equipment. Other major WxM required. LAs must use all available matching funds for these repairs when such funds are available.	DOE	X			X		X	X	
		BIL	X			X		X		
	Repair, replace, or new install for failing, inadequate, or inefficient equipment. Stand-alone available.	LIHEAP	X			X		X	X	
		ARP	X			X		X	X	
	Repair, replace, or new install of electrical heaters or furnaces, if existing is failing, inadequate, or inefficient equipment. Other major WxM required (or if DMPL 'why not provided' justification). LAs must use all available matching funds for these repairs when such funds are available. <u>Electric heat & BPA service territory only</u>	BPA	X			X			X	X
	State	X			X	X		X	X	
HVAC System Cleaning Policy 9.2.1 Exhibit 5.2.5A	Clean & tune	DOE	X		X	X		X		
		BIL	X		X	X		X		
	Clean & tune	LIHEAP	X		X	X		X	X	
		ARP	X		X	X		X		
	Clean & tune. Electric heat & BPA service territory only Clean & tune. Full system cleaning, including ductwork	BPA State	X X		X	X	X		X	X
Solid Fuel Burning Appliances Policy 5.5.4		DOE				X				
		BIL				X				
		LIHEAP				X				
		ARP				X				
		BPA State				X				
Space Heaters Policy 5.5.5	In homes with Space Heaters: • Smoke detectors material & labor costs allowable • Securing mechanical building permits allowable • Incidental repairs (WRR) allowed on electric space heaters only (i.e. electric baseboard, wall, & radiant panel heaters)	DOE	X			X		X		
		BIL	X			X		X		
		LIHEAP	X			X		X	X	
		ARP	X			X		X		
		BPA State	X X			X		X	X	X
Windows and Doors										
Windows & Doors Policy 5.4.5	Energy Efficiency is only allowable option - WxM	DOE	X							
		BIL	X							
	Windows and Doors may be replaced as WxM, H&S, WRR, or NSR. Also see, Policy 5.2.7 Deemed Measures Priority List-DMPL	LIHEAP	X	X		X		X	X	
		ARP	X	X		X		X		
		BPA State	X X	X X		X		X	X	X

**Exhibit 6
Program Fund Matrix**

Page 3 of 11		Fund Matrix				SIR	IM & P	P	No	No	No	P	No
MEASURES	Specifics/Limitations/Allowances	Fund Source	WxM	Infil	GH WR	H&S	+H	WRR	NSR				
General Heat Waste Reduction (GHWR) (includes Low Cost/No Cost (LC/NC))													
General Heat Waste Reduction (GHWR) Policy 5.1.5	Reimbursement limit: max of \$250 per dwelling unit Allowable expenses: materials & installation	DOE			X								
		BIL			X								
		LIHEAP			X								
		ARP			X								
		BPA State			X								
Low-Cost/No-Cost (LC/NC) Policy 5.1.5	Reimbursement limit: max of \$50 per dwelling unit Allowable expenses: materials only LC/NC are excluded from the "one DOE Wx activity per dwelling unit restriction"	DOE			X								
		BIL			X								
		LIHEAP			X								
		ARP			X								
		BPA State			X								
Water Heater Pipe Insulation Policy 5.7.1	R-3 on first 6' (hot & cold) pipe exiting water heater	DOE			X								
		BIL			X								
		LIHEAP			X								
		ARP			X								
		BPA State			X								
Faucet Aerators Policy 5.1.5	If existing is 1.3 gpm or above, install 1.2 gpm	DOE			X								
		BIL			X								
		LIHEAP			X								
		ARP			X								
		BPA State			X								
Low-Flow Showerheads Policy 5.1.5	If existing is 1.6 gpm or above, install 1.5 gpm	DOE			X								
		BIL			X								
		LIHEAP			X								
		ARP			X								
		BPA State			X								
Weatherstripping Policy 5.1.5	Install weatherstrip & door sweep	DOE		X	X								
		BIL		X	X								
		LIHEAP		X	X								
		ARP		X	X								
		BPA State		X	X								
Filters Furnace/AC Policy 5.1.5	Provide 6 disposable or 2 washable (cut to fit) filters	DOE			X	X							
		BIL			X	X							
		LIHEAP			X	X							
		ARP			X	X							
		BPA State			X	X					X		
Water Heater Temperature Policy 5.1.5	Adjust water temperature to 120°F	DOE			X	X							
		BIL			X	X							
		LIHEAP			X	X							
		ARP			X	X							
		BPA State			X	X					X		
LED Bulbs Policy 5.1.5	Bulb replacement LC/NC. No max limit on LED bulbs. BPA: May include non-electrically heated, low-income homes in BPA service territory.	DOE	X		X								
		BIL	X		X								
		LIHEAP	X		X								
		ARP	X		X								
		BPA State	X		X								
Thermostat Policy 5.1.5	Install programmable or smart thermostat	DOE	X		X								
		BIL	X		X								
		LIHEAP	X		X								
		ARP	X		X								
		BPA State	X		X								
Walk-off mat Policy 5.1.5 Policy 9.2.1	Provide up to 4 mats (front, back, int, ext)	DOE			X	X							
		BIL			X	X							
		LIHEAP			X	X							
		ARP			X	X							
		BPA State			X	X					X		

**Exhibit 6
Program Fund Matrix**

Page 4 of 11		Fund Matrix		<u>SIR</u>	IM & P	P	No	No	No	P	No
MEASURES	Specifics/Limitations/Allowances	Fund Source	WxM	Infil	GH WR	H&S	+H	WRR	NSR		
Hygrometer Policy 5.1.5 Policy 9.2.1	Provide low-cost hygrometer	DOE			X	X					
		BIL			X	X					
		LIHEAP			X	X					
		ARP			X	X					
		BPA			X	X					
		State			X	X	X				
Client Education Policy 5.1.4 Policy 9.2.1	Reimbursement limit: subject to ACPU (except LC/NC) See Low-Cost/No-Cost notes for DOE specific info	DOE			X	X					
		BIL			X	X					
		LIHEAP			X	X					
		ARP			X	X					
		BPA			X	X					
	Reimbursement limit: up to 5% of grant.	State			X	X	X				
Green Cleaning Kit Policy 5.1.5 Policy 9.2.1	Reimbursement limit: up to 20% of grant Visits can be done at non-electrically heated, low-income homes in BPA service territory. Reimbursement limit: up to 5% of grant.	DOE			X	X					
		BIL			X	X					
		LIHEAP			X	X					
		ARP			X	X					
		BPA			X	X					
		State			X	X	X				
Health & Safety											
Health & Safety Measures	Up to 14.7 % of program operations budget allowed. Up to 14.7 % of program operations budget allowed. Up to 25 % of program operations budget allowed. Up to 25 % of program operations budget allowed. Up to 30 % of program operations budget allowed. Up to \$10,000 Total IMC limit for each unit, for Tier 1. Up to \$25,000 for Tier 2.	DOE				X					
		BIL				X					
		LIHEAP				X					
		ARP				X					
		BPA				X					
		State				X					
Mechanical Ventilation Policy 9.3		DOE	X			X					
		BIL	X			X					
		LIHEAP	X			X					
		ARP	X			X					
		BPA	X			X					
		State	X			X	X				
ERV/HRV Policy 9.3		DOE	X			X					
		BIL	X			X					
		LIHEAP	X			X					
		ARP	X			X					
		BPA	X			X					
		State	X			X	X				
Air Filter/Purifier Policy 5.1.5 Policy 9.2.1	Filters in HVAC, on air intakes, or stand alone if needed	DOE	X		X	X					
		BIL	X		X	X					
		LIHEAP	X		X	X					
		ARP	X		X	X					
		BPA	X		X	X					
		State	X		X	X	X				
Combustion Safety and CO Testing Policy 9.4	Testing devices and labor costs allowable as H&S	DOE				X					
		BIL				X					
		LIHEAP				X					
		ARP				X					
		BPA				X					
		State				X	X				
Smoke Detector Policy 9.5 Policy 9.2.1	Detector material and labor costs allowed as H&S	DOE				X					
		BIL				X					
		LIHEAP				X					
		ARP				X					
		BPA				X					
		State				X	X				
CO Detector Installation Policy 9.5 Policy 9.2.1	Detector material and labor costs allowed as H&S	DOE				X					
		BIL				X					
		LIHEAP				X					
		ARP				X					
		BPA				X					
		State				X	X				

**Exhibit 6
Program Fund Matrix**

Page 5 of 11	Fund Matrix		SIR	IM & P	P	No	No	No	P	No
MEASURES	Specifics/Limitations/Allowances	Fund Source	WxM	Infil	GH WR	H&S	+H	WRR	NSR	
Remove Toxic Household Chemicals Policy 9.2.1	Proper disposal and labor costs allowed as H&S	DOE				X				
		BIL				X				
		LIHEAP				X				
		ARP				X				
		BPA				X				
		State				X	X			
Slip, Trip, & Fall Prevention (NOT RAMPS) Policy 9.2.1	Handrails, Grab bars, Shower mat, & Fixing soft spots	DOE				X		X		
		BIL				X		X		
		LIHEAP				X		X	X	
		ARP				X		X		
		BPA				X		X		
		State				X	X	X	X	
Mold & Moisture Reduction Policy 9.6 Policy 9.2.1		DOE				X		X		
		BIL				X		X		
		LIHEAP				X		X	X	
		ARP				X		X		
		BPA				X		X		
		State				X	X	X	X	
Gutter & Downspout Policy 9.6 Policy 9.2.1	Repair existing to protect WxM	DOE				X		X		
	Repair existing to protect WxM	BIL				X		X		
	Repair, Replacement, or new Installation	LIHEAP				X		X	X	
	Repair, Replacement, or new Installation	ARP				X		X		
	Repair existing to protect WxM	BPA				X		X		
	Repair, Replacement, or new Installation	State				X	X	X	X	
Electrical Policy 9.7		DOE				X		X		
		BIL				X		X		
		LIHEAP				X		X	X	
		ARP				X		X		
		BPA				X		X		
		State				X		X	X	
Lead-Based Paint Renovation, Repair, and Painting Program (RRP) Policy 9.8	RRP costs are an allowed Health and Safety expense. Allowed costs include labor, material, equipment purchases used specifically for testing for lead, & related costs. If HUD funds used or work done in HUD housing, DOE funds may be used for clearance testing if no HUD funds are available.	DOE				X				
	Same as DOE	BIL				X				
	RRP costs are an allowed Health and Safety expense. Allowed costs include labor, material, equipment purchases used specifically for testing for lead & related costs.	LIHEAP				X				
		ARP				X				
		BPA				X				
		State				X	X			
Asbestos Policy 9.9		DOE				X				
		BIL				X				
		LIHEAP				X				
		ARP				X				
		BPA				X				
		State				X			X	
Radon Policy 9.10		DOE				X				
		BIL				X				
		LIHEAP				X				
		ARP				X				
		BPA				X				
		State				X			X	
Pest Mitigation Policy 9.11 Policy 9.2.1		DOE				X		X		
		BIL				X		X		
		LIHEAP				X		X	X	
		ARP				X		X		
		BPA				X		X		
		State				X	X	X	X	

**Exhibit 6
Program Fund Matrix**

Page 6 of 11	Fund Matrix		SIR	IM & P	P	No	No	No	P	No
MEASURES	Specifics/Limitations/Allowances	Fund Source	WxM	Infil	GH WR	H&S	+H	WRR	NSR	
Plus Health Measures (+H) in Wx+H										
Plus Health Measures Policy 9.2.1	Prohibited	DOE								
		BIL								
		LIHEAP								
		ARP								
	Six (6) measures allowable with Wx+H justification-State only	State					X			
Wx+H Dust Mite Cover Policy 9.2.1	Prohibited	DOE								
		BIL								
		LIHEAP								
		ARP								
	Protective bedding covers rated at 10 microns or less	State					X			
Wx+H HEPA Vacuum Cleaner Policy 9.2.1	Prohibited	DOE								
		BIL								
		LIHEAP								
		ARP								
	Vacuum with a HEPA rated filter	State					X			
Wx+H Slip, Trip & Fall Prevention (RAMPS) Policy 9.2.1	Prohibited - See Slip, Trip, & Fall Prevention (NOT Ramps below)	DOE								
		BIL								
		LIHEAP								
		ARP								
	Ramps and fixing irregular steps to prevent Slip, Trip, & Fall	State					X			
Wx+H Flooring Policy 9.2.1	Prohibited	DOE								
		BIL								
		LIHEAP								
		ARP								
	Two rooms of carpet replaced with solid surface flooring	State					X			
Wx+H Comprehensive Cleaning Policy 9.2.1	Prohibited	DOE								
		BIL								
		LIHEAP								
		ARP								
	One-time comprehensive cleaning to enable Wx, +H, or +R	State					X			
Establishing Community Service Delivery Partnership Policy 9.2.1	Prohibited	DOE								
		BIL								
		LIHEAP								
		ARP								
	Partnerships with health providers and other community partners are encouraged	State					X			

**Exhibit 6
Program Fund Matrix**

Page 7 of 11	Fund Matrix		SIR	IM & P	P	No	No	No	P	No
MEASURES	Specifics/Limitations/Allowances	Fund Source	WxM	Infil	GH WR	H&S	+H	WRR	NSR	
Appliances										
Appliances Exhibit 5.2.7A	Deemed Measures Priority List (DMPL) prohibited	DOE								
	Deemed Measures Priority List (DMPL) prohibited	BIL								
	See DMPL	LIHEAP	X							
	See DMPL	ARP	X							
	See DMPL. Clothes Washer Replacement, and Microwave Ovens New or Replacement. May include non-electrically heated, low-income homes in BPA service territory.	BPA	X							
	See DMPL	State	X				X			
Refrigerator Replacement Policy 5.7.3	CFC recovery is required. Appliance disposal and CFC recovery costs are allowable. BPA: May be installed in non-electrically heated, low-income homes in BPA service territory.	DOE	X							
		BIL	X							
		LIHEAP	X							
		ARP	X							
		BPA	X							
		State	X				X			
Water Heater Repair & Replacement Policy 5.7.1	Tier 2 NSR - Only as last resort if fuel switching oil/propane to elec	DOE	X				X		X	
		BIL	X				X		X	
		LIHEAP	X				X		X	X
		ARP	X				X		X	
		BPA	X				X		X	
		State	X				X		X	X
Repair										
Weatherization-Related Repair (WRR) Policy 5.8.1	Up to 15% of program operations budget allowed	DOE							X	
	Up to 15% of program operations budget allowed	BIL							X	
	Up to 15% of program operations budget allowed	LIHEAP							X	X
	Up to \$5000 WRR (without package SIR - NSR) >\$5K NSR shall receive Commerce prior written approval	ARP							X	
	Up to 15% of program operations budget allowed	ARP							X	
	Up to 30% of program operations budget allowed	BPA							X	
	Up to \$10,000 Total IMC limit for each unit, for Tier 1 (with package SIR or without package SIR - NSR)	State							X	X
Weatherization Readiness (WRed) Policy 5.8.2	Up to \$5435 WRed (NSR).	DOE								X
	Prohibited	BIL								
	Prohibited	LIHEAP								
	Up to \$10,000 WRed (NSR).	ARP								X
	Up to \$10,000 WRed (NSR).	BPA								X
See WRR without package SIR (above) and NSR (below)	State									
Non-SIR Repair (NSR) Policy 5.8.1 Policy 5.8.2 Policy 9.2.1	See WRed Non-SIR Repair (above)	DOE								X
	Prohibited	BIL								
	See WRR without package SIR (above)	LIHEAP							X	X
	See WRed Non-SIR Repair (above)	ARP								X
	See WRed Non-SIR Repair (above)	BPA								X
	See WRR without package SIR (above) for Tier 1 Up to \$25,000 NSR for Tier 2 - Provisional Program	State						X	X	X
Repair Roof Policy 5.8.1 Policy 9.2.1	Repair of roof to protect WxM	DOE							X	
		BIL								
		LIHEAP							X	X
		ARP								
		BPA							X	
		State					X		X	X
Replace Roof Policy 5.8.1 Policy 5.8.2 Policy 9.2.1		DOE							X	X
		BIL							X	
		LIHEAP								
		ARP								
		BPA							X	X
		State							X	X

**Exhibit 6
Program Fund Matrix**

Page 8 of 11	Fund Matrix		SIR	IM & P	P	No	No	No	P	No
MEASURES	Specifics/Limitations/Allowances	Fund Source	WxM	Infil	GH WR	H&S	+H	WRR	NSR	
Plumbing Repair Policy 5.8.1 Policy 9.2.1	Repair of plumbing to protect WxM	DOE							X	
		BIL							X	
		LIHEAP							X	X
		ARP							X	
		BPA							X	
		State						X	X	X
Activities										
Income Eligibility Policy 1.1.2	Budget category to charge: Program Support	DOE	NA	NA	NA	NA	NA	NA	NA	NA
		BIL	NA	NA	NA	NA	NA	NA	NA	NA
		LIHEAP	NA	NA	NA	NA	NA	NA	NA	NA
		ARP	NA	NA	NA	NA	NA	NA	NA	NA
		BPA	NA	NA	NA	NA	NA	NA	NA	NA
		State	NA	NA	NA	NA	NA	NA	NA	NA
Energy Audit Policy 5.2.1	Budget category to charge: Program Support	DOE	NA	NA	NA	NA	NA	NA	NA	NA
		BIL	NA	NA	NA	NA	NA	NA	NA	NA
		LIHEAP	NA	NA	NA	NA	NA	NA	NA	NA
		ARP	NA	NA	NA	NA	NA	NA	NA	NA
		BPA	NA	NA	NA	NA	NA	NA	NA	NA
		State	NA	NA	NA	NA	NA	NA	NA	NA
Inspection Policy 7.1 Policy 9.2.1	Budget category to charge: Program Support	DOE	NA	NA	NA	NA	NA	NA	NA	NA
		BIL	NA	NA	NA	NA	NA	NA	NA	NA
		LIHEAP	NA	NA	NA	NA	NA	NA	NA	NA
		ARP	NA	NA	NA	NA	NA	NA	NA	NA
		BPA	NA	NA	NA	NA	NA	NA	NA	NA
		State	NA	NA	NA	NA	NA	NA	NA	NA
Fuel Switching Policy 5.5.7 Policy 6.9.1.2	Commerce does <u>not</u> permit the general practice of fuel switching. Switching fuels may occur, on a case-by case basis, under the following conditions only: SIR ≥ 1 or H&S. Local agencies must notify Commerce. Allowable with regular Wx (above) or Tier 2 - Provisional Program	DOE	X				X			
		BIL	X				X			
		LIHEAP	X				X			X
		ARP	X				X			
		BPA	X				X			
		State	X				X			X
Renewable Energy Systems Policy 5.5.9	on hold	DOE	X							
		BIL	X							
		LIHEAP	X							
		ARP	X							
		BPA	X							
		State	X							
Re-Weatherization Policy 2.1.3 Policy 2.1.7	Re-Wx is the lowest priority. Can Re-Wx if the dwelling unit was weatherized more than 15 years ago.	DOE	X	X	X	X			X	
		BIL	X	X	X	X			X	
		LIHEAP	X	X	X	X			X	X
		ARP	X	X	X	X			X	
		BPA	X	X	X	X			X	
	State	X	X	X	X			X	X	
Legend										
FUNDERS										
DOE:	Department of Energy funding - Shall NOT be braided with BIL funding in one project									
BIL	DOE - Bipartisan Infrastructure Law funding - Shall NOT be braided with DOE funding in one project									
LIHEAP:	Health and Human Services (HHS) Low-Income Home Energy Assistance Program funding									
ARP (or ARPA)	HHS LIHEAP - American Recovery Plan Act funding									
BPA:	Bonneville Power Administration funding - Electric heat & BPA service territory only									
State:	Washington State Weatherization Plus Health (State) funding									

