



Department of Commerce
Innovation is in our nature.

Weatherization Manual

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for
United States Department of Energy (DOE)
United States Department of Health and Human Services (HHS)
Bonneville Power Administration (BPA)
and
Matchmaker (MM)

Prepared By:
Washington State Department of Commerce
Energy Division

July 2018 Edition

Revised 7/24/2018



WEATHERIZATION WORKS



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Policies and Procedures

For Managing the Low-Income Weatherization Program

[Policies - Table of Contents \(TOC\)](#)

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WEATHERIZATION WORKS

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 Matchmaker Program (MM)
- Electric and Natural Gas Utility Companies

Low-Income Weatherization Program

Precedence

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

The Washington State Weatherization [Field Guide Retrofitting Washington](#) (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](#) are reference for any work the WA Field Guide does not address.

Exception: The technical specifications in the Field Guide take precedence over the Wx Manual Policy.

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.

Announcements

2018 Transition Year:

This 2018 Wx Manual transition year has large editing changes reorganizing Client Education and Wx Project Documentation and new requirements for Multifamily. In some cases there are missing pieces, parts that are still under development, and definite room for improvement in these sections. If errors, omissions, or unintended consequences are discovered and reported, Commerce is committed to working with the Local Agencies to make changes, corrections, and adjustments as needed. We will communicate amendments to the Wx Network via official Policy Memo.

Coming Soon:

We have planned Policy Memos to implement the BPI 1200 Combustion Testing, Client Education Checklist, and any approved Flexible Funding amendments in the fall of 2018.

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 Markings

Solid vertical lines in the margins within the body of the Wx Manual indicate a substantive change from the requirements in the previous version. Margin marks are not used for correcting a typo or making a formatting change or move. The margin mark locates where the change was made and corresponds with the date of the specific Policy. For changes made prior to 2016 the date is in the Table of Contents ([TOC](#)). Sometimes the revised date is also in the header or footer. For changes made in 2016 and after, the Effective Date is in the new introduction block along with the version replaced. If the margin line is marking a blank line alone, this indicates a deletion.

Web Addresses:

Wx Extranet Site: <https://extranet.commerce.wa.gov/teams/teamsa/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.

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For Managing the Low-Income Weatherization Program

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See Also: [2018 Field Guide, Retrofitting Washington](#)
[Standard Work Specifications\(SWS\)](#)

Shortcuts to TOC

Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5
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Cross References: The small policy numbers (i.e. (P1.4)) following titles are the old Wx Policy numbers, for reference.

Chapter 1 [Eligible Clients](#)

Section 1.1 **Qualifying Clients**

Policy 1.1.1	Applying Income Eligibility Standards (partial P2.1)	July 2016
Policy 1.1.2	Determining Income Eligible Clients (P1.2, 1.2.1)	July 2018
Policy 1.1.3	Qualifying Owners or Tenants (P1.4)	July 2016

Section 1.2 **Enrolling Clients**

Policy 1.2.1	Prioritizing Eligible Weatherization Clients (P1.1)	July 2017
Policy 1.2.2	Searching for Eligible Weatherization Clients (P1.1)	July 2016
Policy 1.2.3	Serving Low-Income Native Americans (P1.1.1)	July 2018

Section 1.3 **Documenting Eligible Clients**

Policy 1.3.1	Documenting Income Eligibility (partial P2.1, all docs)	July 2018
Policy 1.3.2	Setting Period of Eligibility (P1.3)	July 2018
Policy 1.3.3	Using Property Owner/Agency Agreements (P1.4.1)	July 2018

Section 1.4 **Benefits and Contributions**

Policy 1.4.1	Ensuring Direct Benefits	July 2018
Policy 1.4.2	Leveraging Owner Contributions	July 2018

Chapter 2 **Eligible Dwellings****Section 2.1** **Dwelling Types**

Policy 2.1.1-SF	<u>Qualifying Single-Family Residences</u> (NEW)	July 2016
Policy 2.1.2-MF	<u>Qualifying Multi-Unit Residences</u> (P1.5)	July 2017
Policy 2.1.3	<u>Ineligible Residences and Exceptions</u> (P1.6)	July 2016
Policy 2.1.4	<u>Shelters, Group Homes, and Transitional Facilities</u> (P1.7)	July 2016
Policy 2.1.5	<u>Subsidized Housing Weatherization</u> (P1.8)	July 2017
Policy 2.1.6	<u>Preserving Historic Properties</u> (P1.9)	July 2016
Policy 2.1.7	<u>Reweathering</u> (partial P1.6)	July 2016
Policy 2.1.8-MF	<u>Phasing Multifamily Weatherization Projects</u>	July 2018

Section 2.2 **Documenting Eligible Dwellings**

Policy 2.2.1	<u>Documenting Residence</u> (P3.1)	July 2018
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Chapter 3 *[Policies moved. References to new locations](#)***Chapter 4** **Complaints and Dispute Resolution**

Policy 4.1	<u>Resolving Complaints and Disputes</u>	July 2017
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Chapter 5 **Providing Weatherization Services****Section 5.1** **General**

Policy 5.1.1	<u>General Requirements</u>	July 2018
Policy 5.1.1-MF	<u>General Multifamily Requirements</u>	July 2018
Policy 5.1.2	<u>Weatherization Project Documentation</u>	July 2018
Policy 5.1.2.1	<u>Certification of Insulation</u>	July 2015
Policy 5.1.2.2	<u>Weatherization Information Data System (WIDS)</u>	July 2018
Policy 5.1.3	<u>Deferral Standards</u>	July 2018
Policy 5.1.4	<u>Client Education</u>	July 2018
Policy 5.1.5	<u>Low-Cost/No-Cost</u>	July 2015
Policy 5.1.6	<u>Coordination with Utilities and Related Programs</u>	July 2015

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Policy 5.2.1-SF	Energy Audit	July 2018
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Policy 5.2.2	Energy Audit Pre-Assessment (Pre-Audit)	July 2015
Policy 5.2.3-SF	Diagnostic Testing	July 2016
Policy 5.2.3-MF	Multifamily Diagnostic Testing	July 2018
Policy 5.2.4-SF	Priority List (PL)	July 2018
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Policy 5.5.8	Thermostats	July 2018
Policy 5.5.9	Renewable Energy Systems	July 2016

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Policy 5.6.2	Mechanical Ventilation Ducts	July 2016
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Chapter 9 Health and Safety

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Policy 9.2.1	<u>Weatherization Plus Health</u>	July 2018
Policy 9.3-SF	<u>Indoor Air Quality – Mechanical Ventilation</u>	July 2018
Policy 9.3-MF	<u>Multifamily Indoor Air Quality – Mechanical Ventilation</u>	July 2018
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See Also: [Policies and Procedures Table of Contents](#)
[2018 Field Guide, Retrofitting Washington](#)
[Standard Work Specifications\(SWS\)](#)

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

For information not included here, refer to the general Policies and Procedures, 2018 Field Guide Retrofitting Washington, or the Standard Work Specifications for guidance.

Policy 2.1.2-MF	<u>Qualifying Multi-Unit Residences</u> (P1.5)	July 2017
Policy 2.1.8-MF	<u>Phasing Multifamily Weatherization Projects</u>	July 2018
Policy 5.1.1-MF	<u>General Multifamily Requirements</u>	July 2018
Policy 5.2.1-MF	<u>Multifamily Energy Audit</u>	July 2018
Policy 5.2.3-MF	<u>Multifamily Diagnostic Testing</u>	July 2018
Policy 5.2.6-MF	<u>Multifamily Representative Sample</u>	July 2018
Policy 5.3.1-MF	<u>Multifamily Air Sealing – Attached Buildings</u>	July 2018
Policy 9.3-MF	<u>Multifamily Indoor Air Quality – Mechanical Ventilation</u>	July 2018

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CHAPTER I

ELIGIBLE CLIENTS

Weatherization Policy

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

See also:
[LIHEAP Intake](#)
[LIHEAP Forms](#)
[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 must account for all pay periods in the period used to establish eligibility, when considering earned income.
3. **Calculating Average Gross Income:** Local agencies must 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 must 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***.

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

Replaces: Policy 1.1.2 – July 2017

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 qualify as eligible clients, the income received by all household members shall not exceed 200 percent of federal poverty guidelines or 60 percent of state median income, whichever is greater. See **Policy 1.2.1, *Prioritizing Eligible Weatherization Clients*** for priority.

Exceptions:

- a. For Wx projects using LIHEAP funding, income shall not exceed 60 percent of state median income.
 - b. Use only eligible household members in the household count to determine eligibility.
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 percent poverty guidelines, all current income exclusions apply.
 - b. For 200 percent federal poverty guidelines and 60 percent of state median income, 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. Per 62 FR 61344-61416, an eligible household member shall be a U.S. citizen or 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 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 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.

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.
 - 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.

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 must 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 must 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**.

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 must 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).

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 must identify eligible Weatherization households in their service area.

2. Submitting Applications:

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

3. Performing Outreach:

Local agencies must 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.

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.

Weatherization Policy

See also:

[LIHEAP Intake](#)[LIHEAP Forms](#)[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, Qualified Alien Documents](#)

Replaces: Policy 1.3.1 July 2017

POLICY 1.3.1 DOCUMENTING ELIGIBILITY

1. **Documenting Income Eligibility:** Client 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 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** and **LIHEAP Forms** links above. At a minimum, the documentation in Wx client 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. 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:
- (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 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. 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. 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:** When required to determine citizenship for each household member, Local agencies shall include citizen documentation in the client file (or 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, *Qualified Alien Documents*** for a list of acceptable documents.

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.

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, Leveraging 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 2017

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. **Leveraging Owner Contributions:** Local agencies shall attempt to secure owner contributions, wherever possible. See **Policy 1.4.2, *Leveraging 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***.

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.

Weatherization Policy

Replaces Policy 1.4.2 – July 2017

See also:
[Policy 2.1.8-MF, Phasing Multifamily Weatherization Projects](#)

POLICY 1.4.2 LEVERAGING OWNER CONTRIBUTIONS

1. **Supplementing, not Supplanting, Landlord Responsibilities:** Local agencies shall inform the owner of their legal responsibilities and liabilities under RCW 59.18.060.
2. **Leveraging Owner Contributions:** Local agencies shall make every effort to leverage owner contributions wherever possible for all weatherization projects.

Exceptions:

- a. **Low-income Owners:** If the building owner meets the income eligibility and qualifies as low-income themselves, any owner contribution is waived.
- b. **Low-income Mission-Based Owners:** If the building owner/organization's mission is to preserve and provide low-income housing with a covenant that ensures low-income housing for ten years or more, any owner contribution is encouraged but may be waived.
3. **Determining Contributions:** The type and amount of the owner contributions may be negotiated based on market conditions and the discretion of the local agency in order to create good partners and quality weatherization projects. Owner contributions may include any or all 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, whichever is greater.
 - b. **In-kind Contributions:** Including, but not limited to: labor, materials, repairs, and a commitment to maintain equipment and property.
 - c. **Rent Freeze:** A recommended minimum of twelve (12) months.
 - d. **Preserve Low-income Housing:** Covenant assuring continued low-income tenant occupancy for a minimum of five (5) years.
 - e. **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.
 - f. **Any combination of the above.**

4. **Phasing Weatherization Projects:** 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. See **Policy 2.1.8-MF, *Phasing Multifamily Weatherization Projects*** for more information.

Phasing Multifamily Weatherization 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.

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[Multifamily Table of Contents](#)

[Supporting Documents - Table of Contents](#)

CHAPTER 2

ELIGIBLE DWELLINGS

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***.