**Exhibit 6
Program Fund Matrix**

Page 9 of 11	Fund Matrix
MEASURES	
WxM	<p>Weatherization Measures (Energy Conservation Measures)</p> <p>Measure Type: Conductive and Mechanical Measures installed for energy efficiency</p> <p>SIR: SIR is required for individual measures and package of measures</p> <p>A Weatherization Measure is considered cost-effective if it receives Savings-to-Investment Ratio of 1.0 or greater ($SIR \geq 1$) in TREAT (DOE authorized Wx energy analysis tool). Or, for other than DOE projects, meets requirements on Exhibit 5.2.7A, <i>Deemed Measures Priority List</i> (DMPL) table.</p> <p>Definition: projects, meets requirements on Exhibit 5.2.7A, <i>Deemed Measures Priority List</i> (DMPL) table.</p>
Infiltration	<p>Infiltration Reduction and Infiltration: Duct Leakage</p> <p>Measure Type: Air Sealing (Priority and Blower Door Guided) and Duct Sealing</p> <p>SIR: SIR is required for package of measures</p> <p>Definition: Sealing building envelope with materials to stop or prevent air leakage into or through dwelling unit</p>
GHWR	<p>General Heat Waste Reduction</p> <p>Measure Type: Installing low cost measures that generally reduce heat waste</p> <p>SIR: No SIR required; Cost-effectiveness is presumed</p> <p>A State-approved table that establishes non-insulation energy conservation measures. All measures on this list are presumed cost-effective and shall be installed as applicable to the extent funding allows. Total</p> <p>Definition: General Heat Waste Reduction material and labor cost must be <\$250 per unit.</p>
LC/NC	<p>Low Cost/No Cost</p> <p>Measure Type: Providing low cost materials that can be easily installed by the client</p> <p>SIR: No SIR required; Cost-effectiveness is presumed</p> <p>Program term for relatively inexpensive conservation devices that can be easily installed by the Wx client</p> <p>Definition: (e.g.: LEDs, low-flow shower heads & aerators, and door weather-stripping <\$50).</p>
H&S:	<p>Health and Safety Measures</p> <p>Measure Type: Health and Safety Measures <i>must be energy-related</i></p> <p>SIR: No SIR required</p> <p>Energy-related measures and repairs necessary to eliminate hazards within a structure, which by their remedy, allow for the installation of weatherization materials. Energy-related health and safety measures</p> <p>Definition: and repairs are intended to protect building occupants and workers.</p>
+H	<p>Plus Health (+H) Measures in the Weatherization Plus Health (Wx+H) Program</p> <p>Measure Type: Plus Health Measures - State funding only</p> <p>SIR: No SIR required</p> <p>Plus Health (+H) Measures within the Wx+H Program address health conditions and hazards within a home, similar to Healthy Homes. The six exclusively +H measures addressing respiratory illness or advanced household hazard repair may be justified under Wx+H Program, are restricted to State funding</p> <p>Definition: only.</p>
WRR	<p>Weatherization-Related Repair Measures (Incidental Repair Measures)</p> <p>Measure Type: Weatherization-Related Repair Measures <i>necessary to protect WxM</i></p> <p>SIR: SIR is required for package of measures</p> <p>Repairs necessary for the effective performance or preservation of weatherization materials. Such minor repairs include, but are not limited to: framing or repairing windows and doors which could not otherwise be caulked or weather-stripped, roof, floor, plumbing, and electrical repairs. The cost of WRR</p> <p>Definition: (incidental repairs) must be included in the cost of the package of measures installed in a dwelling.</p>
WRed	<p>Weatherization Readiness</p> <p>Measure Type: Weatherization Readiness</p> <p>SIR: No SIR required</p> <p>Necessary repair or correction to physical building related issues required to move Wx Projects forward</p> <p>Definition: to completion, not necessarily directly related to energy efficiency measures.</p>
NSR	<p>Non-SIR Repair Measures</p> <p>Includes: Weatherization-Related Repair (WRR) without package SIR (<i>State up to \$10K IMC & LIHEAP</i></p> <p>Measure Type: <i>up to \$5K</i>) and Weatherization Readiness (WRed)</p> <p>SIR: No SIR Required</p> <p>Definition: Necessary repair, not directly related to energy efficiency measures</p>

**Exhibit 6
Program Fund Matrix**

Page 10 of 11	Fund Matrix	
COSTS		
IMC	Installed Measure Cost	
Total IMC =	WxM Costs + H&S Costs + WRR Costs (+ State Leverage)	
	The Installed Measure Costs for energy efficiency measures (building shell and equipment) determined to be cost-effective by DOE approved Commerce standards.	
	Contractor: Verifiable contractor costs (including material and labor costs) to install WxM, H&S, or WRR (total contractor bill).	
	Definition: Crew: Verifiable material and labor costs to install WxM, H&S or WRR	
PSC	Program Support Cost	
	Audit and Inspection costs, Consumer Conservation Education Costs (Client Education), intake and outreach expenses, and office expenses.	
	PSC include: See Policy 6.4 Program Operations Costs Section 1c. <i>Program Support Costs</i> for more information.	
	Costs directly associated with the Weatherization program, but not directly associated with a specific	
	Definition: Weatherization building.	
Splitting Costs		
1. For PSE and PUD, see Special Terms and Conditions for each program.		
2. DOE prohibits splitting costs for one measure between Installed Measure Costs (IMC) Budget Categories.		
Clear delineation between IMC Budget Categories and alignment with the measure justification will result in cleaner data.		
Splitting Tasks: Instead in some cases, splitting tasks is appropriate.		
Examples of Splitting Tasks:		
a. Installing dense pack wall insulation in a pre-1978 house with lead paint on the walls can be split into two tasks:		
1. Installing insulation classified as a Weatherization Measure (WxM) and require a Savings to Investment Ratio ≥ 1 .		
2. Drilling the holes in a RRP lead safe manner classified as a Health and Safety (H&S) Measure.		
b. Removing and replacing a furnace in a home containing asbestos can be split into two tasks:		
1. Removing existing furnace to install the new energy efficient furnace is classified as a WxM and require a SIR ≥ 1 .		
2. If the old furnace is covered in asbestos,		
the tasks specific to Asbestos Containg Materials (ACM) including hiring an asbestos control professional because of the WPN 17-7 requirement, taking certain precautions during ACM removal, and extra cost to dispose of hazardous waste are classified as a H&S Measure.		
ACPU:	Average Cost Per Unit	PY2022 DOE ACPU is \$8009
ACPU includes:	WxM IMC, WRR IMC, PSC, and Vehicle and Equipment Costs	
NOT in ACPU:	Administration, H&S, Other Program Operations, and T&TA	
	The Department of Energy (DOE) sets the adjusted Average Cost Per dwelling Unit for each Program Year (PY) in the Weatherization Grant Guidance Weatherization Program Notice (WPN). The "average cost per unit" (ACPU) must be at or below this figure at the end of each program year.	
	This average includes units computed in a multi-family building of 5 units or greater.	
	Definition: DOE programs are the only Wx funding sources with an Average Cost Per Unit (ACPU) limit.	
SIR:	Savings to Investment Ratio	
SIR includes:	WxM and WRR	
NOT in SIR:	Administration, H&S, PSC, OPO, and T&TA	
	The measurement of how many times an energy retrofit pays for itself during an established lifetime.	
	The ratio is the lifetime savings-to-initial investment. SIR of one or greater (SIR ≥ 1) indicates cost-effective investment.	

**Exhibit 6
Program Fund Matrix**

Page 11 of 11	Fund Matrix			
<p><i>To be revised</i></p> <p><i>Funding Priorities are shifting with new funding</i></p>	Recommended Measure Funding Priorities			
	<p>This matrix provides guidance for recommended payment by Wx Program measure type. The funding sources are shown from highest priority at the top to lowest at the bottom. Use local discretion as funding sources and leveraging opportunities allow.</p>			
	Priority	WxM	H&S	WRR
	1.	Utility	State	State
	2.	DOE	LIHEAP	LIHEAP
	3.	BPA	BPA	BPA
4.	LIHEAP	Utility	Utility	
5.	State	DOE	DOE	

Exhibit 6.1

Weatherization Program Fiscal Definitions		Page 1 of 2
Request for Reimbursement Terms (Budget Line Items)	Old Term	Definition
<u>ADMINISTRATION COSTS</u> (Admin)		Costs associated with agency level functions, but not directly associated with a program. These agency level functions include, but are not limited to: planning, budgeting and accounting, and establishment and direction of local agency policies, goals, and objectives.
<u>PROGRAM OPERATIONS COSTS</u> (Category Total)		Costs that are clearly identifiable with a program. Includes the following costs: 1. Weatherization Measures, 2. Health and Safety Measures, 3. Weatherization-Related Repair Measures, 4. Program Support, 5. Vehicle and Equipment, and 6. Other Program Operations (Financial Audit, Liability Insurance, and Leveraging).
<u>Weatherization (Wx) Measures Costs</u>		The Installed Measure Costs for energy efficiency measures (building shell and equipment) determined to be cost-effective by DOE approved Commerce standards.
<u>Health and Safety (H&S) Measures Costs</u>		The Installed Measure Costs for energy-related measures and repairs necessary to eliminate hazards within a structure, which by their remedy, allow for the installation of weatherization materials. Energy-related health and safety measures and repairs are intended to protect building occupants.
<u>Weatherization-Related Repair (WRR) Measures Costs</u>		The Installed Measure Costs for repairs necessary for the effective performance or preservation of weatherization materials
<u>Program Support Costs</u>	Soft Shared Allocable Indirect	Costs directly associated with the Weatherization program, but not directly associated with a specific Weatherization building, including Audit and Inspection costs and Consumer Conservation Education costs.
Vehicle and Equipment		Costs for Vehicles and Equipment acquisition in compliance with Policy 6.6 Equipment (purchases exceeding \$5000).
<u>Other Program Operations Costs</u> (Program Operations costs NOT included in building costs)		Cumulative Costs can include: <u>Financial Audit Costs</u> : A financial audit in compliance with Policy 6.8 Audits. <u>Liability Insurance Costs</u> : Costs for insurance policies to cover local agencies for regular liability with General Liability Insurance and specific health and safety issues with Pollution Occurrence Insurance (POI). <u>Leveraging Costs</u> : Funds used for leveraging activities in accordance with 10 CFR 440.14(b) (9) (xiv), such as utility funds.
<u>TRAINING AND TECHNICAL ASSISTANCE (T&TA) COSTS</u>		Costs for Training and Technical Assistance in compliance with Policy 6.5 Training and Technical Assistance.
<u>SPECIAL PROJECT COSTS</u>		Costs for special projects as defined in individual local agencies' grant agreements.

**Exhibit 6.1
Weatherization Program Fiscal Definitions**

Weatherization Program Fiscal Definitions (continued)		Page 2 of 2
Weatherization Fiscal Term	Old Term	Definition
The following terms are used within the "Budget Line Item" definitions on Page 1 of 2		
Installed Measure Costs	Hard, Direct	<p>1. Contractor: Verifiable contractor costs (including material and labor costs) to install Wx Measures, H&S Measures, or WRR Measures (total contractor bill).</p> <p>2. Crew: Verifiable material and labor costs to install Wx Measures, H&S Measures, or WRR Measures.</p>
Material Costs	Hard, Direct	The cost of purchase and delivery of weatherization materials.
Labor Costs	Hard, Direct	The cost of construction to install weatherization materials including wage, fringe, and tax.
Consumer Conservation Education (Consumer Con Ed) Costs		Costs included in Program Support to provide consumer con ed to clients including, but not limited to, energy efficiency, safety hazards, and the proper operation of equipment, including the operation, testing, and battery replacement of smoke detectors.
Low-Cost/No-Cost Costs		Low-cost/no-cost weatherization activities provide relatively inexpensive conservation devices that can be easily installed by the Wx client, (i.e., LED bulbs, low-flow shower heads and aerators, and door weather-stripping).
Building Costs	Job Cost Unit Cost Project Cost	<p>All costs associated to a specific building, including Wx and WRR Installed Measure Costs and Program Support Costs. To determine cost per unit, divide by the number of units per building.</p> <p>The following costs are NOT included in Building Cost: Administration, Health and Safety Measures Costs, Other Program Operations Costs (Financial Audits, Liability Insurance, and Leveraging Costs), Training and Technical Assistance Costs, and Special Project Costs.</p> <p>Monthly and Quarterly calculated Program Support costs will be temporary only. The final total building cost will be determined at contract closeout.</p>

Exhibit 6.5A

Training and Technical Assistance Expense Form

Training Received

Dates Attended

1. _____

2. _____

3. _____

4. _____

5. _____

Total Cost

\$ _____

Name and Title of Individual(s) Attending:

Name

Title

Training Attended

Exhibit 6.5B

Peer Exchange Proposal Form

Name of Agency: _____ Date: _____

Contact: _____ Phone: _____

Email: _____

Describe training need: _____

Who will provide the training? _____

Where will the training be provided? _____

Describe why this person was selected: _____

When would you like the training? _____

Who will receive the training? (Provide names and titles)

_____	_____
_____	_____
_____	_____

Are the people listed above assigned only to the weatherization program? Yes No

If no, how much will be contributed by other programs? \$ _____

Who will travel? (Check one) Trainer Trainee

What is the cost?

	<u>Trainer</u>	<u>Trainee</u>
Salary:	_____	_____
Fringe:	_____	_____

Link to Active Form: [Exhibit 6.6A, Vehicle or Equipment Purchase Request Form](#)

Vehicle or Equipment Purchase Request Form

For vehicle (of any value) or equipment (acquisition cost was \$5000 or more)

Request Approval OR Provide Notification
Vehicle acquisition cost less than \$5000

Local Agency: Date:

Contact Person: Email/Phone:

Contract #: Commerce Fund Source: LIHEAP
 DOE

Leveraged Fund Source(s) if applicable (i.e. Utility, other):

Budget Category: Vehicles and Equipment FAIN:

Describe Reason and Purpose for Vehicle or Equipment purchase:

Weatherization will use Vehicle or Equipment: Full-time OR Part-time
 Will other programs use Vehicle or Equipment? Yes OR No
A rental fee or proportionate time use is required if a program does not share in the purchase.
 If yes: Shared Purchase, Use, Maintenance, OR Rental fee
 List all Programs and percent of time used:

Replacement OR Ramp-up for Program Expansion

For Replacements:

Trade-in associated with purchase request? Yes, Attach: 8.12.1A OR No
 Address trade-in value and any other related issues:

Lease Consideration:

Is lease option applicable? Yes, Attach: Cost analysis OR No, Why:
 Was lease chosen? Yes, Attach: Terms & Conditions OR No, Why:

Attach Copies of:

- Vehicle and Equipment Inventory List
- Local Agency Procurement Policy and Process (indicate all Procurement Policy sections which apply to purchase)
- Bid Specification for Vehicle or Equipment, as provided to vendors
- Three (3) Quotes/Bids, as received from vendors

Summarize Vehicle or Equipment Requested, as included in bid specification and procurement process:

Recap Three (3) Quotes/Bids as received from different vendors for this purchase (include shipping & taxes):

Bidder	Description	Quantity	Cost	Specification Met?
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No

Bid Analyses:

- Selected the lowest bid. **OR**
- Provided "best value selection" justification, as we did not choose lowest bid for awarding agency approval:

Who won bid and why? _____

--

Local Agency certifies that procurement records will be on file and available for review. Local Agency further certifies that this purchase will be in accordance will all applicable rules: Federal (including Federal Procurement Guidelines 2 CFR 200 – Federal Assistance Rules), Commerce, and Local Agency, policies, procedures, and guidelines per contract referenced above.

****Authorized person must sign request****

<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
<i>Authorized Signature (Local Agency)</i>	<i>Date</i>
<input style="width: 95%;" type="text"/>	
<i>Title</i>	

<p>For Commerce Use:</p> <p>Approval:</p> <input style="width: 95%;" type="text"/> <i>Authorized Signature (Commerce)</i>	<p><i>Request Received:</i> <input style="width: 95%;" type="text"/> <i>Date</i></p> <p><i>DOE Approval Received:</i> <input style="width: 95%;" type="text"/> <i>Date</i></p> <input style="width: 95%;" type="text"/> <i>Date</i>
<input style="width: 95%;" type="text"/>	
<i>Title</i>	

Report Final Purchase to Commerce

Exhibit 6.7

Link to Active Form: [Exhibit 6.7, Budget Revision Request Form](#)

Budget Revision Request Form						8/18/2022
Check Fund Source that Applies	<input type="radio"/> DOE	<input type="radio"/> DOE BIL	<input type="radio"/> BPA	<input type="radio"/> State	<input type="radio"/> LIHEAP	<input type="radio"/> LIHEAP ARP
						<input checked="" type="radio"/> Clear Buttons

Grant Number: _____ Date: _____
 Agency Name: _____
 Agency Contact: _____
 Phone: _____
 Email: _____

Budget Category	Current Budget	(+ or -) Budget Change	Revised Budget	% Change	% of ProgOps Budget	% Total Budget
Administration	\$0.00	\$0.00	\$0.00			
Program Operations:						
Weatherization Measures	\$0.00	\$0.00	\$0.00			
Plus Health Measures	\$0.00	\$0.00	\$0.00			
Health & Safety Measures	\$0.00	\$0.00	\$0.00			
Wx Related Repairs Measures	\$0.00	\$0.00	\$0.00			
Wx Readiness/Non-SIR Repair	\$0.00	\$0.00	\$0.00			
Deferral Measures	\$0.00	\$0.00	\$0.00			
Fuel Switch Measures	\$0.00	\$0.00	\$0.00			
Program Support	\$0.00	\$0.00	\$0.00			
Vehicles and Equipment	\$0.00	\$0.00	\$0.00			
Other Program Operations	\$0.00	\$0.00	\$0.00			
Training & Technical Assistance	\$0.00	\$0.00	\$0.00			
Special Project Cost(s) (if applicable)	\$0.00	\$0.00	\$0.00			
	\$0.00	\$0.00	\$0.00		0%	0%

Explanation of revision request:

Exhibit 6.7

Funding Over-Limit Request Form

Link to Active form: [Exhibit 6.9A, Funding Over-Limit Request Form](#)

Submit completed form to: WxQuestions@commerce.wa.gov

- 1. State funding IMC in excess of \$10,000/Unit
- 2. State funding Plus Health in excess of \$8,000/Unit
- 3. Blended/Braided funding for WRed and Tier 2 Deferral funding in excess of \$35,000/Unit

Agency Name	Click or tap here to enter text.
Requesting Staff	Click or tap here to enter text.
Date of Request	Click or tap here to enter text.
Project Number	Click or tap here to enter text.