Weatherization Policy

See also:

[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 – July 2016

POLICY 2.1.2-MF QUALIFYING MULTIFAMILY RESIDENCES

1. Local agencies may weatherize multifamily properties when:
 - a. **Property Owner/Agency Agreement:** The owner has signed a rental property owner/agency agreement. See **Policy 1.3.3, Using Property Owner/Agency Agreements**.
 - b. **Income Eligibility:** Multifamily building tenant incomes meet LIHEAP Income Eligibility Guidelines. See **Policy 1.1.1 Applying Income Eligibility Standards**.
 - (1) **Qualifying 66% or More:** Not less than 66 percent (50 percent for duplexes and four-plexes) of the resident households of the building are:
 - (a) Currently eligible, or
 - (b) Will become eligible within 180 days.
 - (2) **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.
 - (3) **Qualifying Less than 50%:** Multifamily dwellings with less than 50 percent low-income eligibility that also have leveraged funds must obtain prior written approval from Commerce.
 - (4) **Qualifying Property Lists:** Local agencies may use HUD Multifamily Property Listing Eligible for Weatherization Assistance to qualify a building listed without qualifying individual tenants.
 - (5) **Using Centralized Records and Rent Rolls:** Local agencies may use their own certification form to verify income eligibility of residents in public/subsidized multifamily buildings (e.g. Housing Trust Fund subsidized housing portfolio). When centralized records are available, they may substitute for individual Household Information Forms (HIF).

2. **Demographic and Citizenship Information:** Local agencies must collect demographic and citizenship information either from public/subsidized multifamily housing provider in aggregate or from individual tenants. See **Policy 1.3.1, *Documenting Income Eligibility***.

3. **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.

Weatherization Policy

Replaces: Policy 1.6 – July 2013

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

POLICY 2.1.3 INELIGIBLE RESIDENCES AND EXCEPTIONS

1. No owner-occupied residence shall be weatherized if it is for sale.
2. 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. 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 must have prior written approval from Commerce.

4. Reweathering is the lowest priority. Local agencies are expected to weatherize new projects and not revisit homes previously weatherized. Justification for reweatherization must be documented in the client files and WIDS notes.
5. Fund Restrictions and Exceptions
 - a. DOE Restrictions
 - (1) No 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 dwelling unit was weatherized prior to September 30, 1994. Each dwelling unit weatherized prior to September 30, 1994 must receive a new energy audit, which takes into account any previous energy conservation improvements to the dwelling.

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

- (2) No funds will be used to improve the value of units designated for acquisition or clearance by a federal, state, or local program within 12 months from the date weatherization of the dwelling unit would be scheduled for completion.

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) BPA funds may be used to provide additional cost-effective weatherization *on electrically heated homes*.
- (2) LIHEAP and Matchmaker may be used to provide additional cost-effective weatherization.

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 must 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

Weatherization Policy

See also:

Replaces: Policy 2.1.5 - July 2016

[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 must make every effort to use those funds before local agencies can consider weatherizing their units with funds from Commerce. Applicants must document the lack of funds, which will be included in the client files.
- (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.

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 must 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 MM Program.
3. **Noncompliance:** Failure to comply with this law will result in disallowed costs.
4. **Documenting Historic Weatherization Properties:** Local agencies must 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 must include a copy of **Exhibit 2.1.6B, Historic Preservation Checklist** and the following DAHP Compliance Documents in the client 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.

Weatherization Policy

Replaces: Policy 1.10 – February 8, 2016

See also:
[10 CFR 440.19 \(f\)\(2\)](#)

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 must be documented in the client files and WIDS notes.

2. Determining Previously Weatherized Units

Local agencies must 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 must complete all the following:

- a. Look for evidence of previous weatherization as part of the Energy Audit Pre-Assessment (See Policy 5.2.2), 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 Restrictions

(1) No DOE funds must 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 dwelling unit was weatherized prior to September 30, 1994. Each dwelling unit weatherized prior to September 30, 1994 must receive a new energy audit, which takes into account any previous energy conservation improvements to the dwelling.

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

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) BPA funds may be used to provide additional cost-effective weatherization *on electrically heated homes*.
- (2) LIHEAP and Matchmaker may be used to provide additional cost-effective weatherization.

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 Commitment:** 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 improvements:** 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.

Weatherization Policy

Replaces: Section 2.2.1 – July 2016

See also:
[LIHEAP Intake](#)

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

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 verification of residence. See **Policy 5.1.2, *Wx Project Documentation*** for requirements.

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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)

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CHAPTER 4

COMPLAINTS AND DISPUTE RESOLUTION

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 must 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 must 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 must 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 must:
 - 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 must 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**.

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CHAPTER 5

PROVIDING WEATHERIZATION SERVICES

Weatherization Policy

See also:

[Field Guide Retrofitting Washington](#)
[Guidelines for Home Energy Professionals 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 July 2016

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 [Field Guide Retrofitting Washington](#) (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](#) are reference for any work the Wx Field Guide does 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 multifamily weatherization project shall include the following Weatherization Services at a minimum:
 - Energy audit,
 - A complete visual assessment,
 - 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,
 - 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 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 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.
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 or 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. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.

Weatherization Policy

See also:

[Field Guide, *Retrofitting Washington*](#)
[Guidelines for Home Energy Professionals *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 July 2016

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 Weatherization **Field Guide, *Retrofitting Washington*** (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 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 assessment,
 - 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,
 - 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, must be eliminated. Any hazards created as a result of installing weatherization materials must 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 must 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 client 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) must be in the client or 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. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.

Weatherization Policy

See also:

[10 CFR 440.18 Allowable expenditures](#)
[Appendix A - 10 CFR 440, Standards for Weatherization Materials](#)
[DOE Program Guidance](#)
[Policies and Procedures - Table of Contents](#)

Replaces: Policy 5.1.2 – July 2017

POLICY 5.1.2 WEATHERIZATION PROJECT DOCUMENTATION

1. **Documenting Weatherization Projects:** Local agency shall document Weatherization (Wx) Projects in Single-family client files and Multifamily project files. 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.
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 files (project files) 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/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 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. **Reweatherization:** Previous weatherization, including date(s) work performed and installed weatherization measures. See **Policy 2.1.7, *Reweatherizing***.
10. **Documenting Phasing:** In Multifamily projects when a 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. Local agency shall retain a signed copy of **Exhibit 5.1.4A, *Client Education Checklist*** in the client file. The Client Education Checklist shall provide required documentation as follows:
 - a. Written Client Education provided, including notation of booklets attached,
 - b. Verbal Client Education, *as noted by Auditor, Client Educator, Inspector*.
 - c. Client's Informed Consent, with client signatures prior and after Wx project, and
 - d. 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:
 - (1) Conditioned floor area
 - (2) Type of dwelling
 - (3) Existing levels of insulation
 - (4) Heating/Air-Conditioning System, type and condition
 - (5) Water Heater System, type and condition
 - (6) Existing Hazards List: List of health and safety hazards identified prior to the installation of weatherization materials.
 - (7) Other necessary information to support any measures installed using an approved Priority List or TREAT.
13. **Energy Audit:** See **Policy 5.2.1-SF, *Energy Audit*** and **Policy 5.2.1-MF, *Multifamily Energy Audit***. Client files (project files) shall include the following documentation, as applicable:
 - a. **Photographic Record:** A minimum of two (2) photographs of dwelling's exterior elevation to capture the essence and condition of the building.

- 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 the Priority List (PL Calc).
 - (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 the Priority List (PL Calc).
 - (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. **Priority List Projects:** Local agencies shall document each Priority List Wx project in the client file with the Priority List used or a Priority List Calculation (PL Calc) spreadsheet.
 - (1) Electronic PL Calc spreadsheet shall be retained.
- e. **TREAT Wx Projects:** Local agencies shall document each TREAT Wx project in the client file with the TREAT computer file (*.tpg).
 - (1) Electronic TREAT computer files shall be retained.
 - (2) All documentation supporting 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.

- 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.
 - (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 5.3.1A, Combustion Safety Test Report** shall be filled out for each combustion appliance and be present in the client file.
 - (2) Include In-Progress CAZ Testing: An **Exhibit 5.3.1A(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.

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 Client files (project files) 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.
- (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 including: The occupant and owner signed statement acknowledging receipt of the information. A signed statement and the pre-weatherization mold report shall be retained in the client file.

- (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. See **Exhibit 5.S1, *Mold Assessment and Release Form example***. 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 the owner and occupant(s) that they received the EPA booklet.
- 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.S2A, *Pollution Source Survey***.
 - (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.

1. Lead-Based Paint – See Policy 9.8, *Lead-Based Paint*

- (1) **Lead Documentation:** Local agency shall document in the client file all of the following that apply:
- (a) **Presumed Lead: Exhibit 9.8B, *Test Kit Documentation Form***, or equivalent 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***, or equivalent 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 17-7).
- (2) **Lead Awareness:** Confirmation Local agency provided prior to the Weatherization Project start, lead information to all clients. 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 must be included with the notice and documented in the client file.
 - ii. **Notification:** Local agencies shall secure written acknowledgement that the owner and occupants have received notification.
 - (b) **Lead Conditions:** See **Exhibit 9.8A, *Pre-Renovation Form***.
 - (c) **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 information was received is required.

Exception: If local agencies are unable to secure written acknowledgement from owner and an adult occupant, 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:

- (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 <https://www.epa.gov/asbestos/protect-your-family>.
- (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**. 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'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 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***.

POLICY 5.1.2.1 CERTIFICATION OF INSULATION

A. Policy

1. Local agencies must complete a certificate of insulation form for each dwelling unit that receives ceiling, wall, floor, perimeter, or duct insulation. See [Exhibit 5.1.8A, Certificate of Insulation](#)
2. The certificate of insulation shall contain the following 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 empty bag with chart)
 - h. Number of bags installed in accordance with manufacturer specifications
3. The certificate 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.
4. **Posting of certificate**

Upon completion of the installation of the insulation, the completed Certificate of Insulation shall be posted in the interior of the area insulated in a location nearby, and visible, from the access to the area. A copy of the certificate shall also be kept in the client file of the Local Agency.

Exception: If the Certificate of Insulation 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 certificate posting location in client file.
5. **Posting empty bag/wrapper**

Upon completion of the installation of the insulation, the Local Agency or Subcontractor shall post near the Certificate of Insulation an empty bag or wrapper from the insulating material that was installed.

6. Delivery of certificate

The completed certificate shall be kept in the permanent file of the Local Agency. A copy of the certificate will also be given to the client.

B. Procedure**1. Programmatic**

- a. Local agencies must give the homeowner the original certificate, place a copy in the agency file, and post a copy in the attic or crawl space of the dwelling unit as appropriate.
- b. See [Exhibit 5.1.8A, Certificate of Insulation](#).

2. Required Installation Standards and Materials Specifications

See **Field Guide, *Retrofitting Washington***

3. Best Practices

Not applicable.

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*](#).

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 must 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.

Weatherization Policy

See also:

[Weatherization Program Notice \(WPN\) 17-7 Weatherization Health and Safety Guidance](#)[Wx Manual Table of Contents](#)[Exhibit 5.1.4A, Client Education Checklist](#)www.epa.govEPA 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 – July 2017

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.
 - b. The level of required written and verbal client education the Local Agency provides to clients is defined by Department of Energy. See ***Weatherization Program Notice (WPN) 17-7*** 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 owner's (owner's agent) signature, client signature, or both signatures as applicable to confirm Informed Consent. See **Policy 5.1.2, Weatherization Project Documentation** for documentation requirements. See measure topic sections (below) for more information. The following Informed Consent Signatures are required prior to the Weatherization (Wx) project start:

- (a) Mold
- (b) Lead
- (c) Radon
- (d) Local agency (Auditor or Client Educator provider) signature confirmation

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. Links to online information and official booklets will meet the requirement to provide 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.

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 agency shall provide the following Wx related information and a copy of **Exhibit 5.1.4A, Client Education Checklist:**
- 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. 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:
 - (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.S1, *Mold Assessment and Release Form example*** for more information.

- (3) **EPA booklet, *A Brief Guide to Mold, Moisture, and Your Home*:** In dwelling units where mold conditions are identified, the Local agency shall give to 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 information was received 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.S2A, *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. 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 must be included with the notice.
 - (b) **Notification:** Notification by certified mail must 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 work performed.
 - (2) **Lead Conditions:** See **Exhibit 9.8A, *Pre-Renovation Form***.
 - (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 information was received is required.
- l. **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:
- (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*** 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 information was received 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.

POLICY 5.1.5 LOW-COST/NO-COST**A. Policy**

1. The purchase and installation of Low-cost/No-cost energy conservation measures is allowable.

Exception: No DOE funds may be used to install low-cost/no-cost materials.

2. During the Pre-Assessment, as part of the Consumer Conservation Education, or for a Deferred Wx project the following are considered Low-cost/No-cost measures and may be given to the client.

- a. Water flow restrictors.

- (1) Low-flow Showerheads

- (2) Low-flow Faucet Aerators

- b. Furnace or cooling filters, up to one-year supply.

- c. Items that are primarily directed at reducing infiltration, such as weather-stripping, caulking, and glass repairs.

- d. Brochures and other written information concerning the potential savings from installation of Low-cost/No-cost measures.

- e. Compact fluorescent light bulbs.

- f. Water Heater Temperature. See [Policy 5.7.1, Water Heaters](#)

3. As Low-cost/No-cost items, these measures are not classified as Wx Measures (WxM). If a local agency includes any of the above measures in the project work scope as WxM after conducting an energy audit and applying either the appropriate Priority Measures List or TREAT, the agency must install those measures.

4. Low-Cost/No-Cost Weatherization Activities

- a. Low-cost/no-cost 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 to perform low-cost/no-cost weatherization in eligible dwelling units.

- (2) Low-cost/no-cost measures include installation of water-flow controllers, furnace or cooling filters, or items that are primarily directed toward reducing air infiltration (weather-stripping, caulking, and glass patching, etc.).

- b. Units that receive only low-cost/no-cost services may not be counted as completed units in the Weatherization Information Data System (WIDS).
- c. DOE-Specific Limits and Exclusions
 - (1) Under DOE, low-cost/no-cost materials are limited to \$50 per dwelling unit. There is no per dwelling unit limit for HHS, BPA and MM.
 - (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.

Weatherization Policy

See also:

Replaces: Section 5.1.6 – July 2015

[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 must 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 must 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 must meet funder’s requirements
 - (1) For Blended Measures, LAs must justify measures in accordance with Commerce contracts and policy.
 - (2) For Utility Measures, LAs must 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

Weatherization Policy

See also:

[Policy – Policies and Procedures Table of Contents](#)
[Exhibits – Supporting Documents Table of Contents](#)
[Field Guide, Retrofitting Washington](#)

Replaces: Policy 5.2.1 – October 20, 2016

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 either 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 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 use both on a single Wx project.
 - (1) Priority List. See **Policy 5.2.4, *Priority List***
 - (2) TREAT. See **Policy 5.2.5, *Targeted Residential Energy Analysis Tool (TREAT)***
 - 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***
 - 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***
 - 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.S2A, *Pollution Source Survey*** and **Exhibit 5.S2B, *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.

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. 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. 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:** Local Agency shall record the condition of the dwelling by taking a minimum of two (2) electronic or printed photographs of the dwelling's exterior elevation that capture the essence of the dwelling. These photographs shall be dated and retained. These photos, or their location, shall be documented in the client file.

Allowable Costs

Home energy audits are an allowable cost under DOE, HHS, BPA, and MM funds. 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.

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.S2A, Pollution Source Survey](#)
[Exhibit 5.S2B, Resource Guide to Pollution Source Survey Home Rating Scale](#)
[Multifamily Table of Contents](#)
[Field Guide, Retrofitting Washington](#)

Replaces: Policy 5.2.1 and Section 4-MF – July 2014

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 must 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.S2A, Pollution Source Survey** and **Exhibit 5.S2B, Resource Guide to Pollution Source Survey Home Rating Scale.**

- (3) **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. 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, Leveraging 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. 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:** Local Agency shall record the condition of the dwelling by taking a minimum of two (2) electronic or printed photographs of the dwelling's exterior elevation that capture the essence of the dwelling. These photographs shall be dated and retained. These photos, or their location, shall be documented in the client file.
- 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

Weatherization Policy

See also:

[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](#)[Variance #12 – SWS 3.1001.9h-3.1201.7h-and-3.1201.8h](#)[Variance #17 – SWS 5.3003.3](#)[Variance #19 – SWS 6.6201.2a](#)

Replaces: Policy 5.2.3 - July 2015

POLICY 5.2.3-SF DIAGNOSTIC TESTING

1. The Local Agency must perform diagnostic testing on all dwelling units prior to installation of weatherization measures and upon completion of each project. An **Exhibit 5.S3, Diagnostic Test Report** must be filled out and be present in the client file.

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.

- a. **Single point blower door test:** The Local Agency must 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. Results of pre- and post-weatherization blower door testing must be documented in the client file.

Exception: Multifamily dwellings five units and greater do not require blower door testing. Blower door testing may be beneficial in low-rise (3 stories or fewer), buildings with 25 units or less, and units with doors to the outside (garden apartments).

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.

- (1) **Location:** The Local Agency must install the blower door in a doorway that provides for the most accurate test. The location of the doorway where the tests are taken must be documented in the client file.

- (2) **Baseline data:** The Local Agency must document baseline information, such as wind speed, temperature, etc., using a diagnostic test report. See **Exhibit 5.S3, *Diagnostic Test Report***.
- b. **Zonal pressure testing:** The Local Agency must perform zonal pressure testing in all zones (attics, crawlspaces, garages, unconditioned crawlspaces, etc.) with more than 50 sq. ft. of common surface with the intended thermal boundary of the dwelling. The test must be performed prior to the installation of weatherization measures that alter the shell of the dwelling. Zonal pressures must be recorded with reference to (WRT) the living space of the home. Post zonal pressure testing must be done before the installation of attic or crawlspace ventilation. Pre- and post-zonal pressure measurements must be documented in the client file.
- (1) **Duct system testing:** The Local Agency must perform pressure pan (or pressure block) testing of all forced air duct systems. Duct system standard for tightness is 1pa or less at each supply register. The standard for return plenums is 5pa or less. See **Policy 5.6.1, Heating and Cooling Ducts**. Post testing of ducts in enclosed cavities, such as wall bays, dropped ceilings, floor joists, mobile home bellies, etc., must be performed prior to insulating those cavities. Pre- and post-duct pressure pan measurements must be recorded in the client file.
- Exceptions:***
- (a) 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.
- (b) 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.
- (c) If asbestos tape is observed inside the duct, no diagnostic testing must be performed prior to encapsulation.
- c. **Dominant duct leak testing:** The Local Agency must perform dominant duct leakage testing on all homes with ducted forced air heating distribution systems when any part of the system is located outside the thermal and pressure boundary. Dominant duct leakage testing must be performed on mobile homes. Pre- and post-dominant duct leakage measurements may be recorded in the client file. Standard for dominant duct leakage is no more than 1.5pa or 100cfm of leakage to outside.

- d. **Room-to room pressure differential testing:** The Local Agency must test and record the pressure differential between rooms with supply, return, or both ducts and the main body of the dwelling. Pressure differentials of more than 5pa must be corrected. Pre- and post-pressure differential measurements must be recorded in the client file.

Variance #19: DOE granted a variance from SWS Section 6.6201.2a Room Pressure Testing allowing: WA Standard which for existing systems requires mitigation of excess room pressures when they cause combustion appliances to exceed CAZ depressurization limits and when room pressure imbalance exceeds 5pa,. For new systems installed, WA must conform to the stricter 3pa limit.

2. **Mechanical Ventilation:** See **Policy 9.3, Indoor Air Quality – Mechanical Ventilation** and **Policy 5.6.2, Mechanical Ventilation Ducts**
3. **Diagnostic testing equipment:** The Local Agency must:
 - a. Use a digital manometer to perform all pressure diagnostic testing measurements.
 - b. Have blower door(s) maintained and digital manometer(s) calibrated as recommended by the manufacturer.
 - c. Keep on file a record of maintenance and calibration for all diagnostic equipment.

Weatherization Policy

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

Weatherization Policy

See also:

[Exhibit 5.1A\(1\), PL CALC – Site Built](#)[Exhibit 5.1A\(2\), PL CALC – Mobile Homes](#)[Exhibit 5.1\(A3\), Climate Zone Map and Tables](#)[Exhibit 5.1A\(4\), Priority Lists](#)[Exhibit 5.1A\(6\), Statewide Average Costs](#)[Exhibit 5.1B, WxM Ancillary Items, WRR, and H&S](#)[Policy 5.2.5, Targeted Residential Energy Analysis Tool \(TREAT\)](#)

Replaces: Policy 5.2.4 July 2017

POLICY 5.2.4-SF PRIORITY LIST (PL)

1. Using Priority Lists:

DOE approved Priority Lists (PLs) for use on site built dwellings (single-family (one, one and one-half, and two story site built buildings)) and mobile home dwellings (single- and double-wide). See **Exhibit 5.1A(4), Priority Lists**.

- a. Local Agencies must determine the applicable PL for each Wx project: climate zone, building type, heating type, and building configuration.
- b. Local Agencies must implement Priority List Weatherization Measures (PL WxM) in the order in which they are listed on the applicable PL.
- c. The total Weatherization-Related Repairs (WRR) costs of a Wx project must not exceed the cumulative WxM costs.

To calculate the Wx project WRR allowance, for each WxM, add the lesser of either the WxM cost (WxM\$) or the calculation ((WxM\$ x WxM SIR) – WxM\$).

$$\begin{aligned} \text{WRR allowance} = & [\text{the lesser of } WxM_1\$ \text{ or } ((WxM_1\$ \times WxM_1\text{SIR}) - WxM_1\$)] \\ & + [\text{the lesser of } WxM_2\$ \text{ or } ((WxM_2\$ \times WxM_2\text{SIR}) - WxM_2\$)] \\ & + [\text{the lesser of } WxM_3\$ \text{ or } ((WxM_3\$ \times WxM_3\text{SIR}) - WxM_3\$)] + \dots \end{aligned}$$

- d. Local agencies must use leveraged funds or the WRR allowance to bring the Air Sealing SIR to 1.0 or greater, for climate zone 1, gas heated mobile homes, (i.e. Z1GS and Z1GD).

2. Using Priority List Calculation Sheet:

Local agencies may use the Priority List Calculation Sheet (PL CALC) instead of the PLs to determine the PL WxM and to calculate the WRR allowance and leveraged funds. See **Exhibit 5.1A(1), PL CALC – Site Built** and **Exhibit 5.1A(2), PL CALC – Mobile Homes**

- a. Each individual PL WxM and the total package must have an SIR ≥ 1.0 .