Project	List Measures	Costs
Wx Measures (WxM)	<ol style="list-style-type: none"> 1. Click or tap here to enter text. 2. Click or tap here to enter text. 3. Click or tap here to enter text. 	<ol style="list-style-type: none"> 1. Est Cost 2. Est Cost 3. Est Cost
Health & Safety Measures (H&S)	<ol style="list-style-type: none"> 1. Click or tap here to enter text. 2. Click or tap here to enter text. 3. Click or tap here to enter text. 	<ol style="list-style-type: none"> 1. Est Cost 2. Est Cost 3. Est Cost
Wx-Related Repair Measures (WRR)	<ol style="list-style-type: none"> 1. Click or tap here to enter text. 2. Click or tap here to enter text. 3. Click or tap here to enter text. 	<ol style="list-style-type: none"> 1. Est Cost 2. Est Cost 3. Est Cost
Plus Health Measures (+H) Installed flooring area: Enter sf	<ol style="list-style-type: none"> 1. Click or tap here to enter text. 2. Click or tap here to enter text. 3. Click or tap here to enter text. 	<ol style="list-style-type: none"> 1. Est Cost 2. Est Cost 3. Est Cost
Wx Readiness Measures (WRed)	<ol style="list-style-type: none"> 1. Click or tap here to enter text. 2. Click or tap here to enter text. 3. Click or tap here to enter text. 	<ol style="list-style-type: none"> 1. Est Cost 2. Est Cost 3. Est Cost
Tier 2 – Deferral Measures	<ol style="list-style-type: none"> 1. Click or tap here to enter text. 2. Click or tap here to enter text. 3. Click or tap here to enter text. 	<ol style="list-style-type: none"> 1. Est Cost 2. Est Cost 3. Est Cost
Tier 2 – Fuel Switch Measures	<ol style="list-style-type: none"> 1. Click or tap here to enter text. 2. Click or tap here to enter text. 3. Click or tap here to enter text. 	<ol style="list-style-type: none"> 1. Est Cost 2. Est Cost 3. Est Cost
Total Project Estimated IMC*	Total:	Est Total Cost

Justification for cost exceeding limit
Click or tap here to enter text.

Final Homeowner Participation Agreement with PLIA

Link to Active Form: [Exhibit 6.9.1.2A, Final Homeowner Participation Agreement with PLIA](#)

Local Agency Name Fuel Switch Pilot Homeowner Participation Agreement with PLIA

Property address:
Owner's Name(s) (print)

Where is your heating oil tank located? Please check the appropriate box below:

I have a **below** ground heating oil tank I have an **above** ground heating oil tank

For above ground heating oil tanks, please describe where your heating oil tank is located: _____

I understand that my participation in the Fuel Switch Pilot is subject to the following agreement:

1. I must provide proof of an active Washington Heating Oil Storage Tank Pollution Insurance Policy (Insurance Policy), administered by the Pollution Liability Insurance Agency (PLIA) <https://plia.wa.gov/heating-oil-pollution-liability-insurance-program/>
2. I understand that (*insert LA*) will decommission my heating oil tank, in accordance with (*insert Local County or city ordinance*). The (*insert LA*) will bear the cost of all labor and permits to complete this work. The (*insert LA*) will only reimburse costs of labor and permits directly related to the decommissioning and not costs related to tank removal and/or contamination clean up.
3. I acknowledge that I have been furnished information on the Heating Oil Pollution Liability Insurance Program and contact information for the PLIA.
4. I understand there is the possibility that my oil tank may have leaked in the past. I understand that the (*insert LA*) may not proceed with decommissioning of my heating oil tank if there is any evidence of a prior oil leak. The (*insert LA*) may decide, at its discretion, to continue with decommissioning if such activity is determined to be compliant with all applicable laws and regulations.
5. I understand that I may be held liable for cleanup costs if there has been an oil leak in the past and that an oil leak could affect my property value and must be disclosed during a real estate sale. **I knowingly accept the risk that there may be an undiscovered oil leak and that by decommissioning my oil tank, I may learn of an oil leak and liability for cleanup costs.** The (*insert LA*) is not responsible for contamination clean-up or related costs.
6. I understand that I am responsible to report to Washington State Department of Ecology if there has been an oil leak. We recommend that any notification to the Department of Ecology include notice of your participation in the Fuel Switch Pilot.
7. I understand that decommissioned tanks are not eligible for coverage under the PLIA Insurance Policy and corrective actions associated with a decommissioned tank will not be covered. Any claim associated with my tank must be filed within **30 calendar days** after the tank is disconnected from the furnace if it is not replaced with a new heating oil tank. I understand that this means I will not have PLIA coverage if a prior oil leak is found in the future.

Exhibit 6.9.1.2A

8. I knowingly accept the risk that there may be an undiscovered oil leak and that by decommissioning my oil tank and switching fuel sources that I will waive the potential to have coverage under PLIA's Insurance Policy. I understand that (insert LA) is not affiliated with PLIA and that I will be responsible for any communications and negotiations with PLIA if an oil leak is discovered. I understand that, if an oil leak is discovered, (insert LA) will not be responsible for any coverage exclusions, policy coverage limits, or liability under the PLIA Insurance Policy.
9. I understand that if I elect to have my heating oil tank removed, I will be responsible for contracting directly with a licensed and insured service provider to remove my tank and I am responsible for all fees associated with removal.
10. To the fullest extent permitted by law, I shall indemnify, defend, and hold harmless, the state of Washington, agencies of the state and all officials, agent and employees of the state, and (insert LA) for, from and against all claims, including but not limited to those for injuries or death arising out of or resulting from the Fuel Switch Pilot program. "Claim" as used here, means any financial loss, claim, suit, action, damage, or expense, including but not limited to injury to or the destruction of tangible property including loss of use resulting therefrom.
11. I agree and understand that the (insert LA) may communicate with all relevant governmental agencies regarding decommissioning activities and that my participation in the Fuel Switch Pilot will not excuse me from any mandatory duties I may have to report an oil leak.

Homeowner must initial **one** of the paragraphs below:

_____ I elect to have my **below ground heating oil tank** decommissioned by abandonment in place**.

_____ I elect to have my **below ground heating oil tank** decommissioned and removed. I understand I am required to contract directly with a licensed and insured service provider to remove my oil tank, and I am responsible for the cost of removing my oil tank.

_____ I elect to have my **above ground heating oil tank** decommissioned and understand that I am required to contract directly with a licensed and insured service provider to remove my oil tank, and I am responsible for the cost of removing my oil tank.

If the property is owned by multiple owners, each owner needs to sign below.

Owner's Signature		Date	
Phone number	Email address		
Owner's Signature		Date	
Phone number	Email address		

**Agency must verify with local Fire Chief or Fire Marshal if closed in place is allowable.

<https://plia.wa.gov/heating-oil-tank-decommissioning/>

Final Homeowner Participation Agreement NO PLIA

Link to Active Form: [Exhibit 6.9.1.2B, Final Homeowner Participation Agreement NO PLIA](#)

Property address:
Owner's Name(s) (print)

Where is your heating oil tank located? Please check the appropriate box below:

I have a **below** ground heating oil tank

I have an **above** ground heating oil tank

For above ground heating oil tanks, please describe where your heating oil tank is located:

I understand that my participation in the Fuel Switch Pilot is subject to the following agreement:

1. I understand that (*insert LA*) will decommission my heating oil tank, in accordance with (*insert Local County or city ordinance*). The (*insert LA*) will bear the cost of all labor and permits to complete this work. The (*insert LA*) will only reimburse costs of labor and permits directly related to the decommissioning and not costs related to tank removal and/or contamination clean up.
2. I acknowledge that I have been furnished information on the Heating Oil Loan and Grant Program and contact information for the PLIA.
3. I understand there is the possibility that my oil tank may have leaked in the past. I understand that the (*insert LA*) may not proceed with decommissioning of my heating oil tank if there is any evidence of a prior oil leak. The (*insert LA*) may decide, at its discretion, to continue with decommissioning if such activity is determined to be compliant with all applicable laws and regulations.
4. I understand that I may be held liable for cleanup costs if there has been an oil leak in the past and that an oil leak could affect my property value and must be disclosed during a real estate sale. **I knowingly accept the risk that there may be an undiscovered oil leak and that by decommissioning my oil tank, I may learn of an oil leak and liability for cleanup costs** The (*insert LA*) is not responsible for contamination clean-up or related costs.
5. I understand that I am responsible to report to Washington State Department of Ecology if there has been an oil leak. We recommend that any notification to the Department of Ecology include notice of your participation in the Fuel Switch Pilot.
6. I understand that if elect to have my heating oil tank removed, I will be responsible for contracting directly with a licensed and insured service provider to remove my tank and I am responsible for all fees associated with removal.
7. To the fullest extent permitted by law, I shall indemnify, defend, and hold harmless, the state of Washington, agencies of the state and all officials, agent and employees of the state, and (*insert LA*) for, from and against all claims, including but not limited to those for injuries or death arising out of or resulting from the Fuel Switch Pilot program. "Claim" as used here, means any financial loss, claim, suit, action, damage, or expense, including but not limited to injury to or the destruction of tangible property including loss of use resulting therefrom.

Exhibit 6.9.1.2B

8. I agree and understand that the (insert LA) may communicate with all relevant governmental agencies regarding decommissioning activities and that my participation in the Fuel Switch Pilot will not excuse me from any mandatory duties I may have to report an oil leak.

Homeowner must initial **one** of the paragraphs below.

_____ I elect to have my **below ground heating oil tank** decommissioned by abandonment in place **

_____ I elect to have my **below ground heating oil tank** decommissioned and removed. I understand I am required to contract directly with a licensed and insured service provider to remove my oil tank, and I am responsible for the cost of removing my oil tank

_____ I elect to have my **above ground heating oil tank** decommissioned and understand that I am required to contract directly with a licensed and insured service provider to remove my oil tank, and I am responsible for the cost of removing my oil tank.


If the property is owned by multiple owners, each owner needs to sign below.

Owner's Signature		Date
Phone number	Email address	
Owner's Signature		Date
Phone number	Email address	

**Agency must verify with local Fire Chief or Fire Marshal if closed in place is allowable.
<https://plia.wa.gov/heating-oil-tank-decommissioning/>

Exhibit 7.1A Quality Control Inspection (QCI) Form

Link to Active Form: [Exhibit 7.1A, Quality Control Inspection QCI Form](#)

Exhibit 7.1A Only for Excel 2013 & newer		 Washington State Department of Commerce	26-Mar 2020																																	
<input type="button" value="Reset Form"/>		Weatherization Assistance Program Quality Control Inspection/Checklist Form	<input type="button" value="Minimize All Sections"/> <input type="button" value="Maximize All Sections"/>																																	
Client Name: _____		Project #: _____																																		
Address: _____		ZIP: _____																																		
Status <input type="radio"/> Owner <input type="radio"/> Renter		Year Built: <input type="text"/>																																		
Inspector: _____ Auditor: _____		Initial Date: _____																																		
Wx Application Date: _____ Recertification Application Date (as needed): _____																																				
Housing Type <input type="radio"/> Site Built <input type="radio"/> Mobile Home (MH) <input type="radio"/> MH + Addition <input type="radio"/> Multifamily (MF) 2-4 <input type="radio"/> MF 5+		Heating System <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Primary</td> <td style="text-align: center;">Secondary</td> <td></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td>Natural Gas</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td>Propane</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td>Electric</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td>Oil</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td>Solid Fuel</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td>Other</td> </tr> </table>	Primary	Secondary		<input type="radio"/>	<input type="radio"/>	Natural Gas	<input type="radio"/>	<input type="radio"/>	Propane	<input type="radio"/>	<input type="radio"/>	Electric	<input type="radio"/>	<input type="radio"/>	Oil	<input type="radio"/>	<input type="radio"/>	Solid Fuel	<input type="radio"/>	<input type="radio"/>	Other	List of Contractors <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>1</td><td>_____</td></tr> <tr><td>2</td><td>_____</td></tr> <tr><td>3</td><td>_____</td></tr> <tr><td>4</td><td>_____</td></tr> <tr><td>5</td><td>_____</td></tr> <tr><td>6</td><td>_____</td></tr> </table>	1	_____	2	_____	3	_____	4	_____	5	_____	6	_____
Primary	Secondary																																			
<input type="radio"/>	<input type="radio"/>	Natural Gas																																		
<input type="radio"/>	<input type="radio"/>	Propane																																		
<input type="radio"/>	<input type="radio"/>	Electric																																		
<input type="radio"/>	<input type="radio"/>	Oil																																		
<input type="radio"/>	<input type="radio"/>	Solid Fuel																																		
<input type="radio"/>	<input type="radio"/>	Other																																		
1	_____																																			
2	_____																																			
3	_____																																			
4	_____																																			
5	_____																																			
6	_____																																			
Inspections:																																				
1st Quality Control Inspection																																				
Unit Pass QCI: Yes <input type="radio"/> No <input type="radio"/>		QCI Name: _____ Exp Date: _____ QCI #: _____ Date: _____ Signature: _____																																		
2nd Quality Control Inspection																																				
Unit Pass QCI: Yes <input type="radio"/> No <input type="radio"/>		QCI Name: _____ Exp Date: _____ QCI #: _____ Date: _____ Signature: _____																																		
3rd Quality Control Inspection																																				
Unit Pass QCI: Yes <input type="radio"/> No <input type="radio"/>		QCI Name: _____ Exp Date: _____ QCI #: _____ Date: _____ Signature: _____																																		
Corrections Needed:																																				

**Community, Trade, and Economic Development
Office of Community Development
Housing Division**

**SAMPLE Weatherization
Contract Face Sheet**

Contractor Name and Address:

Contract No: 123

Community Action Agency
123 Main Street
Olympia, WA 98502

Contract Period:

April 1 - March 31

Funding Authority:

U.S. Department of Energy (Federal Catalog No. 81.042)

Contract Amount: \$53,963

Purpose: To provide funding for low-income weatherization services

**Requests for Reimbursement are
Subject to the Following Budget:**

Service Area By County:

Administration	\$6,703
Program Operation	\$31,273
T&TA Passthru	\$1,769
Liability Insurance	\$2,885
Audit	\$1,000
Health & Safety	\$6,753
Wx-Related Repairs	\$3,580
Project #1	\$0

THE RIGHTS AND OBLIGATIONS OF BOTH PARTIES ARE GOVERNED BY THE DOCUMENTS LISTED IN WHICH ARE INCORPORATED HEREIN AS THOUGH SET FORTH IN FULL.

APPROVAL: THE LOCAL AGENCY AND THE DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT ACKNOWLEDGE AND ACCEPT THE TERMS OF THIS CONTRACT. SIGNATURE FOR BOTH PARTIES ARE REQUIRED BELOW. IN ADDITION, THE LOCAL AGENCY CERTIFIES THAT THE DOCUMENTS LISTED IN "EXHIBIT A" ARE ON FILE WITH THE LOCAL AGENCY AND HAVE BEEN REVIEWED.

For the Department

For the Local Agency

Stephen H. Buxbaum, Assistant Director **Date**
Housing Services Division

Signature **Date**

Title

Approved as to form by Colleen B. Evans, A.A.G. 26-June-98

EXAMPLE EXHIBIT A

APPLICABLE TERMS AND CONDITIONS Low-Income Home Energy Assistance Program (LIHEAP) Weatherization Program

The Contractor shall comply with the terms and conditions contained within the following documents provided to the Contractor by the Department of Commerce:

- General Terms and Conditions, issued by Commerce for all of its weatherization programs, as applicable.
- Special Terms and Conditions, issued by Commerce for each of its weatherization programs, as applicable.
- Washington State Low-Income Weatherization Assistance Plan for the current year, as applicable.
- Washington State Policies and Procedures for Managing the Low-Income Weatherization Program, as amended, as applicable.
- Washington State *Specifications*, as amended, as applicable.
- Commerce Policy Memoranda, as applicable.

**State of Washington Department of
Community, Trade and Economic Development
Office of Community Development
Housing Division**

**SAMPLE
Weatherization
Contract Amendment Face Sheet**

Contractor Name and Address:

Community Action Agency
123 Main Street
Olympia, WA 98502

Contract No: 123

Amendment Code: A

Contract Period:

April 1 - March 31

Funding Authority:

U.S. Department of Energy (Federal Catalog No. 81.042)

Contract Amount: \$59,663

Change: \$5,700
Old Amount: \$53,963

Purpose: To increase contract amount, adding T&TA funding for Energy OutWest and Weatherization Workgroup.

**Requests for Reimbursement are
Subject to the Following Budget:**

Administration	\$6,703
Program Operation	\$31,273
T&TA Passthru	\$7,469
Liability Insurance	\$2,885
Audit	\$1,000
Health & Safety	\$6,753
Wx-Related Repairs	\$3,580
Project #1	\$0

Service Area By County:

THIS FACE SHEET AMENDS THE PRIOR FACE SHEET. THIS AMENDMENT SHALL BE READ IN CONJUNCTION WITH THE ORIGINAL CONTRACT AND ANY PRIOR AMENDMENTS. ALL OTHER TERMS REMAIN IN EFFECT EXCEPT AS AMENDED.

APPROVAL: THE LOCAL AGENCY AND THE DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT ACKNOWLEDGE AND ACCEPT THE TERMS OF THIS CONTRACT. SIGNATURE FOR BOTH PARTIES ARE REQUIRED BELOW. IN ADDITION, THE LOCAL AGENCY CERTIFIES THAT THE DOCUMENTS LISTED IN "EXHIBIT A" ARE ON FILE WITH THE LOCAL AGENCY AND HAVE BEEN REVIEWED.

For the Department

For the Local Agency

Stephen H. Buxbaum, Assistant Director **Date**
Housing Services Division

Signature **Date**

Title

Approved as to form by Colleen B. Evans, A.A.G. 26-June-98

Exhibit 8.3D

SIGNATURE AUTHORITY
This form must be completed electronically and a hard copy with original signatures must be submitted to Commerce.

Please provide signature, typed name, and title for each of the following. Use blocks A and B to authorize signatures other than those provided in block C, who are authorized to sign all documents, unless indicated otherwise. Use additional sheets if needed.

A. AUTHORIZED TO SIGN CONTRACTS/CONTRACT MODIFICATIONS	All*	HHS	DOE	BPA	EM	HOME HRRP
1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signature	Name (typed)					
2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signature	Name (typed)					
B. AUTHORIZED TO SIGN VOUCHERS						
1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signature	Name (typed)					
2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signature	Name (typed)					

*Refers to all programs.

C. AUTHORIZING AUTHORITIES

Signature	Name (typed)	Signature	Name (typed)
Title	Date	Title	Date

STATE OF WASHINGTON
Department of Commerce

**Commerce Weatherization Program
Certification Regarding Debarment,
Suspension, or Ineligibility and
Voluntary Exclusion – Primary Tier
Covered Transactions**

FORM 1
Page 1

**Certification Regarding Debarment, Suspension, or Ineligibility and
Voluntary Exclusion – Primary Tier Covered Transactions**

Period: Year 0000 (January 1 to December 31)

The terms covered transaction, debarred, suspended, ineligible, lower tier covered transaction, person, primary covered transaction, principal, and voluntarily excluded, as used in this section, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact the Department of Commerce for assistance in obtaining a copy of these regulations.

The Contractor certifies by signing this form that to the best of its knowledge and belief that its principals:

Are not presently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from covered transactions by any Federal department or agency.

Have not within a three-year period preceding this contract, been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, or receiving stolen property.

Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated above in this section; and

Have not within a three-year period preceding the signing of this contract had one or more public transactions (Federal, State, or local) terminated for cause of default.

Where the Contractor is unable to certify to any of the statements in this contract, the Contractor shall attach an explanation to this contract.

**Exhibit 8.4A
Certification Regarding Debarment
Page 2 of 2**

STATE OF WASHINGTON
Department of Commerce

**Commerce Weatherization Program
Certification Regarding Debarment,
Suspension, or Ineligibility and
Voluntary Exclusion – Primary Tier
Covered Transactions**

*FORM 1
Page 2*

The Contractor agrees by signing this contract that it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the Commerce.

The Contractor further agrees by signing this contract that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," as follows, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions

- a. The lower tier contractor certifies, by signing this contract that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- b. Where the lower tier contractor is unable to certify to any of the statements in this contract, such contractor shall attach an explanation to this contract."

NAME OF AGENCY COVERED BY THIS CERTIFICATION:

(STREET ADDRESS, CITY, STATE, ZIP CODE)

CERTIFYING OFFICIAL

TYPED NAME AND TITLE:

SIGNATURE (ORIGINAL): _____

DATE:

Property Owner Release Form

I, _____ certify that I am the owner of the property located at:
(Property Owner)

I authorize _____ to make the following repairs and
(Weatherization Agency)

improvements with the understanding that no charges will be made for labor or materials.

I hereby release and pledge to hold harmless the above named agency and its staff from any liability in connection with the work listed above or any act or eventuality arising from this work.

Property Owner Signature: _____

Date: _____

Address: _____ Phone: _____

Approved by: _____ Date: _____
(Signature of Agency Representative)

This form must be submitted annually with original signature.

Department of Commerce
Housing Division
Housing Improvements and Preservation Programs

Certification Regarding

Federal Certification Regarding Lobbying

Period: Year 0000 (January 1 to December 31)

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.
2. If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit [Standard Form-LLL, "Disclosure Form to Report Lobbying,"](#) in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was or will be placed when this transaction was/is made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U. S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Name and Title of Authorized Representative

Signature

Date

Name of Organization

Address of Organization

SAMPLE WEATHERIZATION CONTRACT CLOSEOUT FORMS

Link for Active Contract Closeout Forms:

<https://extranet.commerce.wa.gov/teams/teamsa/HIP-Weatherization/SitePages/Forms.aspx>

State of Washington | **2018 DOE WEATHERIZATION Grant Closeout Budget & Actual Costs Statement**
Form 1

AGENCY NAME & ADDRESS: _____

Grant #: _____
Grant Period: July 1, 2018 to June 30, 2021

LINE ITEM	FINAL BUDGET	ACTUAL COSTS	BALANCE
Administration	\$0.00	\$0.00	\$0.00
Materials	\$0.00	\$0.00	\$0.00
Personnel	\$0.00	\$0.00	\$0.00
Health & Safety	\$0.00	\$0.00	\$0.00
Travel	\$0.00	\$0.00	\$0.00
Program Support	\$0.00	\$0.00	\$0.00
Vehicle and Equipment	\$0.00	\$0.00	\$0.00
Other Program Operations	\$0.00	\$0.00	\$0.00
T & A	\$0.00	\$0.00	\$0.00
Special Project Costs	\$0.00	\$0.00	\$0.00
BUDGET TOTALS	\$0.00	\$0.00	\$0.00

** Total actual costs must not exceed the final spending authority.*

FUND STATEMENT

Initial Weatherization Materials Transferred from Previous Grants if any	\$0.00
Reimbursement Received	\$0.00
TOTAL FUNDS RECEIVED	\$0.00
ACTUAL COSTS (from "Budget & Actual Costs Statement" above)	\$0.00
UNRECOVERED COSTS (if actual costs are higher than Total Funds Received)	\$0.00
EXCESS FUNDS RECEIVED (if total funds received is higher than actual costs)	\$0.00

CERTIFICATION:
I certify this statement reflects the grant budget, actual costs, budget balance and fund status for DOE grant # _____ and that the final expenditures report has been submitted.

SIGNATURE: _____ DATE: _____

State of Washington | **2018 DOE WEATHERIZATION Grant Closeout Final Expenditures Report**
Form 2

AGENCY NAME & ADDRESS: _____

Grant #: _____
Grant Period: July 1, 2018 to June 30, 2021

LINE ITEM	FINAL BUDGET	ACTUAL COSTS	REIMBURSED	UNREIMBURSED	TOTAL UNREIMBURSED
Administration	\$	\$	\$	\$	\$
Materials	\$	\$	\$	\$	\$
Personnel	\$	\$	\$	\$	\$
Health & Safety	\$	\$	\$	\$	\$
Travel	\$	\$	\$	\$	\$
Program Support	\$	\$	\$	\$	\$
Vehicle and Equipment	\$	\$	\$	\$	\$
Other Program Operations	\$	\$	\$	\$	\$
T & A	\$	\$	\$	\$	\$
Special Project Costs	\$	\$	\$	\$	\$
BUDGET TOTALS	\$	\$	\$	\$	\$

Total Funds Reimbursed for the Grant Period: _____
Total Expenditures for the Grant Period: _____
Balance on Hand at End of Grant Period: _____
Amount of Funds Reimbursed to 11/30/2020 Grant: _____
Amount of Funds Reimbursed to 11/30/2021 Grant: _____
Total Funds Reimbursed to 11/30/2021 Grant: _____
Total amount of funds received from DOE: _____
Total amount of funds received from other sources: _____
Total amount of funds received from all sources: _____

CERTIFICATION:
I certify that the information reported on this report is true and correct and that all required conditions are properly applicable to the above-referenced grant.

SIGNATURE: _____ DATE: _____

State of Washington | **2018 DOE WEATHERIZATION Grant Closeout Program Income**
Form 3

AGENCY NAME & ADDRESS: _____

Grant #: _____
Grant Period: July 1, 2018 to June 30, 2021

GRANT GENERATED PROGRAM INCOME REPORT

A. Program Income Balance Brought Forward from Previous Grant: _____

B. Amount Spent during the Grant Period: _____

Interest: \$0.00
Fees: \$0.00
Rent: \$0.00
Other (Specify): \$0.00
Total Income Spent: \$0.00

C. Total Grant Generated Program Income Available for the Grant Period: _____

PROGRAM INCOME CONTINUING REPORT:

D. Amount Program Income Expended on Grant Activities during the current grant period:

Administration: \$0.00
Materials: \$0.00
Program Support: \$0.00
Special Project: \$0.00
Total Income Expended: \$0.00

E. Balance to be carried over into the next DOE grant: \$0.00

OWNER REFUNDS RECEIVED AND EXPENDED

F. DOE allows contractors to receive and to report refunds from property owners whose units have been weatherized and who funds received under prior year grants. These funds are to be used to weatherize the units in the current grant period. Units weatherized with refunds are to be included in the final unit count for the grant period in which they are spent. The funds, however, are not to be included in the accounting for the current grant period, but reported in the close out.

Total amount of refunds received during the 2018 grant period (July 1, 2018 to June 30, 2021): \$0.00

SIGNATURE: _____ DATE: _____

State of Washington | **2018 DOE WEATHERIZATION Grant Closeout Inventory**
Form 4

AGENCY NAME & ADDRESS: _____

Grant #: _____
Grant Period: July 1, 2018 to June 30, 2021

EQUIPMENT INVENTORY - ASSETS RECORD
(Make one form for each asset purchased with funds from any DOE Grant)

DESCRIPTION: _____

Manufacturer's Serial No.: _____
Lot/Case Number: _____
Tag Number: _____
Title Registration: _____

ACQUISITION: _____
Date of Purchase: _____
Purchase Price: _____
Mileage at Purchase Date: _____
Current Mileage: _____

LOCATION ISSUED: _____
Location: _____

SIGNATURE: _____ DATE: _____ AGENCY NAME: _____

TITLE: _____ PHONE NUMBER: _____ Name of Person who Prepared this Report

State of Washington | **2018 DOE WEATHERIZATION Grant Closeout Materials Inventory Transfer**
Form 5

AGENCY NAME & ADDRESS: _____

Grant #: _____

MATERIALS INVENTORY TRANSFER VOUCHER

TRANSFER FROM: _____ Grant Number: _____ Value: _____

TRANSFER TO: _____ Grant Number: _____ Value: _____

CERTIFICATION:
I hereby certify under penalty of perjury that the items and/or table listed herein are proper charges for materials purchased for the DOE Weatherization Assistance Program.

DATE: _____ TIME: _____ DATE: _____

COMMENTS: _____

COMMENTS Approved

Exhibit 8.12.1A

Link to Active Form: [Exhibit 8.12.1A, Vehicle or Equipment Disposition Form](#)

Vehicle or Equipment Disposition Form

For vehicle (of any value) or equipment (acquisition cost was \$5000 or more)

Current Fair Market Value: \$ How was FMV determined?
Fair Market Value (FMV): \$5000 or More requires Approval; Less than \$5000 requires Notification. Attach FMV Documentation

Local Agency: Date:

Contact Person: Email/Phone:

Description of Vehicle or Equipment:

Make/Manufacturer: <input type="text"/>	Model: <input type="text"/>
Year: <input type="text"/>	VIN#/Serial#: <input type="text"/>
Source of Funding (inc FAIN): <input type="text"/>	Contract #: <input type="text"/>
Acquisition Date: <input type="text"/>	Acquisition Cost: <input type="text"/>

Condition of Vehicle or Equipment: Attach Picture(s)

Reason Vehicle or Equipment is no longer needed, useful, or wanted by Local Agency Wx Program:

Destruction: This vehicle needs to be destroyed because it is beyond repair or dangerous. **Attach**

Priority Order of Disposition Methods is to achieve the maximum value for the Wx Program benefit.

Transfer within Wx Network for no compensation, for use in the Wx program.

Commerce will use the information the initiating LA provides (above and attached) to offer vehicle or equipment to other LAs for use in the Wx Program.

After the required fourteen (14) day period, Commerce will provide initiating LA with:

The contact person's information at the interested LA to accept the transfer:

OR, if no LA expressed interest within the required fourteen (14) day period

Approval for disposal, in the following priority order:

1. Trade-in on replacement. Indicate Trade-in value on Exhibit 6.6A, *Vehicle or Equipment Purchase Request Form*.
2. Sell if a Trade-in is not applicable and a Transfer is not possible, with a formal sales bid process.
3. Transfer within Local Agency to Federally Funded Program (other than Wx) for fair market rate compensation, if current FMV is \$5000 or more (no compensation required if FMV is <\$5000) with:
 - a. Same federal funder.
 - b. Different federal funder.
4. Destruction: Although vehicle is in working order, we are unable to Transfer, Trade-in, or Sell.

Commerce Received:

DOE Approval Received:

Date
Authorized Signature (Commerce), Title

Date

Link to Active Form: [Exhibit 8.12.1B, Final Disposition Report Form](#)

Final Disposition Report Form

For vehicle (of any value) or equipment (acquisition cost was \$5000 or more)

Local Agency: _____ Date: _____

Contact Person: _____ Email/Phone: _____

Description of Vehicle or Equipment:

Make/Manufacturer: _____	Model: _____
Year: _____	VIN#/Serial#: _____
Source of Funding (inc FAIN): _____	Contract #: _____
Acquisition Date: _____	Acquisition Cost: _____

Report Final Disposition Method achieving the maximum value for the Wx Program benefit.

Local Agency shall retain all documentation for the following disposition method:

Transferred within Wx Network, for use in the Wx program. **Date Transferred:** _____
Transferred to Local Agency: _____

Traded-in on replacement. **Date Traded-in:** _____
Indicate Trade-in value on **Exhibit 6.6A, Vehicle or Equipment Purchase Request Form.**

Sold in a formal sales bid process. Sale was: **Date Sold:** _____
(a) A public sale and publically posted.
(b) In accordance with Local Agency's policies regarding sales and was documented.
(c) Highest bidder was selected and notified, following proper procurement practices.

Transferred within LA to Federally Funded Program (other than Wx) **Date Transferred:** _____
a. Same federal funder.
b. Different federal funder.
 Current FMV is \$5000 or more. Transferred for fair market rate compensation: _____
 Current FMV is <\$5000. No compensation required.

Destruction for vehicles or equipment with current FMV < \$5,000. **Date Destroyed:** _____
 Vehicle/Equipment is not in working order, beyond repair, or dangerous, OR
 Although vehicle/equipment is in working order, we are unable to Transfer, Trade-in, or Sell.

Commerce Received: _____	_____ <i>Date</i>
--------------------------	-------------------

Exhibit 9.1.4A

Link to Active Form: [Exhibit-9.1.4A-Competent-Person-Form](#)

Competent Person Form

Attestation of Competent Person(s) for compliance with OSHA/ WISHA Confined Space requirements.

Competent person definition: a competent person identifies existing and predictable hazards in the surroundings or working conditions. The competent person must have authority and expertise to promptly address and correct workplace hazards and train workers to ensure their safety and health on the job.

Weatherization Program Managers/Coordinators deem staff to be competent persons once staff have completed three (3) requirements:

1. OSHA 10 certification
2. Watch Confined Space webinar previously presented and recorded by Building Performance Center
3. Read and become familiar with OSHA Factsheet *Confined Spaces in Residential Construction*, (June 2017), and OSHA's *Confined Spaces in Construction - Frequently Asked Questions*. [Link to OSHA's confined space documents](#).

Employee Names	OSHA certification number	Webinar viewing complete	Confined Space FAQ and Factsheet reviewed	Date	Employee initials
1.					
2.					
3.					
4.					
5.					

I attest that the employees above have met the requirements as indicated in order to serve as competent person(s) when confined spaces are present.

Program Manager/ Coordinator signature

Date

Exhibit 9.1.4B

Link to Active Form: [Exhibit 9.1.4B, Confined Space Checklist](#)

CONFINED SPACE EVALUATION FORM

Client Name:		WX #		
Address:		Inspection #1 Column	Inspection #2 Column	Inspection #3 Column
Print name of competent person filling out form				
Date of evaluation				
Use of the word hazard below refers to a serious safety & worker health hazard identified by competent person <small>See OSHA factsheet (DOC FS-3787 05/2015) from more information</small>				
1	Confined space to enter (circle one)	Attic - Crawlspace - Other	Attic - Crawlspace - Other	Attic - Crawlspace - Other
	Brief Description of Space			
2	If entering attic - Are there "attic boards" on site?	Yes - No - N/A	Yes - No - N/A	Yes - No - N/A
3	Any hazard of reasonable entry/exit?	Yes - No	Yes - No	Yes - No
4	Odors present? (Circle if present)	Natural Gas/Propane - Petroleum - Sewage - Mold - Combustion - Chemical - Other:	Natural Gas/Propane - Petroleum - Sewage - Mold - Combustion - Chemical - Other:	Natural Gas/Propane - Petroleum - Sewage - Mold - Combustion - Chemical - Other:
	If Yes, is odor the level considered a hazard?	Yes - No - N/A	Yes - No - N/A	Yes - No - N/A
	Notes:			
5	Does any height in space cause a hazard?	Yes - No	Yes - No	Yes - No
6	Sharp/cutting hazards in space	Yes - No	Yes - No	Yes - No
7	Structural concerns in space are a hazard?	Yes - No	Yes - No	Yes - No
8	Temperature in confined space a hazard?	Yes - No	Yes - No	Yes - No
9	Combustion appliance present in confined space?	Yes - No	Yes - No	Yes - No
	If Yes, is combustion appliance a hazard?	Yes - No - N/A	Yes - No - N/A	Yes - No - N/A
10	Are there chimney or flue pipes in space?	Yes - No	Yes - No	Yes - No
	If Yes, is chimney or flue a hazard?	Yes - No - N/A	Yes - No - N/A	Yes - No - N/A
11	Are fuel/gas lines in space?	Yes - No	Yes - No	Yes - No
	If Yes, fuel/gas line in space a hazard?	Yes - No - N/A	Yes - No - N/A	Yes - No - N/A
12	Is there a hazard in space from plumbing?	Yes - No	Yes - No	Yes - No
13	Is there a hazard in space from electrical?	Yes - No	Yes - No	Yes - No
<i>You would answer 'No' to #13 above if: lock-out, tag out implemented, no worker activity within 10 feet of hazard</i>				
14	Air monitoring recorded at time of entry	Yes - No	Yes - No	Yes - No
	Oxygen (minimum of 19.5% to maximum of 23.5%)			
	Methane (maximum of 10% of Lower Explosion Limit [LEL] = 0.44% by volume of air)			
	Hydrogen Sulfide (maximum limit 10 PPM with 10 Minute Ceiling)			
	Carbon Monoxide (maximum of 35ppm)			
15	Signature of Competent Person			
<i>If 'Yes' marked above to any hazard questions, permit required space and hazard must be remedied prior to work, if no hazards identified, continue with work</i>				
Comments/ Notes/Site Specific Safety Plan:				

Link to Active Form: [Exhibit-9.2.1B-Self-Declaration-of-Qualifying-Condition-for-Wx+H-Project-Form](#)

Self-Declaration of Qualifying Condition for Weatherization Plus Health Project

I, _____, do hereby declare at least one household member suffers from one or more of the following qualifying condition(s):

Respiratory Issue:

Asthma
Chronic Obstructive Pulmonary Disease (COPD)

Safety Issue:

Susceptible to slip, trip and fall hazards

I certify that the information contained above is complete and accurate to the best of my knowledge. By signing this document and participating in the Weatherization Plus Health program, I give this agency and the Washington State Department of Commerce permission to use my information for current and future data analysis.

Check if signing for a minor under the age of 18 with one of the above listed conditions.

Client Signature/Date

Local Agency Representative Signature/Date

Exhibit 9.3

Link to Active Form: [Exhibit-9.3 -Mechanical-Ventilation-Worksheet](#)



Mechanical Ventilation Worksheet
Revised December 4, 2017

ASHRAE 62.2 Ventilation, Pre-Weatherization Conditions ** Your input goes in the green squares. **

IMPORTANT INFORMATION
Before entering any information in this sheet "save as" a new file. For best results always use a fresh template.

This worksheet is only for calculating those projects for which all necessary inputs are reflected on the sheet. For all other projects, refer directly to the ASHRAE 62.2-2016 standard.

This upper section of the worksheet is for recording data and existing fan conditions at the project start.

Complete all inputs in **GREEN** cells according to instructions.

Input location below:

Calculating A_{ext} for attached dwelling units:

Total surface area of all floors, walls, and ceilings:
Total surface area of walls shared with attached dwelling unit(s) or garage:
Dwelling unit is stacked:

Pre-Weatherization Notes:

Project Name		Pre-Weatherization Blower door reading (CFM50)							
Address		People (not less than one)							
Bedrooms (not less than one)				7.5					
Conditioned Square Footage				0.0					
Q _{tot} (per ASHRAE calculation 4.1a)				7.5					
Room	Room Exists? (y/n)	Window cfm	Operable Window? (y/n)	Intermittent Required (cfm)	Intermittent Measured Fan (cfm)	Continuous Required (cfm)	Continuous Measured Kitchen (ach)	Deficits (cfm)	
Kitchen	0	0	0	100	0	5	ach	No nc	
Bath 1	0	0	0	50	0	20	cfm	No nc	
Bath 2	0	0	0	50	0	20	cfm	No nc	
Bath 3	0	0	0	50	0	20	cfm	No nc	
Total Deficit								0.0	
Deficit/4								0.0	
Needed Ventilation Estimate (prior to infiltration credit)								cfm	7.5
Blower Door CFM50				Dwelling Unit Height (ft)		Actual Infiltration Estimate (Q _{air})		0.0	
Sum of existing continuous bathroom ventilation from above (cfm)								0.0	
Enter the total cfm of all additional continuous ventilation that is not shown on lines 7-9. Include any continuous kitchen ventilation in CFM.									
Required mechanical ventilation (CFM), Q _{req}								None	

Technical Document Line Reference

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ASHRAE 62.2 Ventilation Requirements - Post Weatherization (FINAL)

IMPORTANT INFORMATION
This worksheet is only for calculating those projects for which all necessary inputs are reflected on the sheet. For all other projects refer directly to the ASHRAE 62.2-2016 standard.