- b. Local Agencies must implement Priority List Weatherization Measures (PL WxM) in descending SIR order as listed on the Outputs tab.
- c. The total Weatherization-Related Repairs (WRR) costs of Wx project must not exceed the Total Package, Allowable WRR Cost Pool calculated in PL CALC.
- d. Leveraged funds may be used to reduce weatherization fund source investments in order to bring the SIR to 1.0 or greater.
- e. The percent gaps for wall insulation is the empty wall cavity percentage of the total wall cavity area that could be insulated. The total wall cavity area does not include windows or framing.

3. **Skipping PL WxM is Prohibited:**

Local agencies must not skip eligible and allowable PL WxM.

Exceptions:

- a. The existing condition(s) in the home meets or exceeds the PL WxM.
- b. The specific PL WxM presumed existing condition (See #5c) does not match the actual existing condition(s) in the home and does not apply.
- c. The Wx project is implementing another PL option for that PL WxM.

4. **Stopping Point of PL:**

If the local agency does not implement a listed WxM for reasons other than the above exceptions, no additional WxM listed lower on the PL can be implemented using the PL as justification.

5. **Requiring the Alternative Energy Audit - TREAT:** Local agencies must use TREAT instead of the PL if any of the following apply:

- a. **Non PL WxM:** To install measures not included in the PL 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 PL will result in disallowed costs.
- b. **Inaccessible WxM:** If a local agency is unable to install a measure because it is not accessible, no additional WxM listed lower on the PL can be implemented using the PL as justification. To perform a complete Wx project and install more measures listed lower on the PL than the inaccessible measure, the local agency must use TREAT to justify the Wx project.

- c. **Client Refusal:** If a client declines a WxM above the Air Sealing or Duct Sealing on the PL, the local agency must use TREAT to justify the Wx project.
- d. **Presumed Existing Conditions:** If the actual existing condition in the home does not match any of the available PL WxM presumed existing condition(s) and skipping that PL WxM would not result in a quality Wx project.

The following are the presumed existing condition(s), required final insulation levels, clarifications, and exceptions for specific PL WxM:

- (1) **Sloped Ceiling Insulation:** The PL WxM assumes existing R-0 cathedral ceiling insulation.
- (2) **Knee Wall Insulation:** The PL WxM assumes existing R-0 knee-wall insulation.
- (3) **Duct Insulation:** The PL WxM assumes existing R-0 duct insulation and a final insulation level of R-19.

Exception: If it is not possible to insulate ducts to R-19, it is acceptable to insulate ducts to R-11. Document the reasons in the client file.

- (4) **Ductless Heat Pump:** This PL WxM assumes existing electric resistance heating.
- (5) **90%+ Natural Gas Furnace:** This PL WxM assumes an existing 70% Natural Gas Furnace.
- (6) **Water Pipe Insulation:** This PL WxM assumes an existing R-0 pipe insulation and a final insulation level of R-3. It applies to both hot and cold water pipes. It applies to the first six feet of water pipe from the water heater and the house distribution water piping.
- (7) **Water Heater Insulation:** This PL WxM assumes an existing R-0 water heater insulation and a final insulation level of R-11.

Exception: Do not insulate any water heater with a label that prohibits insulation. Document the reasons in the client file.

- e. **Other WxM:** To install measures not specifically permitted 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.

6. Using Wx Costs:

Local agencies must calculate and maintain their Wx costs for materials and labor (including any applicable prevailing wage rates), for use in the Priority List auditing process, PL CALC.

- a. PL WxM include ancillary items and their costs. See **Exhibit 5.1B, WxM Ancillary Items, WRR, and H&S**

Exception: Local agencies may use the statewide average costs for materials and labor. See **Exhibit 5.1A(6), Statewide Average Costs**.

7. Ensuring Quality Wx Projects:

Local agencies must ensure each home's scope of work results in quality cost-effective energy efficiency choices.

- a. Local agencies must implement the most energy efficient option possible when more than one PL option for the WxM is available (e.g. Choose Attic insulation: Add R-49 (R-0->R-49), instead of Add R-38 (R-0->R-38), if the attic framing will accommodate R-49).
- b. **Air Sealing:** All Wx Projects must include Air Sealing: Priority air sealing and Blower Door guided cost-effective air sealing.

Exceptions: Air Sealing can be limited by

- (1) The cost-effectiveness guideline,
- (2) If it creates a CAZ issue, or
- (3) If there is an ACM issue.

- c. **Duct Sealing:** All Wx Projects must include Duct Sealing.

8. Documenting PL Wx Projects

Local agencies must document each PL Wx project in the client file with either PL CALC or other documentation.

9. Installing WxM

Local agencies must install WxM in the order dictated by workflow.

Weatherization Policy

Replaces: Policy 5.2.5 – July 2016

See also:
[Policy 5.2.4-SF, Priority List \(PL\)](#)
[Exhibit 5.1B, WxM Ancillary Items, WRR, and H&S](#)

POLICY 5.2.5 TARGETED RESIDENTIAL ENERGY ANALYSIS TOOL (TREAT)

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

TREAT (Targeted Residential Energy Analysis Tools) is the authorized Weatherization (Wx) Program energy audit tool. It is required for analysis of any type of measure, or dwelling unit, not specifically covered by a DOE approved Washington State Low-Income Weatherization Program Priority List. See **Policy 5.2.4, Priority List**

Wx Projects with Weatherization Measures (WxM) not included in the Priority List or specifically permitted by policy, will 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 Priority List, or by other policy, will result in disallowed costs.

2. Using Wx Costs:

Local agencies shall calculate and maintain their Wx costs for materials, labor (including any applicable prevailing wage rates), and fuels annually, for use in the TREAT auditing process.

- a. Weatherization Measures (WxM) include ancillary items and their costs. See **Exhibit 5.1B, WxM Ancillary Items, WRR, and H&S**

3. Ensuring TREAT Proficiency:

Local agencies are responsible for ensuring that all staff performing computerized energy audits acquire and maintain proficiency using TREAT.

4. Developing Scope of Work:

Local agencies shall use TREAT to develop a scope of work.

Exception: Use of the Priority List. See **Policy 5.2.4, Priority List**

5. Assessing Potential Wx Measures:

Local agencies shall include and improve the energy efficiency for the following Wx Measures in their TREAT model(s):

- a. Air Sealing
- b. Ceiling Insulation
- c. Wall Insulation
- d. Floor Insulation
- e. Windows and Doors
- f. Heating and Cooling Systems
- g. Duct Sealing
- h. Duct Insulation
- i. Water Heater
- j. Water Pipe
- k. Refrigerator
- l. Lighting
- m. Showerheads
- n. Faucet Aerators

Exception: Clients may decline a Wx Measure. The Local Agency shall re-run their improvements TREAT model without the Wx Measure declined. Client refusal shall be documented in the client file.

6. Implementing WxM in Cost-Effectiveness Descending Order:

Local agencies shall implement the most cost-effective measures as determined by TREAT in descending order of cost-effectiveness, subject to funding availability.

7. 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 ($SIR \geq 1$).
- Exceptions:** A WxM with a $SIR \geq 1$ can be deferred if the
- (1) Local agency does not have adequate funding to install the measure, or
 - (2) Client refuses measure
- b. Within TREAT, on the “Package Wizard” screen, the individual Wx Measures and the total package of measures shall each have a $SIR \geq 1$.
 - 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.

8. Using Leveraged Funds:

Leveraged funds may be used to reduce weatherization fund source investments in order to bring the $SIR \geq 1$.

9. Justifying Weatherization-Related Repairs:

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.

Local agencies shall account for WRR costs by describing them as “**visual inspections**” in TREAT. Add WRR costs as “**improvements**” into a TREAT package. Such improvements will generate individual SIRs in TREAT as “**N/C**” (not calculated) or 0.

- a. On the “Package Wizard” screen:
 - (1) Each WxM within the TREAT package shall have an individual $SIR \geq 1$, and
 - (2) The TREAT package (including the WRR costs) shall have a package $SIR \geq 1$.

Exception: An alternate method to account for WRR cost is to simply add the WRR cost to the related WxM. On the “**Package Wizard**” screen, if the individual $SIR \geq 1$ and the package $SIR \geq 1$, then the project qualifies for implementation economically.

10. Maintaining TREAT (Computerized Energy Audit):

Local agencies shall maintain and use the most current version (including updates) of TREAT software.

11. 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 client 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 Wx Measures 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.

- e. **Thermostat Setting:** Use actual verified set points and occupancy data. If actual data cannot be verified, standard occupied temperature of 70 degrees F and unoccupied temperature of 60 degrees F (includes sleep) shall be used. Standard number of occupied hours is 16 per day.
- 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 the following Measure Life defaults:

Measure	Measure Lives	
	Mobile Homes	Site Built
Air Sealing	25	45
Ceiling Insulation	25	45
Floor Insulation	25	25
Wall Insulation	25	45
Rigid Insulation	25	45
<i>Steel Doors</i>	15	15
<i>Mobile Home Doors</i>	15	N/A
Rim Joist Insulation	N/A	45
<i>Windows</i>	20	20
<i>Storm Windows</i>	15	15
Lighting	10	10
Water Heater	15	15
Duct Sealing	15	20
<i>Duct Insulation</i>	15	20
Refrigerators	15	15
<i>Furnace Replacement</i>	15	20
Ductless Heat Pump	20	20
Ducted Heat Pump	20	20
<i>Shower Heads</i>	15	15

- j. **Fans:** Include all building mechanical airflow.
- k. **Base-load:** 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. It is strongly recommended, but not required.

12. **Documentation:** The Local Agency shall document all TREAT requirements. See **Policy 5.1.2, Weatherization Project Documentation** for requirements.

13. **Installing WxM:** Local agencies shall install WxM in the order dictated by workflow.

Weatherization Policy

See also:

[Weatherization Program Notice \(WPN\) 17-7 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:

Sample Dwelling Unit Rate 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.

Weatherization Policy

Replaces: Policy 5.3.1 – July 2015

See also:
[Standard Work Specifications \(SWS\)](#)

POLICY 5.3.1-SF AIR SEALING – STAND-ALONE BUILDINGS

1. **Effective Air Sealing:** Local agencies shall perform air sealing where and when it is determined by a weatherization audit to be effective based on one of the following considerations:
 - 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. Health – Improve Indoor Air Quality with **ASHRAE Standard 62.2-2016** compliance for dwelling units.
 - c. Safety
 - d. Building durability
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**

Priority air sealing shall be performed, and shall include air sealing of all large holes, including obvious bypasses, chase ways, and gaps that exist between the unconditioned areas and the conditioned areas.
4. **Determining cost-effectiveness for Stand-Alone Buildings**

Each agency will establish a cost-effectiveness guideline. This guideline will reflect the cost to achieve a 100CFM50 reduction as a result of air sealing. Air sealing shall continue until the additional costs of air sealing cannot be justified in terms of the energy savings it will produce. A savings-to-investment ratio (SIR) of one or greater shall be used when determining the cost-effectiveness of air sealing. Documentation of the air sealing time and efforts must be present in the client file. After all air sealing in an attic/ceiling addressing health, safety and durability issues is complete, then air sealing should continue until it is determined that further work is not cost-effective. Reference materials for establishing a cost-effectiveness guideline can be found in *Residential Energy* by John Krigger, *Appendix A-12, Air Sealing Economic Limits*.

5. Use of pressure diagnostics and blower door

The Local Agency shall perform a pre- and post-retrofit blower door test on all homes. Blower-door guided air sealing shall be used to assist in determining appropriate air sealing measures. Pre- and post-blower door test results (CFM50) shall be recorded in the client file.

6. 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.