This lower section of the worksheet is for recording data and fan conditions at the project completion. Complete all inputs in **GREEN** cells according to instructions.

Note: Some input values may transfer from estimate sheet. You **MUST** verify all numbers in green cells are the final values for your project.

Number must be less than or equal to 17en (17) or 19en (19) OR documentation of alternative energy for new wiring circuit must be added to project file.

Post-Weatherization (Final) Project Notes:

Project Name		People (not less than one)		0					
Address		Bedrooms (not less than one)		0					
Bedrooms (not less than one)				7.5					
Conditioned Square Footage				0.0					
Q _{tot} (per ASHRAE calculation 4.1a)				7.5					
Room	Room Exists? (y/n)	Window cfm	Operable Window? (y/n)	Intermittent Required (cfm)	Intermittent Measured Fan (cfm)	Continuous Required (cfm)	Continuous Measured Kitchen (ach)	Deficits (cfm)	
Kitchen	0	0	0	100	0	5	ach	No nc	
Bath 1	0	0	0	50	0	20	cfm	No nc	
Bath 2	0	0	0	50	0	20	cfm	No nc	
Bath 3	0	0	0	50	0	20	cfm	No nc	
Total Deficit								0.0	
Deficit/4								0.0	
Needed Ventilation (prior to infiltration credit)								cfm	7.5
Blower Door CFM50				Dwelling Unit Height (ft)		Actual Infiltration Estimate (Q _{air})		0.0	
Sum of existing continuous bathroom ventilation from above (cfm)								0.0	
Enter the total cfm of all additional continuous ventilation that is not shown on lines 25-27. Include any continuous kitchen ventilation in CFM.									
Required mechanical ventilation (CFM), Q _{req}								8	

Line Reference

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Exhibit 9.3(2)
Mechanical Ventilation Worksheet – Intermittent Fan Flow Calculator



Mechanical Ventilation Worksheet
Revised December 4, 2017

ASHRAE 62.2 Intermittent fan flow calculator

Project	
Location	
Area	
Height	
Usage	

Enter amount of continuous ventilation required:

If you choose to use a cycle time of one hour, you may use this calculator. For other cycle times please refer to the table below.

Intermittent Fan #1
Measured Fan Flow cfm. Minutes Per Hour required for this fan only . Set fan to this many minutes per hour for single intermittent fan strategy. Note: If the value in this box is greater than 50 the additional amount must be checked with another fan.

If you choose a strategy with two intermittent fans, enter the minutes intermittent fan #1 is set for here: min. Otherwise, leave this blank.

Intermittent Fan #2
Measured Fan Flow cfm. Minutes Per Hour required for this fan . Set second fan to this many minutes for double intermittent fan strategy.

		Cycle Time			
		Time between the start of fan "ON" cycles must not exceed the times below (in hours).			
		0-4	8	12	24
Run Time	6	75	96	not allowed	not allowed
	12	38	45		67 not allowed
	18	25	28		35 not allowed
	24	19	20		23
	30	15	16		17
	36	13	13		14
	42	11	11		11
	48	9	9		10
	54	8	8		8
	60	8	8		8

Example: If your cycle time is fan on once every hour; see the 0-4 column. If it is once every three hours see the 8-4 column. You must move to the 8 hour column if you exceed 4 hours, and up to 12 if you exceed 8 etc.

Example: If your cycle time is fan on once every 12 hours AND your run time is only 6 minutes per hour, you see this is not allowed. If your cycle time is between 0 and 4 hours AND your run time is 35 minutes per hour, your fan flow must equal exactly twice the amount of continuous ventilation you entered in the green box above.

Notes

Fan Flow must measure at least the amount shown at the intersection of the appropriate run time per hour and cycle time shown above (in CFM).

State of Washington, Weatherization Assistance Program

Technical Support Document

Mechanical Ventilation Worksheet

ASHRAE 62.2-2016

This document is intended to support in detail the Mechanical Ventilation Worksheet (Exhibit 9.3). The worksheet is designed to be both a calculation and documentation tool. **The Mechanical Ventilation Worksheet is only for calculating projects using a continuous whole building ventilation strategy and for which all necessary inputs are reflected on the sheet.** For all other projects within the scope of ASHRAE 62.2-2016, refer to the Intermittent Calculation sheet of this tool, or refer directly to the standard for calculation guidance.

The upper portion of the Mechanical Ventilation Worksheet is for recording pre-weatherization conditions of the project and to help estimate continuous ventilation to be added.

The lower portion of the Mechanical Ventilation Worksheet is for recording post-weatherization conditions and documenting compliance with ASHRAE 62.2-2016.

User entries to the worksheet are made in the GREEN BOXES.

NOTE: For best results ALWAYS use a fresh worksheet template. For user convenience some of the data transfers to other areas of the sheet. Starting with a fresh template will help ensure old data is not causing an erroneous result.

For convenient simplified instructions while working on the worksheet simply hover the cursor over cells with a red triangle in the upper right hand corner. Comment boxes should appear with abbreviated help notes.

Line #1 Pre-Weatherization Blower Door Reading (CFM50)

Enter the CFM50 from the initial audit prior to any weatherization work per Commerce s4.1.

Exhibit 9.3A
Mechanical Ventilation Worksheet – Technical Support Document

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Line #2 People

Enter the total number of occupants. May not be less than one. *Per ASHRAE 62.2-2016 section 4.1.1*

Line #3 Bedrooms

Enter the number of bedrooms. Not to be less than one. *Per ASHRAE 62.2-2016 section 4.1*

Calculation: The yellow box on this line calculates (number of bedrooms +1)*7.5 OR (number of occupants)*7.5, whichever is greater. *Per ASHRAE 62.2-2016 section 4.1.1*

Line #4 Conditioned Square Footage

Enter total conditioned square footage for the building.

Calculation: The yellow box on this line calculates (conditioned square footage)*.03 *Per ASHRAE 62.2-2016 section 4.1.1*

Line #5 Total Ventilation Required (Q_{tot})

This is a calculated value as defined as Q_{tot} in ASHRAE 62.2-2016 section 4.1. This value will be at, or below the value shown in ASHRAE 62.2-2016 table 4.1a.

Note regarding lines #6-9

This section is to determine any local exhaust deficits. Each line has four possible boxes for user entry. The first two boxes on the left of each line require a “y” entry if the room exists in the building or an operable window exists in a room. You may enter “n” in these boxes if the response is no, or leave the box blank. The entire line may be left blank if the “room exists” response is no.

The default inputs are “y” for Kitchen and Bath 1 (as it is assumed that each dwelling unit being considered will have one of each), though this input is easily changed if necessary.

The default deficit on each line is “None”. When the room indicator is set to “y” the required intermittent ventilation will show in the deficit column. ASHRAE 62.2-2016 does not require these deficits to be overcome but the whole building ventilation system shall make-up for any deficiency. Consult Commerce specifications, especially section 10, for other fan location requirements dependent upon building conditions such as excess moisture and gas ranges.

STRATEGY NOTE: Experimenting with different fan strategies on lines 6-10 can help the auditor achieve a whole building ventilation strategy using lower-CFM continuous fans in required ventilation rooms. For file documentation purposes return the entries in the boxes to the actual measured values prior to printing, or saving the document.

Exhibit 9.3A
Mechanical Ventilation Worksheet – Technical Support Document

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This section assumes all fans entered are properly vented, or will be vented to the exterior during the weatherization process.

Line #6 Kitchen

In the “Intermittent Measured Fan” column enter the measured fan flow in cubic feet per minute (CFM) for any existing intermittent fan which is vented to the exterior of the building. See Commerce specification 10.0.3 for additional information flow measurement and exceptions. This column may be left blank if there is no fan, the fan has no flow, or is not vented to the exterior.

IF a continuous fan exists calculate the air changes per hour (ach) and enter this value in the “Continuous Measured” column. To calculate air changes per hour determine measured fan flow rate per hour (fan CFM*60) and divide it by the volume of the kitchen (Volume = length*width*height).

- Example: Kitchen dimensions are: 10’ width by 12’ length by 8’ height and the continuous measured fan flow is 22 CFM. Volume = $10*12*8 = 960$ cubic feet, Hourly fan flow = $22*60 = 1320$ cubic feet per hour, $1320/960 = 1.375$ ach.

If kitchen ventilation is provided by a range hood, it is required to have a flow of at least 100 CFM. Any other mechanical ventilation in the kitchen (such as a downdraft fan) shall have a flow of 300 CFM.

According to the ASHRAE 62.2-2016 standard, there are two types of kitchens: enclosed and nonenclosed. An enclosed kitchen is defined as one that has permanent openings to interior adjacent spaces that do not exceed a total of 60 square feet. An enclosed kitchen is required to have mechanical ventilation that provides at least 5 air changes per hour (ACH), whether through the use of a range hood or other mechanical ventilation.

A nonenclosed kitchen has permanent openings to interior adjacent spaces in excess of a total of 60 square feet. A nonenclosed kitchen is more highly connected to the main body of the home, so there is no ACH criterion to fulfill. A nonenclosed kitchen is required, as is an enclosed kitchen, to have mechanical ventilation which provides 100 CFM (if delivered by a range hood) or 300 CFM (if delivered by a other mechanical ventilation, such as a rangehood).

Line #7 through #9 Bath 1, 2 or 3

Enter only rooms meeting the definition of a bathroom on these lines. ASHRAE 62.2-2016 defines a bathroom as “any room containing a bathtub, a shower, a spa, or a similar source of moisture.” Do NOT enter ½ baths, water closets etc*.

Enter existing intermittent fan flows in the third column of this section. If continuous fans exist enter the fan flow in CFM in the fourth column.

Exhibit 9.3A
Mechanical Ventilation Worksheet – Technical Support Document

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**Note: Intermittent fans in ½ baths, water closets, laundry rooms etc. shall not be entered on this worksheet. Properly vented continuous fans in these types of areas should be listed on lines 18 and 36.*

Line #10 Total Deficit

This line represents the existing deficit in local ventilation per ASHRAE 62.2-2016 Normative Appendix A *especially section A3.1.*

Line #11 Required Additional Airflow

The additional airflow required is the total deficit divided by four (per ASHRAE 62.2-2016 Normative Appendix A *especially section A3.3*). This ventilation requirement can be overcome by addressing local ventilation issues in rooms requiring specific ventilation, through the whole building ventilation fan, or a combination of both.

Line #12 Needed Ventilation Estimate (prior to credits)

This entry is a sum of lines 5 and 11.

Line #13 Actual Infiltration Estimate (Q_{inf})

For most accurate estimate enter a blower door reading taken after air sealing and any other measures significantly affecting building tightness in the first box. If no other reading is entered, CFM50 from line 1 will automatically transfer here.

Dwelling unit height is defined in ASHRAE 62.2-2016 as the “vertical distance between the lowest and highest above-grade points within the pressure boundary” (in feet).

Select a city from the drop-down menu on the left side of the worksheet which most accurately reflects the location and climatic conditions for the building being considered. This selection determines the WSF (weather and shielding factor, from Normative Appendix B) used to complete the calculation of Q_{inf}. *Note: Portland Oregon is included to more accurately address conditions in southwest Washington.*

The third box on this line is the calculation of Q_{inf}. According to ASHRAE 62.2-2016, Addendum i:

$$Q_{inf} = CFM@50 * 0.052 * WSF * [(dwelling\ unit\ height/reference\ height)^{.4}]$$

where dwelling unit height is as defined above, and the reference height is 8.2 feet.

Line #14 Deleted

Exhibit 9.3A
Mechanical Ventilation Worksheet – Technical Support Document

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Line #15 Part 1-Deleted

Line #15 Calculating A_{ext} for attached dwelling units

This line is the beginning of the section used to calculate A_{ext} (a term used for horizontally attached dwelling units only). The complete calculation for Q_{fan} is given in ASHRAE 62.2-2016 equation 4.6 as

$$Q_{fan} = Q_{tot} - (Q_{inf} \times A_{ext})$$

where

$$A_{ext} = \frac{\text{(Exterior envelope surface area that is not attached to garages or other dwelling units)}}{\text{(Total envelope surface area)}}$$

and modifies the infiltration credit proportionately. (Note that A_{ext} should be calculated even for dwelling units attached only via garage demising walls.) A_{ext} is always equal to 1 for detached dwelling units, making this calculation only necessary for attached dwelling units.

If the dwelling unit under consideration is vertically attached (shares any part of its floor or ceiling with another dwelling unit), check the box in this section. No infiltration credit is given for stacked dwelling units ($Q_{inf} = 0$).

Line #16 Deleted

Line #17 Sum of existing bathroom ventilation

ASHRAE 62.2 currently does not include a provision for partial credit of continuous local ventilation in the deficit calculation (lines 6-10). Continuous ventilation is included in lines 6-10 for the purpose of overcoming the deficit, if the fan flow is in excess of the required amounts (5 ACH, 100 or 300 CFM for kitchens, and 20 CFM for bathrooms). These continuous amounts should be counted as part of a whole building continuous strategy. Any continuous bath fan ventilation is summed and transferred to this line. (See also Strategy Note below, regarding lines #6-9 above)

Line #18 Other Continuous Ventilation (including kitchen CFM)

If there is any other existing continuous ventilation that is expected to remain (such as in laundry rooms, ½ baths, water closets, whole building, etc.) sum all CFM and enter it here. If continuous kitchen ventilation was entered in ach on line 6 the actual CFM shall be manually entered as part of this line total.

Exhibit 9.3A
Mechanical Ventilation Worksheet – Technical Support Document

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Line #19 Estimated Continuous Ventilation to Add

This line is the estimated continuous ventilation needed to meet ASHRAE 62.2-2016. The value is a function of line 12 subtracting lines 16, 17 and 18. If the total is less than zero the box will indicate “None”.

STRATEGY NOTE: Experimenting with different fan strategies on lines 6-10 can help the auditor achieve a whole building ventilation strategy using lower CFM continuous fans in required ventilation rooms. For file documentation purposes, return the entries in the boxes to the actual measured values prior to printing or saving the document.

Estimate Notes

Be sure to record any relevant pre-weatherization or estimate notes in the box for file documentation.

Lines #20-23

All instructions for these lines are synonymous to the corresponding cells in lines #2-5 above. For user convenience, values will transfer from original entries. If people, bedrooms, or square footage have changed, simply enter the new values in the green boxes.

Lines #24-27

All instructions for these lines are synonymous to the corresponding cells in lines #6-9 above. For user convenience, values will transfer from original entries in the “room exists” and “operable window” columns. Post weatherization (final flow) measurements are required for all required fans. These numbers shall be manually entered in this section when utilizing the Mechanical Ventilation Worksheet to demonstrate compliance with the standard.

Lines #28-30

No entry required. All instructions and explanations for these lines are synonymous to the corresponding cells in lines #10-12 above.

Line #31 Final Blower Door CFM50 and Actual Infiltration (Q_{inf})

Enter the post weatherization blower door number in CFM50 and the dwelling unit height. The actual building infiltration will be calculated automatically using the new CFM50 according to the same calculations as in line #13 (see above).

Lines #32-34 - Deleted

Line #35 Sum of Continuous Bath Fan Ventilation

No entry required. All instructions and explanations for this line are the same as line #17 above.

Exhibit 9.3A
Mechanical Ventilation Worksheet – Technical Support Document

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Line #36 Other Continuous Ventilation (including kitchen CFM)

Enter the total CFM of all continuous ventilation that **is not** shown on lines 25-27.

IMPORTANT NOTE Any continuous kitchen ventilation entered in ach on line 24 shall be manually entered in CFM as part of this line total (Measure post weatherization CFM of continuous kitchen fan or use other approved Commerce/ASHRAE 62.2-2016 method to determine flow value).

Line #37 Continuous Ventilation Required

This line is the continuous ventilation still needed to meet ASHRAE 62.2-2016. The value is a function of line 61 subtracting lines 34, 35 and 36. This value shall be at, or less than “0” to demonstrate compliance to the standard. A negative number represents the amount of over-ventilation installed. Adjust fans/ventilation strategy to get the closest result to “0” if the equipment and building conditions allow it.

Final Project Notes

Be sure to record any relevant post-weatherization or other final notes in the box for file documentation.

Abbreviations:

ach: air changes per hour

CFM: cubic feet per minute

CFM50: leakage rate measured at a pressure of 50 pascals

Exhibit 9.3A
Mechanical Ventilation Worksheet – Technical Support Document

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Terms:

Air handler – A steel cabinet containing a blower with cooling and/or heating coils connected to ducts, which transport indoor air to and from the air handler.

Backdrafting – Continuous spillage of combustion gases from a combustion appliance.

Bimetal element – A metal spring, lever, or disc made of two dissimilar metals that expand and contract at different rates as the temperature around them changes. This movement operates a switch in the control circuit of a heating or cooling device.

Burner – A device that facilitates the burning of a fossil fuel like gas or oil.

Carbon monoxide – An odorless and poisonous gas produced by incomplete combustion.

Combustion air – Air that chemically combines with a fuel during combustion to produce heat and flue gases, mainly carbon dioxide and water vapor.

Combustion analyzer – A device used to measure steady-state efficiency of combustion heating units.

Depressurize – Cause to have a lower pressure or vacuum with respect to a reference of a higher pressure.

Dilution air – Air that enters through the dilution device --- an opening where the chimney joins to an atmospheric-draft combustion appliance.

Dilution device – A draft diverter or barometric draft control on an atmospheric-draft combustion appliance.

Draft diverter – A device located in gas appliance chimneys that moderates draft and diverts down drafts that could extinguish the pilot or interfere with combustion.

Fan control – A bimetal thermostat that turns the furnace blower on and off as it senses the presence of heat.

Flue – a channel for combustion gases.

Heat anticipator – A very small electric heater in a thermostat that causes the thermostat to turn off before room temperature reaches the thermostat setting, so that the house does not overheat from heat remaining in the furnace and ducts after the burner shuts off.

Heat rise – The number of degrees of temperature increase that air is heated as it is blown over the heat exchanger. Heat rise equals supply temperature minus return temperature.

High limit – A bimetal thermostat that turns the heating element of a furnace off if it senses a dangerously high temperature.

Exhibit 9.3A
Mechanical Ventilation Worksheet – Technical Support Document

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House pressure – The difference in pressure between the indoors and outdoors measured by a manometer.

Inch of water – Small air pressure differences caused by wind, blower doors, furnace fans, and chimneys are measured in inches of water (in.-H₂O) in the American measurement system.

Input rating – The rate at which an energy-using device consumes electricity or fossil fuel.

Intermittent ignition device – A device that lights the pilot light on a gas appliance when the control system calls for heat thus saving the energy wasted by a standing pilot.

Make-up air – Air supplied to a space to replace exhausted air.

Manometer – Measuring device for small gas pressures

Mortar – A mixture of sand, water, and cement used to bond bricks, stones, or blocks together.

Net free area – The area of a vent after that area has been adjusted for insect screen, louvers, and weather coverings. The free area is always less than the actual area.

Open-combustion heater – A heating device that takes its combustion air from the surrounding room air.

Orphaned Natural Draft Water Heater - A natural draft water heater vented into an oversized chimney.

Oxygen depletion sensor (ODS) – A safety device for unvented combustion heaters that shuts gas off when oxygen is depleted.

Pascal – A unit of measurement of air pressure. (See Inch of water.)

Plenum – The piece of ductwork that connects the air handler to the main supply duct.

Pressure – A force encouraging movement by virtue of a difference in some condition between two areas.

Return air – Air circulating back to the furnace from the house, to be heated by the furnace and supplied to the rooms.

Room heater – A heater located within a room and used to heat that room.

Sealed-combustion heater – A heater that draws combustion air from outdoors and has a sealed exhaust system.

Exhibit 9.3A
Mechanical Ventilation Worksheet – Technical Support Document

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Space-heating – Heating the living spaces of the home with a room heater or central heating system.

Spillage – Temporary flow of combustion gases from a dilution device.

Stack effect – The draft established in a building from air infiltrating low and exfiltrating high.

Stand-Alone Natural Draft Water Heater - A natural draft water heater vented into a properly-sized chimney in accordance with NFPA 31 for oil-fired units, NFPA 54 for gas-fired units, NFPA 58 for propane-fired units and NFPA 211 for solid-fueled units or the venting tables of a chimney liner manufacturer.

Steady-state efficiency – The efficiency of a heating appliance, after an initial start-up period, that measures how much heat crosses the heat exchanger. A combustion analyzer measures the steady-state efficiency.

Supply air – Air that has been heated or cooled and is then moved through the ducts and out the supply registers of a home.

Vent connector – The vent pipe carrying combustion gases from the appliance to the chimney.

Vent damper – An automatic damper powered by heat or electricity that closes the chimney while a heating device is off.

Venting – The removal of combustion gases by a chimney.

Worst-case depressurization test –A safety test, performed by specific procedures, designed to assess the probability of chimney backdrafting.

WRT – “With respect to” used to show that the air pressures between two areas are being compared.

Zone – A room or portion of a building separated from other rooms by an air barrier---not usually an effective air barrier.

Exhibit 9.4A

Link to Active Form: [Exhibit-9.4A-Combustion-Safety-Test-Forms\(CSTF\)-and-Exhibit-9.4A\(2\)-Daily](#)

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Washington State Department of Commerce		Combustion Safety Test Form				Mar 1, 2019		
		PRE		POST				
Client:		Date pre & post:						
Address:		Auditor pre & Inspector post:						
1	START Pre-Test outside the building Turn on Combustion analyzer, CGD (gas sniffer), & 4 Gas Monitor to test CO and LEL for safe environment							
2	Natural Gas and LP Piping Leakage Testing				PRE	POST	PRE	POST
2a	Leaks detected?							
2b	Leak(s) confirmed using leak detection fluid?							
3	Identification of Appliances							
3a	Designate appliance(s):	Appliance name:	1:	2:				
3b		Appliance location:	1:	2:				
3c	Estimated appliance efficiency rating:		1:	2:				
3d	Type of combustion: (open/closed)		1:	2:				
3e	Type of draft: (natural/induced/forced)		1:	2:				
3f	Shared venting: (yes/no)		1:	2:				
3g	Vent Category: (Type I, II, III, IV)		1:	2:				
4	Visual Inspection of CAZ for Unsafe Conditions				PRE	POST	PRE	POST
4a	CAZ free of flammable products?							
4b	CAZ free of combustibles?							
4c	Water heater in garage is 18" above the floor or FVIR listed?							
4d	Combustion appliance vent has appropriate clearance to combustibles?							
Comments:								
5	Setting up CAZ in Worst Case Depressurization				PRE	POST	PRE	POST
5a	Record baseline pressure in CAZ WRT outside							
5b	Turn on EXHAUST equipment ONLY & Record pressure WRT outside							
5c	Turn on Forced air blower & Record pressure WRT outside							
<i>If CAZ more negative with blower on, leave on. If CAZ more positive, turn blower off for the rest of the test</i>								
5d	Close CAZ door & Record pressure in the CAZ WRT outside							
5e	Open CAZ door & Record pressure in the CAZ WRT outside							
<i>Continue Testing with the largest negative pressure in the CAZ based upon test results above</i>								
6	CO & SPILLAGE Assessment (Single Vent)				PRE	POST	PRE	POST
6a	Record ambient CO BEFORE test starts then start appliance							
6b	Did the appliance spill at 2 minutes of main burner operation?							
6c	Record CO AIR FREE of undiluted flue gases at 5 minutes							
6d	Record ambient CO AFTER test							
7	CO & SPILLAGE Assessment (Common Vent ONLY)				PRE	POST	PRE	POST
7a	Record ambient CO BEFORE test starts then start appliance(s)							
7b	Spillage FIRST appliance (see TSD for cold or warm vent)							
7c	Spillage SECOND appliance (Test at 2 minute mark)							
7d	Record CO AIR FREE of undiluted flue gases at 5 minutes							
7e	Record ambient CO AFTER test							
8	CO Assessment (WITHOUT draft hood or barometric damper)				PRE	POST	PRE	POST
8a	Record CO AIR FREE of undiluted flue gases at 5 minutes							
8b	Record ambient CO AFTER test							
9	Test Efficiency of Unit				PRE	POST	PRE	POST
9a	Record tested unit efficiency							
10	Natural Gas and LP Oven Testing				PRE	POST	PRE	POST
10a	Conduct visual inspection: Any stored material? Oven & Range burn clean?							
10b	Record CO AS MEASURED of undiluted flue gases at 5 minutes							
10c	Record ambient CO AFTER oven test							
11	Woodstove/Fireplace (FPWSZ)				PRE	POST	PRE	POST
11a	Measure & Record FPWSZ pressure WRT outside							
11b	Vent pipe, chimney, or clearance problems observed (note in margin below)							
12	Heat Rise: Record acceptable heat rise from manufacturer label: _____ - _____				PRE	POST	PRE	POST
12a	Record heat rise from test							

**Exhibit 9.4A
CSTF**

COMBUSTION SAFETY TEST FORM REFERENCE TABLES

Vent Categorization per NFPA 54

(lines 3 & 4)

Category I: NFGC AFUE 65-83%			Category III: Airtight AFUE 78-87%		
Non-Condensing	Typical Materials	Clearance	Non-Condensing	Typical Materials	Clearance
Negative Pressure (-)	B-vent	1"	Positive Pressure (+)	Sealed metal	NA
High Temperature Flue Gases	Single wall metal	6"	High Temperature Flue Gases	Sealed plastics	NA
Natural or Fan Assisted Drafts (Natural or Induced)	L-vent	9"	Fan Assisted Draft (Forced)	per manufacturer	
	Lined Masonry	no extra			
Category II: Corrosion Resistant <<Rare>>			Category IV: Airtight & Corrosion Resistant AFUE 90%+		
Condensing	Typical Materials	Clearance	Condensing	Typical Materials	Clearance
Negative Pressure (-)	Special	as needed	Positive Pressure (+)	Sealed plastics	NA
Low Temperature Flue Gases	as designated by manufacturer		Low Temperature Flue Gases	per manufacturer specification	
			Sealed Combustion (Forced)		

ANNEX D (BPI-1200) ACTION LEVELS FOR SPILLAGE AND CO IN COMBUSTION APPLIANCES

(line 5)

Test Results	Action Required
Greater CAZ depressurization occurs with the air handler on *	CONDUCT further analysis of the distribution system to determine if leaky ducts or other HVAC induced imbalances are the cause of the spillage. If so, distribution system repairs that will reduce or eliminate CAZ depressurization are REQUIRED
Greater CAZ depressurization occurs with door to CAZ closed, but is alleviated when the door to CAZ is open *	Measures to improve air transfer between the CAZ and the core of the house are REQUIRED
Spillage traced to excessive exhaust ** independent of CAZ door position, air handler, or a problem with the flue +	VERIFY sufficient combustion air is available per ANSI Z223.1/NFPA 54 for gas-fired appliances & NFPA 31 for oil fired appliances or LA CONTRACT for verification by a qualified professional and/or RECOMMEND qualified professional further evaluate/service to address venting/combustion air issue
* In the case where both spillage and excessive CO are present, in addition to the specific directions above, RECOMMEND that the appliance be shut down until it can be serviced by a qualified professional.	
** Refers to exhaust caused by mechanical ventilation and/or other means of exfiltration.	
+ When a recommendation to replace atmospherically vented combustion equipment inside the pressure boundary is made, and when cost-effective, RECOMMEND LA replace with direct or power vented equipment (or non-combustion equipment, such as a heat pump), which is ENERGY STAR® labeled.	

CO ACTION LEVELS (& LEL) (lines 1,6,7,8,&10)

CO Levels 70 ppm and GREATER ***
1. Immediately TERMINATE inspection
2. Notify occupants to evacuate the building
3. Notify emergency services from outside building
CO Levels 36 ppm - 69 ppm
1. Notify occupants of elevated levels
2. Open windows and doors
3. RECOMMEND to the occupant that a possible source of CO be turned off immediately
4. LA SHALL contact qualified professional to service permanently installed appliance
CO Levels 9 ppm - 35 ppm
1. Notify occupants that CO has been detected
2. RECOMMEND to open doors and windows
3. RECOMMEND checking possible sources of CO
4. LA SHALL contact qualified professional to service permanently installed appliance
CO Levels BELOW 9 ppm
1. Do nothing
*** Actions also required if LEL ≥ 10%

CO THRESHOLDS for Fossil-Fuel Fired Combustion Appliances (lines 1,6,7,8,&10)

Appliance	Threshold Limit**
Central furnace (all categories)	400 ppm air free
Boiler	400 ppm air free
Floor Furnace	400 ppm air free
Gravity Furnace	400 ppm air free
Wall Furnace (BM)	200 ppm air free
Wall Furnace (Direct Vent)	400 ppm air free
Vented Room Heater	200 ppm air free
Unvented Room Heater	200 ppm air free
Water Heater	200 ppm air free
Oven/Broiler	225 ppm AS MEASURED
Clothes Dryer	400 ppm air free
Refrigerator	25 ppm AS MEASURED
Gas Log (gas fireplace)	25 ppm AS MEASURED in vent
Gas Log (wood burning fireplace)	400 ppm air free in firebox

** If any CO Threshold Limit is exceeded, see CSTF TSD for more information.

CAZ DEPRESSURIZATION LIMITS** for Woodstove/Fireplace (line 11)

Fireplace Limit:	-4 Pa
Woodstove & fire place inserts (including air tight models with outside combustion air):	-5 Pa

* If any CAZ Depressurization Limit is exceeded, see CSTF TSD for more information.

When combustion appliance zone (CAZ) depressurization limits exceed the above then depressurization shall be brought within acceptable limits.

Exhibit 9.4A(2)

Link to Active Form: [Exhibit-9.4A-Combustion-Safety-Test-Forms\(CSTF\)-and-Exhibit-9.4A\(2\)-Daily](#)
(second tab)

Page 1 of 2



Mar 1, 2019

Daily In-Progress Combustion Safety Test Form

Client		Date					
Address		Auditor Name					
		<i>initials do not suffice</i>					
		Contact Number					
Local Agency Auditor: Complete Line 1 and 2							
1	<i>FA = Forced Air, HWT=Hot Water Tank, WS =Wood Stove, FP=Fireplace, PS =Pellet Stove, R =Range</i>			Place abbreviation for appliance in lines below			
1a	Fuel Type: (LP, NG, Oil, Wood, Pellet)						
1b	Designate appliance(s):	Appliance (App) Name	App 1:		App 2:		
1c		Appliance Location	App 1:		App 2:		
1d		Type of combustion (open/closed)	App 1:		App 2:		
1e		Type of draft (natural/induced/forced)	App 1:		App 2:		
1f		Shared venting (yes/no)	App 1:		App 2:		
1g		Vent Category (Type I, II, III,IV)	App 1:		App 2:		
			Day One	Day Two		Day Three	
2	Working CO Detector present or installed Day One?		yes / no				
3	Daily Tester's Name:						
	<i>initials do not suffice</i>						
4	Date:						
5	Depressurization Test		App 1	App 2	App 1	App 2	App 1 App 2
5a	"Baseline" CAZ Pressure with reference to (WRT) outside						
5b	Set up CAZ in Worst Case Depressurization (see Exhibit 9.4B, <i>CSTF TSD</i> - Daily In-Progress Section, pages 9-10)						
5c	Furnace on or off?		on / off	on / off	on / off	on / off	on / off
	Either could be Worst Case, depending on duct leakage.						
5d	CAZ door is open or closed (circle one)		open/closed	open/closed	open/closed	open/closed	open/closed
5e	Record CAZ pressure WRT outside						
5f	Record result Line #5e minus Line #5a ("baseline")						
5g	Record CAZ Depressurization Limit (See Table 4-back)						
<i>If worst case depressurization exceeds depressurization limit, ACTION is required. See back of form.</i>							
			Day One	Day Two		Day Three	
6	Start up Appliance		App 1	App 2	App 1	App 2	App 1 App 2
6a	Assess appliance for spillage (exceed 2 or 5 mins? See T		yes / no	yes / no	yes / no	yes / no	yes / no
<i>If answer is "yes," ACTION is required. See back of form.</i>							
			Day One	Day Two		Day Three	
7	Return house to pretest conditions						
7a	Check box when done Add any comments/notes below		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Notes:

**Exhibit 9.4A(2)
DIP CSTF**

COMBUSTION SAFETY TEST REPORT REFERENCE TABLES

Table 4: CAZ Depressurization Limits (Lines 2 and 6f <i>Daily In-Progress CSTR</i>)	
Venting Condition	Limit (Pa)
Stand alone natural draft water heater (including outside chimneys)	-5
Orphaned natural draft water heater	-2
Natural draft boiler or furnace vented in combination w/ water heater	-3
Natural draft boiler or furnace w/ vent damper commonly vented w/ water heater	-5
Induced draft boiler or furnace commonly vented w/ water heater	-5
Individual natural draft boiler or furnace	-5
Fireplace	-4
Wood stoves & fire place inserts, including air tight models w/ outside combustion air	-5
Power vented or induced draft boiler or furnace alone, also Pellet Stoves	-15
Chimney-top draft inducer; High static pressure flame retention head burner; Direct vented appliances; Sealed combustion appliances;	-50

In-Progress Daily Test Out - ACTION Items			
ACTION is REQUIRED:			
If worst case depressurization exceeds depressurization limit.			
If spillage exceeds 2 minutes (warm vent) or 5 minutes (cold vent).			
Document ACTIONS Taken			√ Done
1.	Document Daily Test Out levels that exceed limit:		<input type="checkbox"/>
2.	Call Auditor for direction and document:		<input type="checkbox"/>
3.	Confirm CO Detector is in place and operational:		<input type="checkbox"/>
4.	Take one or more of the following steps to mitigate issue for overnight:		
	(1) Reduce depressurization		
	Disable/Disengage fan that is creating problem:		<input type="checkbox"/>
	Tape off switch:		<input type="checkbox"/>
	Other:		<input type="checkbox"/>
	(2) Ventilate		
	Provide makeup air for interim:		<input type="checkbox"/>
	Open window:		<input type="checkbox"/>
	Other:		<input type="checkbox"/>
5.	Inform Client of ACTION(s) taken (temporary):		<input type="checkbox"/>
	Educate Client steps must take (or not) to remain safe:		<input type="checkbox"/>
<p style="text-align: center;">_____</p> <p style="text-align: center;">Client signature - received info</p>			
		Levels	Initials
		Date	
6.	Re-test & Document after taking mitigation actions:		<input type="checkbox"/>

March 1, 2019

Exhibit 9.4B

Exhibit 9.4B, Combustion Safety Technical Support Document (TSD)

This TSD is for [Exhibit-9.4A-Combustion-Safety-Test-Forms-\(CSTF\)-and-Exhibit-9.4A\(2\)-Daily](#) supporting these required combustion forms in detail in the following sections:

- [Combustion Safety Test Form TSD](#)
- [Daily In-Progress Combustion Safety Test Form TSD](#)
- [Abbreviations related to Combustion Safety](#)
- [Definitions related to Combustion Safety](#)

Combustion Safety Test Form TSD

The Combustion Safety Test Form is a tool to document the condition of two (2) appliances plus an oven and woodstove/fireplace and their performance. Each combustion appliance in a home that is weatherized or repaired shall be documented. The pre- and post- tests are documented on the Combustion Safety Test Form (CSTF). The CSTF is filled out by the Energy Auditor (Auditor) and the Quality Control Inspector (QCI) respectively.

The CSTF shall be filled out in detail for each completed project. The Auditor/QCI shall document in the comments section of the CSTF any special circumstances or health and safety related concerns that might help someone understand the condition of the home (pre- and post-), as well as the concerns expressed by the occupants, or the agency concerns for the occupants safety at the time testing was performed.

The testing procedure outlined in this document is intended to be the minimum tests needed to understand the condition and performance of an appliance. It is recommended that more in-depth testing be performed where multiple appliances share a chimney, or where other indications of potential problems exist.

Line 1 – Start Pre-Test

- Always start testing safely.
- *Start all testing tools outdoors: Combustion Analyzer, Combustibles Gas Detector (CGD, also known as a gas sniffer), 4 Gas Monitor.*
- Confirm readings outside, away from combustion and roadways.
 - Use your 4 gas monitor to confirm you are working in a safe environment.
 - Monitor ambient Carbon Monoxide before testing and during all testing.
- Walk into the building and monitor an indoor ambient air CO reading and a combustible gas %LEL (percentage of Lower Explosive Limit) reading on each floor.
- Use the appropriate action level table to assess the safe environment.

Safe Environment

If any Ambient CO is found,
Reference the **CO Action Levels (& LEL)** table (on CSTF page 2) for guidance.

Exhibit 9.4B
Combustion Safety Test Form – Technical Support Document

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Line 2 - Natural Gas and LP Piping Leakage Testing

2a. Check for leaks with your Combustible Gas Detector (CGD) at the tank/meter, gas lines, pipe fittings, supply lines connecting to the appliance, appliance gas valve and regulator.

Document if leaks were found YES/NO and follow appropriate action.

2b. Confirm with leak detection fluid, if leak(s) detected.

- When leak is on client side of meter: Fuel leaks that are the responsibility of the client (vs. the utility) shall be repaired before weatherizing a unit.
- When a minor gas leak is found on the utility side of service: the utility service shall be contacted before work may proceed. Notify utilities and temporarily halt work when leaks are discovered that are the responsibility of the utility to address.

Line 3-3g - Identification of Appliances

3a. Name: What kind of appliances are being tested?

3b. Location: Where is the appliance located: the garage, the furnace closet, the water heater closet?

3c. Rating: What appliance efficiency rating is the furnace?

- Document estimated appliance efficiency rating, such as 70%, 80%, or 90%.