- 7. 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 MM funds. Air sealing must 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 must be electrically heated in BPA service territory.

Weatherization Policy

Replaces: Policy 5.3.1 – July 2015

See also:
[Policy 1.4.2, Leveraging 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 where and when it is determined by a weatherization audit to be effective based on one of the following considerations:
 - 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. Health – Improve Indoor Air Quality with **ASHRAE Standard 62.2-2016** compliance for dwelling units. Also, **ASHRAE Standard 62.1-2016** is recommended for common areas.
 - c. Safety
 - d. Building durability
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, Leveraging Owner Contributions** for more information.
- (b) **Local Agency:** If the firewall/draft stop will be damaged or is accidentally damaged during weatherization work then 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.

Weatherization Policy

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](#)

Replaces: Policy 5.4.1 - October 20, 2016

POLICY 5.4.1 GENERAL INSULATION REQUIREMENTS

1. **Insulation:** Insulation must be installed in accordance with manufacturer specifications to prescribed R-values.
2. **Installation standard:**
 - a. Dense pack insulation must be installed as follows:
 - (1) Cellulose insulation used in an enclosed cavity must 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 must 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 must be installed as follows:
 - (1) In contact with the sheathing with no voids or gaps.
 - (2) Insulation batts must not be overly compressed.

Exceptions:

- (a) For use in the Priority List or PL CALC 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 must be cut to fit each joist space.
 - (4) All ends must fit tight without overlapping.
 - (5) Insulation must fit tight against structural members, rim joist, foundation walls and pipes.
 - (6) Insulation in open cavities, such as knee walls, must be supported by stringing, housewrap, or other approved material.
3. **Vapor barrier:** Any vapor barrier that is installed in the building envelope must 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 must 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 must 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 must 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 must 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.**

Weatherization Policy

See also:

[Variance #8 – SWS 2.0601.1c & d and 4.1001.2c](#)[Variance #9 – SWS 2.0602.2d](#)[Variance #12 – SWS 3.1001.9h, 3.1201.7h, and 3.1201.8h](#)[Variance #23 – SWS 7.8003.14b](#)

Replaces: Policy 5.4.2 – July 2016

POLICY 5.4.2 ATTIC INSULATION

1. **Insulate Attics/Ceilings:** Local agencies must 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 must 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 must be replaced with Energy Star compliant 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 must 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.

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.

Weatherization Policy

Replaces: Policy 5.4.3 - July 2015

See also:
[Variance #12 – SWS 3.1001.9h-3.1201.7h-and-3.1201.8h](#)
[Policy 9.9, Asbestos](#)
[Policy 9.8, Lead-Based Paint](#)

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.
- 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 MM funds. The measure must 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 must be electrically heated in BPA service territory.

B. Procedure

1. Programmatic

- a. Client files must 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 must give the homeowner the original certificate of insulation and post a copy in the attic or crawl space of the dwelling unit as appropriate.
- c. See [Exhibit 5.1A\(4\), Priority Lists](#).
- d. See [Section 5.1.2.1, Certification of Insulation](#).
- e. See [Exhibit 5.1.8A, Certificate of Insulation](#).
- f. See [Chapter 6, Allowable Costs](#).

2. Required Installation Standards and Materials Specifications

See [Field Guide, Retrofitting Washington](#)

Weatherization Policy

Replaces: 5.4.4- July 2016

See also:

[Exhibit 5.4.4, Floor Support Matrix](#)

[Variance #12 – SWS 3.1001.9h, 3.1201.7h, and 3.12018h](#)

POLICY 5.4.4 FLOOR INSULATION

1. **Insulating Floors for Energy Efficiency:** Floors over unconditioned crawlspaces and basements must 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.

Exceptions:

- a. Work in areas with less than 18-inch clearance may be waived.
- b. Floor contains knob-and-tube wiring that cannot be certified safe by a licensed electrician or inspector as defined in RCW 19.28.070.
- c. 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.
- d. The sub-floor, floor or structural members are wet, rotten or unsound and the problem cannot be corrected with available repair funds.
- e. Insect or rodent infestation is present that cannot be eliminated prior to insulating.
- f. Extensive debris or household goods or personal belongings are present.

2. **Insulation support systems:**

- a. Floor Support Matrix:

The floor support matrix must be used to determine insulation support systems.

Exhibit 5.4.4, Floor Support Matrix

- b. Wire Hanger Method Prohibited:

The use of wire hangers or “tiger teeth” is not considered an acceptable method of support for underfloor insulation.

- c. Alternative insulation and methods of support for underfloor insulation:

Other insulation or support methods may be acceptable. They must be installed according to the manufacturer's recommendations and meet the SIR of 1.0 or greater. The Local Agency must notify Commerce field monitor prior to installation.

- 3. **Ground cover:** Ground cover moisture barrier must be installed in accordance with the following:

- a. Must be installed in a crawlspace when no ground cover exists or when an existing ground cover has been extensively damaged.
- b. All wood or other cellulose fiber-based debris, where practical, must be removed before new ground cover is put in place.
- c. The ground cover must be 6 mil black polyethylene, or its equivalent in perm-rating, strength, and resistance to soil-chemical degradation.
- d. All joints must be lapped a minimum of 12 inches.
- e. The poly cover must extend at least 6 inches up the foundation wall or pier blocks, but must not contact any wood members.
- f. New ground cover may be installed over existing ground cover that is deteriorated or incomplete.
- g. When existing ground cover is clear it must be covered with black.

Exception: When underfloor insulation is installed over an unconditioned basement and the basement has no exposed soil (has a concrete floor and walls), ground cover is not required.

- h. Ground moisture barrier will be fastened to ground with durable fasteners or ballast(s) to keep it in place.
- i. Whenever radon is present and crawlspace is sealed or heated, cover exposed dirt floors within the pressure/thermal boundary with 6 mil (or greater) polyethylene sheeting, lapped at least 12" and sealed with appropriate sealant at all seams, walls and penetrations.

4. Crawlspace access

- a. All crawlspaces must have an access. The minimum access opening size must be 18 x 24 inches.

Exception: Smaller access is allowable when dictated by existing framing.

- b. Exterior access

Exterior access to the crawlspace must have a cover or door that fills the opening, is tight fitting, and can be securely attached using hand-operable mechanical fasteners. Hand tightening fasteners, butterfly clips, or screws are acceptable. Nails must not be used to secure access covers to framing. Cover and framing material exposed to weather, or in contact with soil or concrete, must be pressure treated or cedar. Other types of wood may be used if they are primed and painted with exterior grade paint. Nails, screws, fasteners or other hardware used must be made of galvanized metal, stainless steel, or similar corrosion resistant material.

Recommendation: 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 must have a cover or door that fills the opening and is reasonably tight fitting. Horizontal access covers must provide structural support equivalent to that of $\frac{3}{4}$ inch plywood. Access covers adjacent to a conditioned space must be insulated to a minimum of R-19 for horizontal openings and to a minimum of R-11 for vertical openings. The insulation must be permanently attached to access covers. Interior access covers must be weather-stripped.

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.

5. **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 must not be exceeded.

- a. Closeable vents

Closeable vents are allowable.

b. Vent opening location

New vent openings must not be located within 12 inches of existing water pipes.

c. Vent screening and framing

All new and existing vents must be screened with ¼ inch corrosion resistant wire mesh, 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 must be pressure treated or cedar.

6. **Sealed crawlspace:** Converting a crawlspace with ventilation openings to a sealed crawlspace or “unvented crawlspace” is allowed if it meets all of the following:

- a. Allowed by the local authority having jurisdiction (i.e. building department),
- b. Meets all applicable codes, and (including, but not limited to *SWS* and *IRC R408.3*)
- c. SIR of 1 or greater, other than allowable Health and Safety components.

7. **Combustion appliances in sealed crawlspaces:** Combustion appliances must not be located in sealed crawlspaces.

Exception: Direct-vent, sealed-combustion appliances with powered exhaust may be located in a sealed crawlspace.

8. **Unconditioned basement/Crawlspace combination:** Unconditioned basement will be treated as an extension of a closed crawl space.

9. **Conditioned basement/Crawlspace combination:**

- a. Conditioned basement will be separated from a vented crawl space with a continuous air barrier, ground moisture barrier, and thermal boundary.
- b. Conditioned basement will be separated from a closed crawl space with a continuous air barrier and ground moisture barrier.
- c. Whenever site conditions permit, cover exposed dirt floors within the pressure/thermal boundary with 6 mil (or greater) polyethylene sheeting, lapped at least 12” and sealed with appropriate sealant at all seams, walls and penetrations.

10. **Rim joist area:** Rim Joist areas must be air sealed and insulated to R-11 or the highest level practical

11. Exterior perimeter insulation: When exterior perimeter insulation is installed the Local Agency or Subcontractor must follow the specifications detailed below.

a. Minimum R-Value for walls

Insulation installed must have a minimum thermal resistance of R-10.

b. Insulation installation

Insulation must be installed from the bottom edge of the siding to a depth equal to the local "frost line" (as determined from local building or water utility officials) or two feet below grade, whichever is greater.

Exception: Insulation must not be installed, nor excavation take place, below the level of any foundation footing.

c. Excavation in preparation for insulation

Prior to any excavation, the Local Agency or Subcontractor must reach an agreement with the client regarding protection or removal and replacement of any plants or other items which will be disturbed and damaged by the excavation. Any required excavations must be promptly backfilled after work is completed, and all plants or other items replaced in their original locations, unless released, in writing, from this obligation by the client.

d. Utility locating

The Contractor/installer must be responsible to locate, protect, and if damaged, repair any underground cables, pipes, utility lines or other obstructions during excavation.

e. Surface preparation and attachment of insulation

The foundation surface must be cleaned and prepared in accordance with the insulation manufacturer's recommendation. Insulation must be attached to the foundation according to manufacturer's specifications.

f. Protection and flashing of insulation

Insulation material must be protected and flashed to prevent water intrusion, rated for ground contact where required, and be acceptable to the owner. Above grade, the insulation must be covered with a suitable coating that matches adjacent walls (or previous foundation surface) in color and general surface appearance.

12. Interior perimeter insulation: When interior perimeter insulation is installed the Contractor/Installer must follow the specifications as detailed below.

a. Minimum R-Value

Insulation installed in existing unvented crawlspaces must fill existing cavity or have a minimum thermal resistance of R-10. Building alterations, including converted a vented crawlspace into an unvented crawlspace, must meet requirements of section 8.6 Sealed Crawlspaces and be insulated to R 21.

b. Insulation installation

Insulation must extend from the bottom surface of the subfloor to the top of the below-grade floor/ground and be installed to all manufacturer's specifications.

13. Cantilevered floors: Cantilevered floors must be insulated using one of the following methods.

a. Insulate 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. The thickness of the batt insulation must be thick enough to satisfy the requirement that insulation be in substantial contact with the underfloor. Air seal penetrations through sheathing or sub floor.

b. Insulate cantilever open under floor

Installer/Contractor must install insulation batt that is the full thickness of the floor joist from the exterior. A cover of 3/8 inch exterior grade sheathing or similar material must protect the insulation installed. If subjected to intermittent moisture (i.e. splashback, etc.), wood sheathing must be primed on all exposed sides or pressure treated plywood used. Air seal penetrations through sheathing or sub floor.

c. Insulate cantilever no access

Installer/Contractor must drill through existing interior or exterior cover, blow insulation into all joist cavities until full, plug holes using plugs and glue recommended for the surfaces being glued. Fiberglass insulation must be blown at a density of 1.5 pounds per cubic foot and cellulose insulation must be blown at a density of 3.5 pounds per cubic foot. Air seal penetrations through sheathing or sub floor.

14. Floor over attached garage:**a. No access**

Installer/Contractor must drill through existing interior or exterior cover, blow insulation into all joist cavities until full, plug holes using plugs and glue recommended for the surfaces being glued. Cellulose insulation must be blown at a density of 3.5 pounds per cubic foot. If the ceiling being drilled for access is drywall or plaster, the holes must be plugged and skim coated with joint compound ready for light sand.

b. Open joists

Underfloor insulation installed in open floor joists over a garage must 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 E84-01. See **Exhibit 5.S5, ASTM E 84, Flame Spread and Smoke Development.**

Weatherization Policy

See also:

[Variance #12 – SWS 3.1001.9h-3.1201.7h-and-3.1201.8h](#)[Policy 9.8. Lead-Based Paint](#)<http://www.nfrc.org/#tabs-nfrc-labels>[Exhibit 5.S10: Standards for Weatherization Materials.](#)

Replaces: Policy 5.4.5 – July 2016

POLICY 5.4.5 WINDOWS AND DOORS

1. Local agencies may repair or replace exterior windows and doors when the cost can be justified for any of the following reasons:

- a. Energy efficiency

The investment of Commerce administered weatherization funds (DOE, HHS, BPA, and MM) is justified using an evaluation of cost-effectiveness where the Savings-to-Investment Ratio (SIR) is 1.0 or greater. For DOE funding, this is the only allowable option window or door repair or replacement. (See Allowable Costs below)

- b. Health and safety

The condition is compromising the health and safety of the dwelling unit occupants. If the cost to replace windows and doors is less than the cost to repair, then they shall be replaced.

- c. 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.

- d. 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. If the cost to replace windows and doors is less than the cost to repair, then they shall be replaced.

- e. Leveraged funds (sources other than DOE, HHS, BPA, and MM) are available that will cover at least 75 percent of the cost of the windows and doors and their installation.

Examples of leveraged funds are property owner contributions, approved utility contributions, or HRRP funded measures.

f. Client comfort (window replacement only)

Specific windows that effect client comfort may be replaced. Written justification of need for each window must be in the client file. No more than two (2) windows may be replaced in a home for client comfort reasons.

- g. Jalousie windows in mobile or site-built homes may be replaced to bring air leakage down to the air sealing target after all other blower-door directed air sealing has been done. Do not automatically replace windows in bedrooms where the leakage around the window may be needed to provide proper ventilation.

Local agencies may split the cost for jalousie window replacement between air leakage reduction and an increase in thermal efficiency when running the calculations through TREAT.

***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.*

2. **Owner contributions:** Local agencies shall make an attempt to secure owner contributions if window and door repair and replacement are for rental units.
3. **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**
4. **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-nfrclabels|0>) 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) for cooling climates.
5. **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.

6. **Window Screens:** All replacement windows that are openable shall have a removable insect screen.
7. **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.

8. **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.

9. **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 12 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 square feet 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.

10. **Replacement glazing** Replacement glazing shall meet the specifications found in **Exhibit 5.S10, *Standards for Weatherization Materials***.

11. **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.

12. **Replacement door jambs:** Replacement doorjambs shall have a width that is no greater than the finished wall thickness, and not less than ¼ inch of the finished wall thickness.

13. **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.
14. **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.
15. **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.
16. **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 MM 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 must be electrically heated in BPA service territory.

Weatherization Policy

See also:

[10 CFR 440.21\(b\)\(c\)](#)
[10 CFR 440 Appendix A](#)
[Policy 5.5.7, Fuel Switching](#)

Replaces: Policy 5.5.1 - July 2016

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 safe, operable, permanently installed, and adequate heating system.
2. **Repairing Systems:** Local agencies may repair air conditioning and heating systems.
3. **Replacing Systems or Installing New:** Local agencies 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.
 - c. Absence of an operable air conditioning system in the home of an [At-Risk Occupant](#) where climate conditions warrant.
 - d. Absence of a permanent adequate heating system.
 - e. When an evaluation of cost-effectiveness determines the Savings-to-Investment Ratio (SIR) is 1.0 or greater.
 - f. Health and safety.
4. **Inspecting and Testing of Heating Systems:**
 - a. **Primary Systems:** Local agencies shall inspect and test the system(s) in each dwelling unit for safe operation prior to delivering weatherization services. Unsafe primary units shall be repaired, replaced and removed, or rendered inoperable, or deferral is required. The Local Agency shall document in the client file the condition of heating system prior to weatherization.

- b. **Secondary Systems:** Local agencies shall inspect secondary systems for safety, and document in the client file any hazards identified. Local agencies shall notify the client in writing, including recommendations for future use or non-use. Maintenance, modification, or replacement of secondary systems is ordinarily the responsibility of the building owner. Replacement or installation of secondary units is not allowed. Removing, disconnecting, or repairing the secondary system hazards is only allowable if necessary for health and safety or if the SIR is 1 or greater.

5. **Sizing Systems:**

- a. Local agencies or their subcontractors shall perform either Manual J or deemed equivalent (with Commerce prior written approval) heat load calculations. TREAT is deemed equivalent to Manual J. Local agencies shall document sizing calculations in the client file.
- b. To properly size equipment and install new systems, local agencies or subcontractors shall use the completed post-weatherization project in the sizing calculations.
- c. When sizing a new forced air furnace, local agencies or subcontractors shall not exceed 140% of the heat load calculations.

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.

6. **Replacing Systems in Rental Units**, other than low-income owned, also requires the following:

- a. Local agencies shall inform the owner of their legal responsibilities and liabilities under RCW 59.18.060.
- b. Local agencies shall work with the owner to make a contribution of at least 50 percent, since a new system is a capital improvement to the property.
 - (1) Owner may make either a cash or in-kind contribution. Contributions other than cash shall benefit the client directly or the weatherization program.
 - (2) If owners refuse to participate, local agency options include the following:
 - (a) Defer project.
 - (b) Alternative financing.

- (c) Negotiate extended rent freeze beyond normal property owner/agency agreement.
 - (d) File a covenant in lieu of the normal property owner/agency agreement assuring continued occupancy by low-income tenants for at least five years.
 - (e) Negotiate a combination of the above 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:** The general practice of fuel switching when replacing heating systems is not permitted. See **Policy 5.5.7, *Fuel Switching***, for acceptable conditions.
 9. **Client Education:** Local agencies shall provide air conditioning and heating system information and the importance of regular maintenance to all clients. See **Policy 5.1.4, *Client Education*** for requirements.
 10. **Documentation:** The Local Agency shall document all Air Conditioning and Heating Systems requirements. See **Policy 5.1.2, *Weatherization Project Documentation*** for requirements.

Weatherization Policy

See also:

[Policy 9.4, Combustion Safety Testing](#)[10 CFR 440.21\(b\)\(c\)](#)[10 CFR 440 Appendix A](#)[Variance #17-SWS 5.3003.3a, c-g](#)

Replaces: Policy 5.5.2 – July 2016

POLICY 5.5.2 COMBUSTION HEATING SYSTEMS

1. **Testing for Safety:** The Local Agency must 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 must 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 must 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. **Servicing Gas and Oil Heating Systems:** Gas and Oil fired heating systems must 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:** Replacement of a gas or oil fired heating system is allowable to improve efficiency when justified using a Savings-to-Investment Ratio (SIR) greater than 1.0 as calculated by the computerized audit tool TREAT. Local agencies must:
 - a. Determine the existing heating system efficiency for use in the existing conditions pre-Weatherization TREAT model, by testing the steady-state efficiency with a combustion analyzer, from the manufacturer's information use the Annual Fuel Utilization Efficiency (AFUE) rating, or by the type and age of the unit.
 - b. Determine the replacement cost using Commerce established procurement guidelines.
 - c. Generate the SIR in the improvement package post-Weatherization TREAT model for replacement furnace with 90% AFUE.

Exception: If the improvement package with a 90% furnace cannot achieve a $SIR \geq 1$, then an improvement package with a 80% furnace and a $SIR \geq 1$ is allowable. Document justification in client file.
5. **Maximizing Efficiency of New Replacement Systems:** All new oil or gas heating systems installed must 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 must 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.

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 must 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 must be in place:
 - a. Necessary permits must be obtained prior to heating system replacement.
 - b. All applicable restrictions and code regulations must be met.
 - c. Local agencies must have appropriate liability insurance.
 - d. Local agencies must have a trained technician perform all installations, maintenance, and inspection. All work must 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.
 - 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

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 must 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.

Allowable Costs

Repair and replacement of solid fuel burning appliance systems are allowable costs under DOE, HHS, and MM 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 files must 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 must 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 [Field Guide, Retrofitting Washington](#)

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 MM 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.

Weatherization Policy

Replaces: Policy 5.5.6 July 2015

See also:

POLICY 5.5.6 DUCTLESS HEAT PUMPS (DHP)

1. New 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. 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. Last accessed from <https://www.bpa.gov/EE/Sectors/Residential/Pages/Ductless-Heat-Pumps.aspx>. 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 heat pump system shall be sized in accordance with the manufacturer’s specifications and applicable codes 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 for a minimum of two years from the date of start-up of the equipment. In addition, the compressor shall be warranted by the manufacturer against defects in material and workmanship for a minimum of five years from the date of start-up. 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 LA. A Statement of Warranty must accompany your invoice and must be provided to the building owner.

2. Local Agency Requirements

- a. **Training** – The LA shall be responsible for the technical competence and qualifications of his or her salespeople, installers, and service technicians. Technicians must attend the Northwest Ductless Program orientation and be listed on the Northwest Ductless website: <https://goingductless.com/partners>. At least one technician working on the job site must have received certified installation training from the manufacturer of the installed DHP equipment and be certified as a Type II technician as required by 40 CFR Part 82, Subpart F.
- b. **Electrical** - All electrical connections and repairs are to be performed by individuals who, working for a licensed electrical contractor, have received appropriate electrician certifications from the Washington State Department of Labor and Industries (L&I). Electrical repairs are to be conducted under the supervision of an electrical administrator. L&I provides both electrician and administrator certifications for various levels of electrical work. The LA is responsible for obtaining required certifications and licensing for self-performance of electrical repairs or for subcontracting electrical repairs to a properly licensed electrical contractor.
- c. **Owner Instruction** – The LA shall instruct the building owner in proper operation and maintenance of the DHP system. The LA shall provide the building owner with the manufacturer's owner's manual, demonstrate filter replacement/cleaning and demonstrate the operation of indoor thermostat controls and indicator lights. The LA shall explain to the building owner the different operating modes of the heat pump system (e.g. heating, cooling, defrost). All this information shall be provided in the owner's manual given to the building owner. The LA shall instruct the building owner how to operate the DHP in coordination with the existing zonal systems in the home. Instructions shall include adjusting other zonal thermostats so the DHP is the primary heating system.
- d. **Safe Work Practices** – This work will usually not disturb lead-based paint nor asbestos. All work that may disturb lead-based paint must be performed in accordance with federal and state regulations, including the use of Lead-Safe Weatherization practices (LSW) and in compliance with the EPA's Renovation, Repair, and Painting Rule (RRP). The LA must document crew certification for compliance with LSW and RRP. In addition, the LA must keep abreast of changes in federal or state requirements regarding lead-based paint and comply accordingly. Failure to utilize LSW/RRP, where required, may lead to immediate work stoppage, clearance testing, relocation of occupants, clean-up and/or legal claims. The LA is responsible for costs of activities that arise from a failure to follow the lead-safe protocol.