3d. Type of Combustion: Where does the appliance get its air for combustion?

- If the appliance gets air from outdoors through a dedicated pathway directly connected to the appliance then it is a closed combustion appliance.

3e. Type of Draft: What type of draft does the appliance use?

- Use the ***Vent Categorization per NFPA 54*** table (on CSTF page 2) for information about the appliances being tested.

3f. Shared Venting: Is the venting common between the furnace and water heater?

- If there is an induced draft furnace that is vented in common with a natural draft water heater you will do a CO and spillage assessment on both the water heater and the furnace.

3g. Vent Category: What vent category is used?

- Use the ***Vent Categorization per NFPA 54*** table (on CSTF page 2) for information about the appliances being tested.

Exhibit 9.4B
Combustion Safety Test Form – Technical Support Document

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Line 4 - Visual Inspection of CAZ for Unsafe Conditions

Is there anything in the CAZ that could be considered a health and safety problem? Indoor Air Quality (IAQ), electrical discrepancies, fire hazards, combustibles, or potential testing problems that should be documented. If yes, **see Guidance below**.

- 4a. **Flammable**: The CAZ shall be free of flammable products such as liquid and pressurized vapors.
- 4b. **Combustible**: The CAZ shall be free of combustibles such as rags and paper in the immediate area of the appliance.
- 4c. **Water Heaters**: Water Heaters in garages shall be 18" above the floor or Flame Vapor Ignition Resistant (FVIR) listed.
- 4d. **Vent Clearance**: The combustion appliance vent shall have appropriate clearance to combustibles.
 - Use the ***Vent Categorization per NFPA 54*** table (on CSTF page 2) to assess clearance to combustibles and document.

Guidance: Visual Inspection of CAZ for Unsafe Conditions

1. Alleviate **unsafe conditions** if possible to do so, by removing obstructions and materials AND advise the occupant what you did and why.
2. If **unsafe conditions** cannot be immediately fixed, advise the occupant that the appliance should not be used until the unsafe condition is fixed.
3. If the **unsafe condition** is the WATER HEATER IN GARAGE is not at least 18" above the floor and is not FVIR listed. Advise occupant of the unsafe condition. Proceed with test.
4. Document any **unsafe conditions** in project documentation.

Line 5-5e - Setting up CAZ in Worst-Case Depressurization

- 5a. Use a manometer to measure and record the baseline pressure in the **CAZ with reference to (WRT) outside pa.**
- 5b. Turn on the following exhaust equipment: clothes dryers (check and clean the dryer filter and look for blockage at the external vent damper prior to operation), range hoods, and other exhaust fans. If there are speed controls, operate the exhaust equipment at the highest speed setting. Do not operate a whole house cooling exhaust fan. Measure and record pressure in the **CAZ with reference to (WRT) outside pa.**

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Combustion Safety Test Form – Technical Support Document

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5c. Turn on central forced air blower. Measure and record pressure in the **CAZ with reference to (WRT) outside pa.**

*IF the CAZ goes more negative with blower on, **leave on** for the test; if the CAZ goes more positive, **leave off** for the rest of the test.*

Exception: If the furnace does not have a manual fan switch you may have to turn on all your fans first (smoke the doors) then turn on the furnace. In this case you shall go back and smoke the interior doors again to ensure you have the correct setup. If this is the case, and you go back and find that you had a door in the incorrect position (opened or closed), adjust, retest, and document the results.

5d. With the CAZ door closed, measure and record pressure in the **CAZ WRT outside pa.**

5e. Open the CAZ door, measure and record pressure in the **CAZ WRT outside pa.**

Continue Testing with largest negative pressure in the CAZ, based upon test results.

Line 6-6d - CO and Spillage Assessment (Single Vent)

CO and Spillage assessments are performed on open combustion natural draft appliances that have a draft hood or barometric damper. Examples are gas or oil fired water heaters, gas or oil fired furnaces, and decorative room heaters with a draft hood.

6a. Record ambient CO before test starts. Then, start appliance.

6b. Assess appliance for spillage (2 or 5 minutes depending on warm or cold vent):

- If the vent is cold, assess spillage and measure CO at 5 minutes.
- If the vent is warm (and/or if the appliance is a domestic water heater) assess spillage at 2 minutes and measure CO at 5 minutes.

If spillage fails it is suggested you take your CO measurement as soon as possible to avoid exposing yourself to excessive combustion gas.

6c. Measure CO at 5 minutes of burner operation unless the appliance has failed spillage.

- CO assessments in combustion appliances are done in the undiluted flue gases and are done **AIR FREE**.

6d. Document ambient CO at the end of the test.

Guidance: CO and Spillage Assessment (Single Vent)

If the spillage exceeds 2 minutes or any **CO Threshold** limits (table on CSTF page 2) are exceeded, then the Local Agency shall take steps to eliminate the problem.

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Line 7-7e - CO and Spillage Assessment (Commonly Vented Appliance)

CO and Spillage assessments are performed on open combustion natural draft appliances that have a draft hood or barometric damper. A common vent is when two combustion appliances (furnace and water heater) share one vent.

7a. Record ambient CO before test starts. Then, start appliance.

7b. Start lowest BTUh input rating appliance.

Assess appliance for spillage (2 or 5 minutes depending on warm or cold vent):

- If the vent is cold, assess spillage and measure CO at 5 minutes.
- If the vent is warm (and/or if the appliance is a domestic water heater) assess spillage at 2 minutes and measure CO at 5 minutes.

If spillage fails it is suggested you take your CO measurement as soon as possible to avoid exposing yourself to excessive combustion gas.

7c. After the 5 minutes, turn on second appliance (leave 1st appliance running).

Assess appliance for spillage at 2 minutes.

If spillage fails it is suggested you take your CO measurement as soon as possible to avoid exposing yourself to excessive combustion gas.

7d. Measure CO at 5 minutes of burner operation unless the appliance has failed spillage.

- CO assessments in combustion appliances are done in the undiluted flue gases and are done **AIR FREE**.

7e. Document ambient CO at the end of the test.

Guidance: CO and Spillage Assessment (Commonly Vented Appliance)

If the spillage exceeds 2 minutes or any **CO Thresholds** limits (table on CSTF page 2) are exceeded, then the Local Agency shall take steps to eliminate the problem.

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Line 8-8b – CO Assessment

Appliances that are not tested for **spillage** but are tested for **CO** would include water or space-heat appliances termed as closed combustion, direct-vent, induced draft, category 3, and category 4 appliances.

8a. Measure CO at 5 minutes of burner operation.

- CO assessments in combustion appliances are done in the undiluted flue gases and are done **AIR FREE**.

8b. Document ambient CO at the end of the test.

Guidance: CO Assessment

If the any **CO Threshold** limits (table on CSTF page 2) are exceeded, then the Local Agency shall take steps to eliminate the problem.

Line 9 - Test Efficiency of Unit

9a. Measure the undiluted flue gas using your combustion analyzer.

Document the measurement.

Comment on the measurement if the tested efficiency is below the unit rated efficiency.

Line 10-10c - Natural Gas and LP Oven Testing

10a. Always check in the oven for stored items before starting the oven.

Assess Burner Flame Quality: Yellow flame? Blue flame?

10b. Start the oven at 350 degrees, after 5 minutes turn the oven up to 500 degrees to make sure the oven is on when taking your measurement.

Record the **CO as Measured** (NOT **AIR FREE**) after 5 minutes of operation.

Use the **CO Thresholds For Fossil-Fueled Fired Combustion Appliances** (table on CSTF page 2) to determine whether the CO level is acceptable. Based upon the result follow the action required using the **CO Action Levels (&LEL)** (table on CSTF page 2).

Oven CO measurements are done in the vent of the oven and are done in CO as measured. This is a different line, window, in the menu on your combustion analyzer.

10c. Document ambient CO at the end of the oven test.

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Guidance: Natural Gas and LP Oven Testing

If the **CO Threshold** limits (table on CSTF page 2) is exceeded, then:

- The Local Agency shall take steps to eliminate the problem, if possible.
- If it is not possible to eliminate the problem, document in the client file (project file) the actions taken and confirmation the client was informed of the issue.

Line 11 - Woodstove/Fireplace

11a. Set up your manometer in the room with the fireplace or woodstove.

Measure the pressure “fireplace woodstove zone with reference to outside.” Put fireplace woodstove zone (FPWSZ) in worst-case depressurization conditions.

Document the number. If the measurement exceeds the limit, then depressurization shall be brought within acceptable limits. Use the **CAZ Depressurization Limits for Woodstove/Fireplace** table (on CSTF page 2) for Woodstove/Fireplace depressurization limits.

Exception: If local agency is unable to meet CAZ Depressurization Limits, the Local Agency shall document in the client file (project file): the reasonable efforts attempted, the actions taken, and the education provided to the client.

11b. Visually inspect fireplace or woodstove for problems, such as damaged vent pipes, chimney damage, or chimney clearances. Use the **Vent Categorization per NFPA 54** table (on CSTF page 2) for clearances listed.

Document notes in margin of form.

Line 12 - Heat Rise

12a. Measure the heat rise for the furnace using a thermometer in the return air plenum and one thermometer in the supply plenum or nearest supply duct.

- Out of range heat rise measurements could indicate, dirty furnace filter, restricted duct work, improper speed for the furnace blower, under or over fired appliance.

Record heat rise from the test.

*****RETURN HOUSE TO PRETEST CONDITIONS*****

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Combustion Safety Test Form – Technical Support Document

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Daily In-Progress Combustion Safety Test Form (CSTF)

The Daily In-Progress Combustion Safety Test Form (CSTF) is a tool to assure combustion homes are left in a safe condition at the end of the day of envelope work. The Daily In-Progress CSTF is filled out by the Daily Tester, Auditor or Crew lead.

The testing procedure outlined in this document is intended to be the minimum tests needed to understand the condition and performance of an appliance. It is recommended that more in-depth testing be performed where multiple appliances share a chimney, or where other indications of potential problems exist.

Line 1 - Identification of Appliances

- 1a. Fuel Type: What type of fuel does the combustion appliance use?
- 1b. Name: What kind of appliances are being tested?
- 1c. Location: Where is the appliance located: the garage, the furnace closet, the water heater closet?
- 1d. Type of Combustion: Where does the appliance get its air for combustion?
- If the appliance gets air from outdoors through a dedicated pathway directly connected to the appliance then it is a closed combustion appliance.
- 1e. Type of Draft: What type of draft does the appliance use?
- Use the ***Vent Categorization per NFPA 54*** table (on CSTF page 2) for information about the appliances being tested.
- 1f. Shared Venting: Is the venting common between the furnace and water heater?
- If there is an induced draft furnace that is vented in common with a natural draft water heater you will do a CO and spillage assessment on both the water heater and the furnace.
- 1g. Vent Category: What vent category is used?
- Use the ***Vent Categorization per NFPA 54*** table (on CSTF page 2) for information about the appliances being tested.

Line 2 – Carbon Monoxide (CO) Detector

Is there a working CO Detector present or installed on Day One?

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Combustion Safety Test Form – Technical Support Document

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Line 3 – Daily Tester’s Name (*initials do not suffice*)

Document the name of the responsible person conducting the Daily In-Progress test for each day the test is performed.

Line 4 – Daily Test Date

Document the date for each day the Daily In-Progress test is performed.

Line 5-5g – Depressurization Test

Worst-case* set-up test for Combustion Appliance Zone (CAZ).

**Definition:* Worst-case is any condition that puts the appliance being tested in the most hazardous condition through means of house configuration. These configurations such as opening and shutting bedroom, laundry, garage, closet, basement, doors, etc., may occur during normal use of the home. This may be different for different lifestyles and occupants, but the CAZ should be tested in a manner that would address many clients and lifestyles. All reasonable house configurations should be considered.

5a. Baseline: Use a manometer to measure and record the baseline pressure in the **CAZ with reference to (WRT) outside pa.**

5b. Set up CAZ in Worst-Case Depressurization

1. Turn on the following exhaust equipment: clothes dryers (check and clean the dryer filter and look for blockage at the external vent damper prior to operation), range hoods, and other exhaust fans. If there are speed controls, operate the exhaust equipment at the highest speed setting. Do not operate a whole house cooling exhaust fan.
2. Turn on central forced air blower.

IF the CAZ goes more negative with blower on, leave on for the test; if the CAZ goes more positive, leave off for the rest of the test.

Exception: If the furnace does not have a manual fan switch you may have to turn on all your fans first (smoke the doors) then turn on the furnace. In this case you shall go back and smoke the interior doors again to ensure you have the correct setup. If this is the case, and you go back and find that you had a door in the incorrect position (opened or closed), adjust, retest, and document the results.

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3. Turn on central forced air blower.

*IF the CAZ goes more negative with blower on, **leave on** for the test; if the CAZ goes more positive, **leave off** for the rest of the test.*

Exception: If the furnace does not have a manual fan switch you may have to turn on all your fans first (smoke the doors) then turn on the furnace. In this case you shall go back and smoke the interior doors again to ensure you have the correct setup. If this is the case, and you go back and find that you had a door in the incorrect position (opened or closed), adjust, retest, and document the results.

4. Close all interior and exterior doors and windows.

- a. Start at the room furthest from the combustion appliance and perform a smoke test at each interior door to determine whether to leave it open or closed.
- b. Position yourself in or towards the main body of the house.
- c. Open the door slightly (3/4"). If the smoke goes in, leave the door all the way open. If the smoke comes back toward the main body or towards you, close the door.
- d. Always check rooms that contain mechanical exhaust equipment with chemical smoke as a confirming test. Many times the combination of leaky buildings and supply ducts in a room negate a fans negative effect on the CAZ or main body.

5. Smoke test the door to the CAZ. If the smoke comes toward the main body or towards you, open the door. If the smoke goes into the CAZ, close the door.

5c. Document if the furnace air handler on or off? Could be worst-case either way, depending on duct leakage.

5d. Document if the CAZ door is open or closed

5e. Measure and Record CAZ pressure with reference to (WRT) outside (pa).

5f. Record result: Calculate Line #5e CAZ pressure (in worst-case) minus Line #5a "Baseline"

5g. Record CAZ Depressurization Limit: Use **Table 4: CAZ Depressurization Limits** table (on Daily In-Progress CSTF page 2) to determine the appliance venting condition and the corresponding CAZ depressurization limit (pa).

If worst-case depressurization (Line # 5f) exceeds depressurization limit (Line #5g), ACTION is required. See back of form.

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Line 6-6a - Spillage Assessment

Spillage assessments are performed on open combustion natural draft appliances that have a draft hood or barometric damper. Examples are gas or oil fired water heaters, gas or oil fired furnaces, and decorative room heaters with a draft hood.

6. Start appliance.

6a. Assess appliance for spillage (2 or 5 minutes depending on warm or cold vent):

- If the vent is cold, assess spillage at 5 minutes.
- If the vent is warm (and/or if the appliance is a domestic water heater) assess spillage at 2 minutes.

Did the spillage exceed the times stated above?

If answer is "yes," ACTION is required. See back of form.

Line 7-7a – Return House to Pretest Conditions

7. Return house to pretest conditions

7a. Check box when you have completed returning the house to pretest conditions.

Notes: Add any comments or notes in margin

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Abbreviations:

BTUh: British Thermal Units per Hour
CO: Carbon Monoxide
CA: Combustion Appliance
CAZ: Combustion Appliance Zone
CDG: Carbon Dioxide Generation
FPWSZ: Fire Place Wood Stove Zone
FVIR: Flame Vapor Ignition Resistant
HDL: House Depressurization Limit
HVAC: Heating, Ventilation, Air Conditioning
IAQ: Indoor Air Quality
LEL: Lower Explosive Limit
NFPA: National Fire Protection Association
OC: Oxygen Consumption
PPM: Parts per Million
Pa: Pascals
WRT: With Reference To

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Definitions:

Air handler

A steel cabinet containing a blower with cooling and/or heating coils connected to ducts, which transport indoor air to and from the air handler.

Ambient

Relating to the immediate surroundings of something.

Backdrafting

Continuous spillage of combustion gases from a combustion appliance.

Barometric Draft Regulator (damper)

A balanced damper device attached to a chimney, vent connector, breeching, or flue gas manifold to control chimney draft.

Bimetal element

A metal spring, lever, or disc made of two dissimilar metals that expand and contract at different rates as the temperature around them changes. This movement operates a switch in the control circuit of a heating or cooling device.

Burner

A device that facilitates the burning of a fossil fuel like gas or oil.

Carbon monoxide

An odorless and poisonous gas produced by incomplete combustion.

Carbon Monoxide (CO) AIR FREE

CO AIR FREE comes from the combustion process and is generally measured before the exhaust gases have a chance to combine with dilution air introduced into the vent by a draft diverter. Air free emission levels are based on a mathematical equation (involving carbon monoxide and oxygen or carbon dioxide readings) to convert an actual diluted flue gas carbon monoxide testing sample to an undiluted air free flue gas carbon monoxide level utilized in the appliance certification standards. For natural gas or LP gas, using as-measured CO ppm and O₂ percentage.

$$\text{CO}_{\text{AFppm}} = (20.9/20.9-\text{O}_2) \times \text{CO}_{\text{ppm}}$$

Where:

CO_{AFppm} = Carbon monoxide, air-free ppm

CO_{ppm} = as-measured combustion gas carbon monoxide ppm

O₂ = Percentage of oxygen in combustion gas, as a percentage

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Carbon Monoxide (CO) as Measured

The level of CO concentration is measured using a system called Parts per Million (ppm).

Combustion air

Air that chemically combines with a fuel during combustion to produce heat and flue gases, mainly carbon dioxide and water vapor.

Combustion analyzer

A device used to measure steady-state efficiency of combustion heating units.

Combustion Appliance Zone (CAZ)

Room and enclosed air volume that contains a combustion appliance. This may include, but is not limited to, a mechanical room, mechanical closet, or main body of the house.

Common vent (shared vent)

That portion of a vent or chimney system that conveys products of combustion from more than one appliance.

Depressurize

Cause to have a lower pressure or vacuum with respect to a reference of a higher pressure.

Dilution air

Air that enters through the dilution device --- an opening where the chimney joins to an atmospheric-draft combustion appliance.

Dilution device

A draft diverter or barometric draft control on an atmospheric-draft combustion appliance.

Draft

Natural Draft: (Atmospheric or Gravity venting) has no fan and relies on atmospheric pressure and stack effect to move air and exhaust gases through the vent. To maintain the upward flow of exhaust products the chimney shall be warm.

Induced Draft: (Fan assisted) has a fan after the burner and heat exchanger but before the vent which moves the combustion gases to the outdoors with negative static pressure in the vent pipe.

Forced Draft: (Fan assisted or Power-vented) A vent system for which a fan installed at the combustion appliance moves combustion gases to the outdoors with positive static pressure in the vent pipe.

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Combustion Safety Test Form – Technical Support Document

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Draft diverter

A device located in gas appliance chimneys that moderates draft and diverts down drafts that could extinguish the pilot or interfere with combustion.

Draft hood

A draft hood acts as a pressure break between the vent system and the appliance and eliminates stack action. Without the draft hood, the vent could experience excessive draft, flame instabilities, and possibly pilot outage.

Fan control

A bimetal thermostat that turns the furnace blower on and off as it senses the presence of heat.

Flue

A channel for combustion gases.