3. **New Equipment Installation:** Pursue compliance with federal, state, and local building and environmental codes for the installation of this product. Follow manufacturer's installation instructions and specifications. The following specifications are not intended to replace manufacturer's specifications.
- a. **Permits** – The LA shall be responsible for all permits required by State and local ordinances for the installation of the heat pump system. The LA shall provide the building owner and the Local Agency with copies of all permits related to the work.
 - b. **Access** – Equipment shall be located to allow easy service access and adequate working space for servicing any component without removal of piping or other permanently installed fixtures. Components that require frequent attention, such as filters, shall be located in easily accessible areas. Installations located in attics or crawlspaces are not allowed.
 - c. **Location of Indoor Unit** – Indoor unit shall be located in the main living area, located for best air circulation. Unit shall be installed level and located high on the wall.
 - d. **Location and Support of Outdoor Units** – Outdoor units shall be located to avoid restrictions in the outdoor airstream. Defrost melt shall not drain onto areas where ice formation may create a hazard (walkways etc.). Outdoor units must be installed level. Outdoor units will be installed with either of the following methods:
 - (1) Units may be anchored to risers which are secured with an adhesive and mechanical connection to an adequate, solid pad which provides proper drainage and prevents a buildup of water, snow or ice. A minimum clearance shall be provided as per manufacturer's instructions and recommendations. In any installation there shall a minimum of 3" of free and clear area under the outdoor coil drainage area.
 - (2) Units may be mounted on the building exterior wall, secured and supported according to the manufacturer's instructions following noise and vibration abatement requirements.
 - e. **Refrigerant Tubing** – Factory tubing flares and fittings are NOT to be reused. Create new flares using appropriate R410a flaring tool and measurement gauge. Apply refrigerant oil to the end of each flare. Connect tubing with R410a nuts (supplied with indoor and outdoor units) using a torque wrench tightened to manufacturer's specifications.
 - f. **Refrigerant Charge** – Technician shall follow manufacturer's guidelines when charging a new system and make any needed adjustments for non-standard line set lengths using a programmable refrigerant charging scale.

- g. **Electric Wiring** – When attached to the exterior walls shall be in conduit to protect them from contact and exposure. All field wiring, line and low voltage, shall comply with the manufacturer's recommendations, the National Electrical Code and all applicable local codes and ordinances. All interior wiring is to run along walls where possible and along the edge of the ceiling where it is necessary to run on the ceiling.
 - h. **Filters** – Indoor unit shall come with air filters installed from the factory.
4. **Noise and Vibration Abatement:** Outdoor units should be located to avoid transmission of objectionable noise to adjacent properties, sleeping areas or other areas where noise control is critical. Outdoor units shall comply with all state and local noise control ordinances. The LA shall be responsible for any modifications necessary to reduce noise. Unit base shall not be connected to the foundation.
5. **Refrigerant Piping:** This section applies to the copper refrigerant line sets
- a. **Materials** – Field-supplied refrigerant piping shall be clean, dehydrated, sealed and seamless copper tubing or the manufacturer's pre-charged tubing. Fittings shall be wrought copper. Field supplied tubing shall be evacuated to 500 microns and purged and pressure tested as per manufacturer's recommendation, soft solders shall not be permitted.
 - b. **Sizing** – To maintain oil return to the compressor and avoid inefficiency and capacity loss, refrigeration piping or refrigeration line set shall be sized and installed in accordance with the manufacturer's instructions and recommendations. Piping between the two sections of split units shall not exceed the manufacturer's maximum recommended length, horizontally or vertically, and shall be run parallel to building lines and in a straight and workmanlike manner to prevent oil traps.
 - c. **Support** – Refrigerant piping shall be properly supported in accordance with manufacturer's specifications, AHRI and IMC (International Mechanical Code).
 - d. **Penetrations** – Refrigerant piping passing through openings in the unit cabinet or the building structure shall be installed to prevent wear or sound generation due to contact with the cabinet or building structure. All penetrations in the envelope of the building shall be properly sealed with an insulative sealant.
 - e. **Insulation** – Refrigerant lines shall be insulated with a minimum of ½" thick continuous closed-cell foam rubber. Insulation must cover entire line set length. Where refrigeration line sets run on the exterior of the building they shall have a rigid line hide weatherproof covering.

- f. **Leak Testing, Evacuation and Charging** – Factory as well as field-fabricated joints shall be checked, and any leaks found shall be repaired. Evacuation and charging shall be done in accordance with the manufacturer's instructions and recommendations.

6. **Condensate System**

- a. **Condensate Drain** – Line shall slope downhill to allow for gravity flow of condensate to terminate outside of the building.
- b. **Piping Material** – Condensate drain piping shall meet IMC and should be copper, plastic or other corrosion-resistant material.
- c. **Drains** – Condensate drain lines shall run to an open drain or location outside of the building foundation. Condensate shall not drain onto areas where ice formation may create a hazard (walkways etc.). Under no circumstances may condensate be drained into a crawl space or direct connected into a sewer line.
- d. **Condensate Pump** – Condensate pumps are not recommended unless there is no other alternative. If a condensation pump must be installed, follow the manufacturer's installation requirements.

- 7. **Indoor Thermostats - Wireless Remote Control:** A wireless remote control is standard equipment for adjusting the indoor comfort. Wireless remote controls are to be provided to the building owner.

- 8. **Existing Equipment – Existing Heaters:** The building is currently heated by existing heaters. The heater located in the same area as the heat pump is to be disabled and left in place. The corresponding thermostat is to be disabled and also left in place. The other heaters are to remain operational; this includes those within the bedrooms of the apartments and those in the common areas.

9. **Damages**

- a. The LA will be held responsible for any and all damages created during the performance of the work.
- b. All debris resulting from the work will be removed and legally disposed of with every effort made toward recycling waste material.

- 10. **Disclaimer:** If a conflict between this policy and the local building department's equipment installation requirements, the local building official's requirements take precedence. For complete information regarding installation requirements, features, benefits, operation, and maintenance, review the manufacturer's installation manual of the product being installed.

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 must 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), must be considered as part of the total cost.

Allowable Costs

Switching fuel is an allowable cost under HHS and MM funds with prior Commerce written notification. Unless health and safety related, fuel switching must 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 files must 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.
 - (4) All necessary measure-specific justification.
 - c. See [Chapter 6, Allowable Costs](#).
2. Required Installation Standards & Materials Specifications
- Not applicable.

Weatherization Policy

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.

Weatherization Policy

See also:

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

Replaces: Policy 5.5.9 – April 2009

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 must verify installed renewable energy system measures have an SIR of 1.0 or greater as determined by TREAT. Client files must 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 MM funds will be determined.

Specific fund source limitations or allowances are as follows:

BPA: Units must 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.

Weatherization Policy

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 must 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 must 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.
3. **Using Materials:** Materials used for replacement, repair, and sealing of ducts must be approved and listed in **Exhibit 5.S10, Standards for Weatherization Materials**.

4. **Repairing or Replacing Ducts:** The Local Agency or Subcontractor must reconnect all serviceable ductwork found disconnected from boots, trunks, or plenums. Method used for reconnection must be permanent and appropriate to the materials being connected. All ductwork that is torn, crushed, or severely deteriorated must 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 must 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" must 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" must be backed using temporary tape (e.g. foil tape) as a support prior to sealing. Then they must be sealed with fiberglass mesh and mastic.
 - (c) Large gaps, seams, cracks, joints, holes, and penetrations greater than ¾" must be repaired using rigid duct material. Fiberglass mesh and mastic will overlap repair joint by at least 1" on all sides.

- b. **Timing:** Ducts must be sealed prior to insulating.

6. **Insulating Ducts:** All heating and cooling ducts located outside the heated envelope of the dwelling unit must 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 must be insulated to a minimum, effective R-8 or buried under attic insulation, whichever is greater.
- b. Flex ducts must have an attached vapor retarder. Using a tape approved by the manufacturer, all seams and connection of the dust insulation will be taped.

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

8. Metal duct:

- a. Metal duct, existing or installed, in unconditioned spaces must be insulated to a minimum, effective R-8 or buried under attic insulation, whichever is greater.
- b. Metal ducts must 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 must be of proper length without unnecessary elbows or changes in direction.
- d. Sections must be securely connected to each other using a minimum of 3 screws for round ducts and 4 for rectangular.
- e. Insulation must be permanently secured with rot and stretch proof twine or rust-proof wire, without unduly compressing the insulation.
- f. Horizontal and vertical duct runs must be supported using nylon, plastic, or metal strapping having a minimum width of ½ inch. Support strapping or hangers must not unduly compress the insulation.
- g. Support strapping or hangers must be installed within 1 foot of a joint or connection with a maximum of 4 feet between supports.
- h. Metal ducts must 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 must 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 must not be insulated unless a SIR greater than 1 is demonstrated.

Weatherization Policy

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) must 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 must 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 must be screened (minimum opening size ¼”; maximum ½”) or otherwise protected from entry by leaves, pests, or other materials.
- d. Duct must connect to a collar of the termination cap. Collar must pass through the building envelope.
- e. Entire duct system, including termination cap must have at least the equivalent net free area of the fan outlet.
- f. Ducting must be constructed of rigid vent pipe material. Kitchen range hood ducts must have a smooth interior surface and must 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 must the flex duct be allowed to loop. If running flex duct across varying heights (such as ceiling joists), the flex duct must 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. Air-tight 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 must 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 must be supported with metal strapping). Support strapping or hangers must not compress the insulation. Support strapping or hangers must 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 must:
 - 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.

Weatherization Policy

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.

Weatherization Policy

See also:

[RCW 59.18.060](#)[Exhibit 5.S8, Safety Label for Domestic Water Heaters](#)[Variance #24 – SWS Section 7.8102.1a](#)NEW [Variance #28 – SWS 7.8103.1c](#)

Replaces: Policy 5.7.1 – July 2016

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 $EF \geq 0.58$ 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 must 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. **Replacing Water Heaters in Rental Units:** Replacement of systems in rental units, other than low-income owned, also requires the following:
 - a. Local agency must inform the owner of their legal responsibilities and liabilities under RCW 59.18.060.

- b. Local agency must work with the owner to make a contribution of at least 50 percent, since a new system is a capital improvement to the property.
 - (1) Owner may make either a cash or in-kind contribution. Contributions other than cash must benefit the client directly or the weatherization program.
 - (2) If owners refuse to participate, local agency options include the following:
 - (a) Defer project.
 - (b) Alternative financing.
 - (c) Negotiate extended rent freeze beyond normal property owner/agency agreement.
 - (d) File a covenant in lieu of the normal property owner/agency agreement assuring continued occupancy by low-income tenants for at least five years.
 - (e) Negotiate a combination of the above 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 must 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 must 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 7.8103.1c 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, must be maintained according to state and local codes.

8. **Meeting Clearances within Enclosed Spaces:** Water heaters must 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 must 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 must document this request in writing in the client file.

10. **Installing Wraps:** Insulation wraps must be installed according to the methods and procedures in the Field Guide.

11. **Labelling Wrapped Water Heaters:** A Commerce approved safety label must 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 must 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.

- 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.

Weatherization Policy

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 must 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 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 must 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 must 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 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. 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 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 MM funds. Refrigerator replacement must 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 files must 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 **Field Guide, Retrofitting Washington**

Weatherization Policy

Replaces: Policy 5.7.4 – July 2016

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 the Priority List or TREAT.

- (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 MM 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.

.