Heat anticipator

A very small electric heater in a thermostat that causes the thermostat to turn off before room temperature reaches the thermostat setting, so that the house does not overheat from heat remaining in the furnace and ducts after the burner shuts off.

Heat Rise

The number of degrees of temperature increase that air is heated as it is blown over a heat exchanger. (Heat rise equals supply temperature minus return temperature.)

High limit

A bimetal thermostat that turns the heating element of a furnace off if it senses a dangerously high temperature.

House pressure

The difference in pressure between the indoors and outdoors measured by a manometer.

Inch of water

Small air pressure differences caused by wind, blower doors, furnace fans, and chimneys are measured in inches of water (in.-H₂O) in the American measurement system.

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Input rating

The rate at which an energy-using device consumes electricity or fossil fuel.

Intermittent ignition device

A device that lights the pilot light on a gas appliance when the control system calls for heat thus saving the energy wasted by a standing pilot.

Make-up air

Air supplied to a space to replace exhausted air.

Manometer

Measuring device for small gas pressures

Mortar

A mixture of sand, water, and cement used to bond bricks, stones, or blocks together.

Net free area

The area of a vent after that area has been adjusted for insect screen, louvers, and weather coverings. The free area is always less than the actual area.

Open-combustion heater

A heating device that takes its combustion air from the surrounding room air.

Orphaned Natural Draft Water Heater

A natural draft water heater vented into an oversized chimney.

Oxygen depletion sensor (ODS)

A safety device for unvented combustion heaters that shuts gas off when oxygen is depleted.

Pascal

A unit of measurement of air pressure. (See Inch of water.)

Plenum

The piece of ductwork that connects the air handler to the main supply duct.

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Combustion Safety Test Form – Technical Support Document

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Pressure

A force encouraging movement by virtue of a difference in some condition between two areas.

Return air

Air circulating back to the furnace from the house, to be heated by the furnace and supplied to the rooms.

Room heater

A heater located within a room and used to heat that room.

Sealed-combustion heater

A heater that draws combustion air from outdoors and has a sealed exhaust system.

Space-heating

Heating the living spaces of the home with a room heater or central heating system.

Spillage

Entry of combustion products into a building from dilution air inlets, vent connector joints, induced draft fan case opening, combustion air inlets, or other locations in the combustion or venting system of a vented combustion appliance (boiler, fireplace, furnace, or water heater), caused by backdrafting, vent blockage, or leaks in the venting system.

Undiluted flue gas

See [Carbon Monoxide AIR FREE](#) definition

Stack effect

The draft established in a building from air infiltrating low and exfiltrating high. Also known as the chimney effect, the movement of air into and out of buildings, chimneys, or flue-gas stacks, resulting from air buoyancy. Buoyancy occurs due to a difference in indoor-to-outdoor air density resulting from temperature and moisture differences.

Stand-Alone Natural Draft Water Heater

A natural draft water heater vented into a properly-sized chimney in accordance with NFPA 31 for oil-fired units, NFPA 54 for gas-fired units, NFPA 58 for propane-fired units and NFPA 211 for solid-fueled units or the venting tables of a chimney liner manufacturer.

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Steady-state efficiency

The efficiency of a heating appliance, after an initial start-up period, that measures how much heat crosses the heat exchanger. A combustion analyzer measures the steady-state efficiency.

Supply air

Air that has been heated or cooled and is then moved through the ducts and out the supply registers of a home.

Vent

A passageway used to convey flue gases from appliances or their vent connectors to the outdoors.

Vent connector

The vent pipe carrying combustion gases from the appliance to the chimney.

Vent damper

An automatic damper powered by heat or electricity that closes the chimney while a heating device is off.

Vent Temperature

Cold vent (except Domestic Water Heater) pertains to an appliance for which the heat setting is turned to OFF.

Warm vent pertains to an appliance for which the heat setting is turned to ON.

Venting

The removal of combustion gases by a chimney.

Worst-case depressurization test

A safety test, performed by specific procedures, designed to assess the probability of chimney back drafting.

WRT

“With respect to” used to show that the air pressures between two areas are being compared.

Zone

A room or portion of a building separated from other rooms by an air barrier----not usually an effective air barrier.

Exhibit 9.8B
Test Kit Documentation Form
Form Page 1 of ____
Date of Testing: _____



Owner Information:

NAME OWNER: _____ Job #: _____

Address: _____

City: _____ State: _____ Zip: _____

Contact #: (____) _____ E-mail: _____

Owner and occupant are the same: ____

Renovation Information

Fill out all of the following information that is available about the Renovation Site, Firm, and Certified Renovator.

RENOVATION ADDRESS: _____ Unit #: _____

City: _____ State: _____ Zip: _____

Same as above: ____ If not, Occupant name: _____

CERTIFIED FIRM NAME: _____

Address: _____

City: _____ State: _____ Zip: _____

Contact #: (____) _____ E-mail: _____

CERTIFIED RENOVATOR NAME: _____ Date Certified: ____/____/____

Test Kit Information

Use the following blanks to identify the test kit or test kits used in testing components.

Test Kit #1: Manufacturer: _____ Manufacture Date: ____/____/____

Model: _____ Serial # or Lot #: _____

Expiration Date: ____/____/____

Test Kit #2: Manufacturer: _____ Manufacture Date: ____/____/____

Model: _____ Serial # or Lot #: _____

Expiration Date: ____/____/____

Test Kit #3: Manufacturer: _____ Manufacture Date: ____/____/____

Model: _____ Serial # or Lot #: _____

Expiration Date: ____/____/____

Testing Results

Test Location # ____ **Test Kit Used:** (Circle only one) **Test Kit # 1** **Test Kit # 2** **Test Kit # 3**

Description of test location: _____

Result: Is lead present? (Circle only one): YES NO Presumed

Test Kit Documentation Form
Form Page ___ of ___
Date of Testing: _____

Testing Results - Continued

Test Location # _____ Test Kit Used: (Circle only one) Test Kit # 1 Test Kit # 2 Test Kit # 3

Description of test location: _____

Result: Is lead present? (Circle only one): YES NO Presumed

Test Location # _____ Test Kit Used: (Circle only one) Test Kit # 1 Test Kit # 2 Test Kit # 3

Description of test location: _____

Result: Is lead present? (Circle only one): YES NO Presumed

Test Location # _____ Test Kit Used: (Circle only one) Test Kit # 1 Test Kit # 2 Test Kit # 3

Description of test location: _____

Result: Is lead present? (Circle only one): YES NO Presumed

Test Location # _____ Test Kit Used: (Circle only one) Test Kit # 1 Test Kit # 2 Test Kit # 3

Description of test location: _____

Result: Is lead present? (Circle only one): YES NO Presumed

Exhibit 9.8C

Weatherization Program
Renovation Recordkeeping Checklist

Name of Firm: _____ Name of Assigned Renovator: _____

Date and Location of Renovation: _____

Name(s) of Trained Worker(s), if used: _____

Name of Dust Sampling Technician, Inspector, or Risk Assessor, if-used: _____

___ Copies of renovator and dust sampling technician qualifications (training certificates, certifications) on file.

___ Certified renovator provided training to workers on (check all that apply):

- ___ Posting warning signs
- ___ Setting up plastic containment barriers
- ___ Maintaining containment
- ___ Avoiding spread of dust to adjacent areas
- ___ Waste handling
- ___ Post-renovation cleaning

___ Test kits or Test results used by certified renovator to determine whether lead was present on components affected by renovation (identify method used, type of test kits used (if applicable), lab used (to conduct paint chip analysis), describe sampling locations and results):

___ Warning signs posted at entrance to work area.

___ Work area contained to prevent spread of dust and debris

- ___ All objects in the work area removed or covered (interiors)
- ___ HVAC ducts in the work area closed and covered (interiors)
- ___ Windows in the work area closed (interiors)
- ___ Windows in and within 20 feet of the work area closed (exteriors)
- ___ Doors in the work area closed and sealed (interiors)
- ___ Doors in and within 20 feet of the work area closed and sealed (exteriors)
- ___ Doors that must be used in the work area covered to allow passage but prevent spread of dust
- ___ Floors in the work area covered with taped-down plastic (interiors)
- ___ Ground covered by plastic extending 10 feet from work area—
plastic anchored to building and weighed down by heavy objects (exteriors)
- ___ If necessary, vertical containment installed to prevent migration of dust and debris to adjacent property (exteriors)

___ Waste contained on-site and while being transported off-site.

___ Work site properly cleaned after renovation

- ___ All chips and debris picked up, protective sheeting misted, folded dirty side inward, and taped for removal
- ___ Work area surfaces and objects cleaned using HEPA vacuum and/or wet cloths or mops (interiors)

___ Certified renovator performed post-renovation cleaning verification (describe results, including the number of wet and dry cloths used):

___ If dust clearance testing was performed instead, attach a copy of report

___ I certify under penalty of law that the above information is true and complete.

Name and title

Date

**Exhibit 9.9
Asbestos Standard Operating Procedures**

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Cementitious Asbestos Board (CAB)

This section refers to exterior siding shingles, flat panels, and corrugated panels.

Adhere to the following steps without exception unless a written work plan is provided by the Program Manager and that work plan stipulates variations of standard process:

Exterior Siding Shingles:

1. Pre-clean work area (including non-ACM debris) and create unobstructed working area.
 - a. Install appropriate barriers, signage and posters.
 - b. Deactivate energy sources within work area.
2. Set up work area:
 - a. Water, power, equipment, tools, containers, ladders/scaffolding, de-con.
3. Don Personal Protection Equipment:
 - a. Respirators, tyveks, boots/gloves and personal air pump(s).
 - b. Set area pumps.
4. Lay ground sheet (poly-ethylene).
5. Abatement Process:
 - a. Wet surfaces to be abated with amended water (surfactant added).
 - b. Begin at bottom and carefully remove nails to allow whole piece removal.
 - c. Set removed pieces on working surface or ground. **DO NOT DROP TO GROUND!**
 - d. Bag or wrap removed pieces while wet and remove to drop box or other container.
 - e. Pull all nails and moisture barrier (tar paper) and treat as ACM debris.
 - f. Inspect abated surface and 'detail' area including ground sheet before moving on.
 - g. Be sure all bags/wrapped units are properly labeled with all required data.
 - h. Continue process from bottom to top taking care to pull nails and not break CAB.
 - i. Final inspection, detail and cleanup (by Supervisor and all crew members).
 - j. Clean all equipment and tools before replacing into company vehicles.
 - k. Check all paperwork for completion: Daily logs, air monitoring and timesheets.
 - l. De-con and demobilize site.
 - m. When back to shop unload all debris into drop box, cleanup (as needed) vehicle.
 - n. Make note of any damaged equipment or tools to allow for repair or replacement.

Flat (panel) CAB:

- a. Follow process for exterior shingles.

Note: Vehicles should be returned fully gassed and with oil and water checked for next day.

Exhibit 9.9
Asbestos Standard Operating Procedures

Page 2 of 4

Acoustical Ceiling Texture ('Popcorn')

Note: This SOP is designed for 'incidental' removal/disturbances of ACT during activities such as changing lighting fixtures, installing smoke alarms or removal of less than three square feet of the material due to water or other damage. This SOP is NOT intended for use on full-scale abatement projects.

Incidental removal of ACT:

1. Pre-clean immediate work area (floor).
 - a. Install critical barriers over vents and openings within six feet of regulated area.
 - b. Deactivate energy source for target work area.
2. Install PVC and 6 mil poly unit directly beneath target work area (within 1" of ceiling).
3. Use electrical power through an extension cord with a GFCI attached and checked.
4. Don Personal Protection Equipment:
 - a. Full-face APR respirator, two tyvek, gloves, and personal air sampling pump.
5. Wet/mist target work area prior to disturbance/removal of ACT.
6. Removal:
 - a. Install HEPA vacuum nozzle into PVC/poly unit as an engineering control,
 - b. Use flat scraper to gently remove ACT from ceiling substrate,
 - c. Place removed material into disposal bag or other disposable container,
 - d. Damp wipe all cleaned surfaces,
 - e. Remove fixture, damp wipe and pass outside of PVC/poly unit on a drop sheet,
 - f. Inspect wiring and install new fixture,
 - g. Collect all waste and double bag into labeled 6 mil ACM disposal bags,
 - h. Wipe down and pass step ladder out of PVC/poly unit,
 - i. Wet, fold and bag drop sheet,
 - j. HEPA vacuum workers' outer body cover and bag as ACM waste,
 - k. Inspect and damp wipe/HEPA vacuum interior base of PVC/poly unit,
 - l. Mist inside of PVC/poly unit with penetrating encapsulant,
 - m. Remove inner tyvek and bag as ACM waste,
 - n. Place duct tape over HEPA vacuum nozzle and exhaust port,
 - o. Carefully, remove PVC/poly unit from work area and
 - p. Conduct final inspection before departing,
 - q. Conduct clearance air sample if desired,
 - r. Decon and demobilize site,
 - s. When back to shop unload all debris into drop box, cleanup (as needed) vehicle,
 - t. Make note of any damaged equipment or tools to allow repair or replacement.

Note: Vehicles should be returned fully gassed and with oil and water checked for next day.

Note: A piece of cardboard or other pad should be placed inside the PVC/poly unit to protect against tears from ladder feet and subsequent water damage to floors.

**Exhibit 9.9
Asbestos Standard Operating Procedures**

Page 3 of 4

Vinyl Asbestos Tile (VAT)...and Mastic

This section refers to VAT (9" or 12") and Mastic on either wood or concrete surfaces.

Adhere to the following steps without exception unless a written work plan is provided by the Program Manager and that work plan stipulates variations from standard process.

1. Pre-clean work area (including non-ACM debris) and create unobstructed work area.
 - a. Install appropriate barriers, signage and posters.
 - b. Deactivate energy sources within work area
2. Set up work area:
 - a. Water, power, equipment, tools, solvent, sawdust, etc.,
3. Don Personal Protection Equipment:
 - a. Respirators, tyveks, boots/gloves, personal air pump(s).
 - b. Set area pumps.
4. Set up wall protection ('splash' sheets).
5. Abatement process:
 - a. Wet floor surface.
 - b. Begin scraping tile at edges/corners and work in a planned direction.
 - c. Bag/box ACM while wet.
 - d. Be sure all bags/boxes are properly labeled with all required data.
 - e. Detail floor area with broad, thin scrapers.
 - f. Inspect all edges, window ledges and crevices for chips and pieces.
 - g. Begin Mastic removal by applying controlled amount of solvent to floor (agitate).
 - h. Begin in a corner and work in a planned direction.
 - i. Use squeegees to push emulsified mastic and solvent mass into a 'pool'.
 - j. Add sawdust to create a solid mass for pickup and containerization (bagging).
 - k. Inspect entire floor area for chips, pieces and mastic 'goobers' and detail all areas.

Note: Inspection should be directed by Supervisor and conducted by all Crew Members.

- l. Clean all equipment and tools before reloading into company vehicles.
- m. Check all paperwork for completion: daily logs, air monitoring and timesheets.
- n. Decon and demobilize site.
- o. When back to shop unload all debris into drop box, cleanup (as needed) vehicle.
- p. Make note of any damaged equipment or tools to allow for repair or replacement.

Note: Vehicles should be returned fully gassed and with oil and water checked for next day.

**Exhibit 9.9
Asbestos Standard Operating Procedures**

Encapsulation of presumed asbestos tape

Asbestos tape is associated with duct work on older residential heating systems. This tape is usually white or gray in color and is found on furnaces, ducts, and pipes. During weatherization work, it may be necessary to seal leaks in ductwork or add insulation over the tape to comply with State weatherization requirements. This tape may be intact, damaged or showing signs of deterioration. This tape should be considered to contain asbestos or proved not to contain asbestos by a certified AHERA (Asbestos Hazard Emergency Response Act) building inspector survey.

Under AHERA regulations, any material or product found to contain more than 1% asbestos is considered an asbestos containing material (40 CFR Part 763).

Asbestos tape is considered Thermal System Insulation (TSI) by Washington State Labor and Industries, whenever it is applied to pipes, fittings, boilers, breaching, tanks, ducts, or other structural components to prevent heat loss or gain (WAC 296-62-0773). Under WISHA (Washington Industrial Safety & Health Act) encapsulation of asbestos TSI tape would be considered class 3 asbestos work (WRD 23.10). Worker certification is not required if the encapsulation work is less than 1 square foot except on pipe insulation. If the work is 1 square foot or greater and the material is damaged or deteriorated in the form of dust, debris, and waste then asbestos worker certification is required.

The application of duct tape re-wetting glass cloth, canvas, cement, paint, or other non-asbestos materials to seal or fill exposed areas where asbestos fibers may be released is not considered an asbestos project according to the Northwest Clean Air Agency (NWCAA). Therefore, no prior notification is required.

.....
Note: When two (2) or more agencies of jurisdiction have regulations (or lack of regulations) on a common issue, contractors and others who come under the agencies' jurisdiction shall comply with the more stringent rule. As noted above, NWCAA does not consider the application of re-wetting materials or other sealants over damage 'duct tape' as an asbestos project and does not require notification...this does NOT relieve the organization from complying with the Department of Labor & Industries regulations. Therefore, as mentioned above, the Department of Labor & Industries would consider the 'repair or maintenance' of less than one foot of this material as Class III Work. Training requirements for Class III Work include an initial course of sixteen (16) hours duration and the passing of a final exam with a score of 70% or better. An annual refresher course of 3-4 hours is also required to maintain the certification.

For reference and review purposes, this material shall be referred to as 'Duct Tape'.

References

1. **CFR (Part, Subpart Number)** – Title #, Code of Federal Regulations, Part/Subpart #
For example, [10 CFR 440](#) (Weatherization Assistance Program for Low-Income Persons)
<https://www.govinfo.gov/app/collection/cfr>
2. **WPN #, Date** – Weatherization Program Notice (Dates will Vary)
For example, WPN 05-1, 2004 (Program Year 2005 Weatherization Grant Guidance)
<https://nascsp.org/wap/waptac/program-guidance/>
3. **OMB #** – Office of Management and Budget, [OMB 2 CFR Part 200, Uniform Guidance](#)
4. **WAC #** – Washington Administrative Code Title, Chapter, Section
For example, WAC 51-13-402 (Solid Fuel Burning Appliances and Fireplaces)
<http://apps.leg.wa.gov/wac/>
5. **RCW #** - Revised Code of Washington Title, Chapter, Section
For example, RCW 46.12.095 (Requirements for Protecting Security Interest)
<http://apps.leg.wa.gov/rcw/>
6. **General Terms & Conditions** –
Commerce - Department of Commerce General Terms & Conditions
7. **Special Terms & Conditions** –
DOE - Department of Energy Special Terms & Conditions
HHS (LIHEAP) - Department of Health & Human Services Special Terms & Conditions
BPA - Bonneville Power Administration Services Special Terms & Conditions
State - Washington State Weatherization Plus Health (State) Services Special Terms & Conditions
8. **WAP Health and Safety Plan** – Weatherization Assistance Program Health and Safety Plan
[2022 Health and Safety Plan](#)
9. [Specifications - SF-MH](#) and [Field Guide - MF](#) – Department of Commerce
10. **Commerce Monitoring Protocol** –Department of Commerce
11. **EOW Field Guide** – Energy OutWest Field Guide
12. **Commerce Low-Income Energy Assistance Program Eligibility Policies** –
[WxLIHEAP Eligibility Policy Manual](#)