Weatherization Policy

See also:

[Policy 5.2.4-SF, Priority List \(PL\)](#)
[Policy 5.2.5, Targeted Residential Energy Analysis Tool \(TREAT\)](#)
[Section 5.8.2, Matchmaker Policy](#)
[Chapter 6, Allowable Costs](#)
[Exhibit 6, Fund Matrix](#)
[Chapter 9, Health and Safety](#)
[Exhibit 6.1, Fiscal Definitions](#)

Replaces: Policy 5.8.1 (PM 17-03 – Nov 15, 2015)

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 where the Savings-to-Investment Ratio (SIR) is 1.0 or greater, using one of the following methods:
 - a. Priority List: See **Policy 5.2.4-SF, Priority List (PL)**
 - b. TREAT: See **Policy 5.2.5, Targeted Residential Energy Analysis Tool (TREAT)**
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 Matchmaker 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.

SECTION 5.8.2 Matchmaker Policy

A. Policy

1. Matchmaker Tier 1 follows existing Weatherization Manual.
 2. Matchmaker Program Overview
 - a. The Matchmaker Program (MM) is a leveraging program that maximizes available state capital funds with matching resources received from utilities, property owners, and other entities and sources. The MM provides services to low or very low-income households for Weatherization
 - b. Emergency and minor repair
 - c. Moderate rehabilitation*
 - d. Manufactured or mobile home (MH) replacement*
- *Subject to available funds authorized by Commerce
3. Match Requirements
 - a. Every effort will be made to secure match, which can be in the form of a cash or in-kind contribution.
 - b. For rental units, an owner contribution is required unless the owner meets low-income eligibility requirements. Rental owner contribution must be documented in the client file.

B. Procedure**Tiered Service Delivery**

Tier	Title	Dollar Limit	Purpose	Grant or Loan**	Eligible Applicant
1	Weatherization Measures (WxM), Health and Safety (H&S), and Weatherization-Related Repair (WRR) Measures	Up to \$10,000 Total IMC limit for each unit	Install weatherization measures, make repairs necessary to eliminate hazards within a structure that allow for the installation of weatherization materials, and make repairs necessary for the effective performance or preservation of weatherization materials, not subject to SIR. (See Chapter 9 and Section 5.4)	Grant	<ul style="list-style-type: none"> Owner occupied Rental
2	Moderate Rehabilitation*	\$10,001 to \$25,000	Perform repairs necessary for the installation of weatherization measures and to preserve affordable housing. Funds are not intended to be used for cosmetic repairs.	Deferred loan preferably interest bearing; interest determined by local agency	<ul style="list-style-type: none"> Owner occupied
3	Mobile Home Replacement (MHR)*	up to \$60,000 per unit.	Gives agencies an option of replacing older substandard MHs that are not cost-effective to repair, under the incorporated Mobile Home Replacement Program Guidelines.	loan with minimal interest	

** Subject to available funding. Policies to be determined. Training is required to employ Moderate Rehab and MHR. Training to be defined.*

***To better ensure prudent use of limited funds as well as expanding leveraging to include loan repayments.*

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) must 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 must 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 must 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 must 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.

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.

e. Roofing projections:

All existing exhaust fan terminations, plumbing vent stacks, and combustion appliance vent stacks must extend through the new exterior roof insulation and terminate in an air-tight 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 must not be of smaller diameter than the duct or pipe projecting through roof, must allow free flow of air, and must 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 must 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 must 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 must 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 must 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 must 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.

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 must 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 Airsealing

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.

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CHAPTER 6

ALLOWABLE COSTS

SECTION 6.1 GENERAL STANDARDS FOR ALLOWABLE COSTS

A. Policy

1. Allowable weatherization costs must 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 must 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.

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 must 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 must 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 must 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.

Weatherization Policy

Replaces: Section 6.3 – July 2012

See also:

[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 must ensure their Cost Allocation Plans used to spread central administrative costs across local agency programs are in accordance with the OMB circulars.

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 must annually submit a copy of its cost allocation plan to Commerce with its General Weatherization Work Plan.

7. Documenting Administrative Costs:

Local agency files must include the following documentation:

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

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](#)

Replaces: Policy 6.4 – July 2015

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 must be clearly documented in the client 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 17-7 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. **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 must 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 circulars.
- 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 must 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 must 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 must 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 must 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 must 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 must 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).

- (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 **Field Guide, *Retrofitting Washington***

B. Procedure

- 1. Local agencies must allow Commerce access to all affirmative procurement program documentation upon request.
- 2. Local agency files must 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 **Field Guide, *Retrofitting Washington***

Weatherization Policy

See also:

[10 CFR 440.23](#)[Exhibit 6.5A, Training and Technical Assistance Expense Form](#)[Exhibit 6.5B, Peer Exchange Proposal Form](#)

Replaces: Section 6.5 – April 2010

POLICY 6.5 TRAINING AND TECHNICAL ASSISTANCE

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

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

Local agencies must 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, travel, and per diem expenses are an 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;
 - (3) Program costs; or
 - (4) Subcontractor salary.

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

- a. Local agencies must include all names and titles of individuals attending training.
- b. Local agencies must 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 must submit the **Exhibit 6.5B, *Peer Exchange Proposal Form*** to Commerce.

SECTION 6.6 EQUIPMENT**A. Policy****1. Equipment/Vehicle Purchases**

- a. All purchases of equipment/vehicles purchased with Weatherization (Wx) Program funds and which have a unit cost of \$5,000 or greater require Commerce written approval.
- b. Local agencies must submit an Equipment/Vehicle Purchase Request/Approval Form (Exhibit 6.6A).
 - (1) Required - Three quotes from different vendors.
 - (2) Required - statement that low bid will be selected or sufficient justification of “best value selection,” if low bid is not recommended for awarding agency approval.
- c. The grantee’s procurement system should include at the least the following:
 - (1) A code or standard of conduct that shall govern the performance of its officers, employees, or agents engaged in the awarding of grants using federal funds.
 - (2) Procedures that ensure all procurement transactions shall be conducted in a manner to provide, to the maximum extent practical, open and free competition.
- d. Minimum procedural requirements as follows:
 - (1) Follow a procedure to assure the avoidance of purchasing unnecessary or duplicative items.
 - (2) Solicitations shall be based upon a clear and accurate description of the technical requirements of the procured items.
 - (3) Positive efforts shall be made to use small and minority-owned businesses.
 - (4) Some form of price or cost analysis should be performed in connection with every procurement action.
- e. Equipment and vehicles should be acquired with grant funds from Commerce only after all other options have been explored.
- f. Lease versus purchase should be evaluated carefully on all equipment and vehicles.
- g. If equipment is shared with other local agency programs, a rental fee is required and may be implemented based on a proportionate use of the equipment.

- h. Insurance – Local agencies shall provide insurance liability coverage for equipment at a minimum of \$1,000,000 liability coverage per occurrence.
- i. DOE Allowance
 - (1) 10 CFR 440.18 States: For the purposes of determining the average cost per dwelling limitation, costs for the purchase of vehicles or other certain types of equipment as defined in 10 CFR part 600 are encouraged and should be amortized over the useful life of the vehicle or equipment.
 - (2) Requests for equipment/vehicles purchased with DOE funding require prior written DOE approval. Allow 90 days for DOE review.
 - (3) Trade-in of previously acquired equipment of \$5,000 or more is allowed with DOE approval; see Section 8.12.1A Disposal of Equipment.
 - (4) 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.
 - (5) Whenever equipment/vehicle purchased with DOE funding is shared with a non-Federal outside organization, a fee must be charged no less than private sector rates.

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

Local agencies are responsible for ensuring Commerce's financial vested interest in motor vehicles, equipment and fixtures with purchase values of \$5,000 or more, purchased under Commerce contracts. This shall include insurance coverage in the amount of \$1,000,000 minimum liability per occurrence.

- a. Motor Vehicles: Certificates of Title. Local agencies will name Commerce as legal owner/lien holder on Certificates of Title for motor vehicles. See RCW 46.12.095, Requirements for perfecting security interest. (See Procedure)
- b. Equipment: Uniform Commercial Code (UCC) -UCC (1) filings. Visit Washington State Department of Licensing's Website (<http://www.dol.wa.gov/>) to download appropriate forms. Visit Special Terms and Conditions of agency Weatherization Program Grant Contract with Commerce under Treatment of Assets. (See Procedure)
- c. Fixtures: UCC (2) filings. Filing will be done at the County Auditor's Office in which the property is located. Visit Special Terms and Conditions of agency Weatherization Program Grant Contract with Commerce under Treatment of Assets. (See Procedure)

B. Procedure

1. Local agency will submit request for approval (Equipment/Vehicle purchase request/approval form – Exhibit 6.6A) for purchase of equipment/vehicle to Commerce's assigned staff employee.
 - a. Fill out Equipment/Vehicle purchase request/approval form – Exhibit 6.6A, completely, (front, back, date and sign).
 - b. Send Form – Exhibit 6.6A to Commerce's assigned staff employee.
 - c. Submit Form – Exhibit 6.6A with required 3 bids/quotes attached.
2. Upon Commerce's approval of Local Agency's Equipment/Vehicle purchase request/approval form, Local Agency may proceed with procurement process that conforms to Agency, State, and Federal procurement guidelines.
3. Procurement records and files must include the following documentation:
 - a. Selection or rejection.
 - b. The basis for the cost or price.
 - c. Justification for lack of competitive bids if offers are not obtained.
 - d. DOE approval for any trade-in of previously acquired equipment of \$5,000 or more; when making a replacement purchase.
 - e. Approved form. See [Exhibit 6.6A, Equipment Purchase Request/Approval Forms](#)
 - f. DOE approval for equipment/vehicles purchased with DOE funds.
4. Securing Commerce's Interest: Motor Vehicles - Original Certificate of Title for motor vehicles. See RCW 46.12.095, Requirements for perfecting security interest (<http://apps.leg.wa.gov/rcw/>) for information regarding Certificates of Title for motor vehicles.
 - a. Local agencies will name Commerce as legal owner/lien holder on Certificates of Title for motor vehicles. See RCW 46.12.095, Requirements for perfecting security interest (<http://apps.leg.wa.gov/rcw/>).
 - b. Local agencies will forward original Certificate of Title for vehicles to Commerce with the expenditure report on which they are claimed.
5. Securing Commerce's Interest: Equipment - UCC filings. Check Washington State Department of Licensing's Website (<http://www.dol.wa.gov/>) to download appropriate

forms. Visit Special Terms and Conditions of agency Weatherization Program Grant with Commerce under Treatment of Assets.

- a. Every five years local agencies will complete and submit to Commerce for approval, signed Uniform Commercial Code Financing Statements (Form UCC1), listing equipment other than motor vehicles and other than fixtures listed below, with acquisition costs of \$5,000 or more and purchased under Commerce contracts. Go to (<http://apps.leg.wa.gov/rcw/>); see RCW 62A.9A, Secured transactions, sales of accounts, contract rights and chattel paper – Part 5, Filing.
 - b. Commerce will be named as Secured Party.
 - c. UCC1 statements will include the phrase: "all presently owned and after-acquired inventory and equipment."
 - d. Commerce will determine which items it wishes to continue its secured interest in from previous filings.
 - e. If approved, Commerce will sign the completed statements and file them with the Department of Licensing, UCC Division, Olympia, WA 98504.
 - f. Commerce and local agencies will keep copies of all UCC filings.
6. Securing Commerce's Interest: Fixtures - UCC (2) filings. Filing will be done at the County Auditor's Office in which the property is located. Visit Special Terms and Conditions of agency Weatherization Program Grant with Commerce under Treatment of Assets.
- a. Local agencies will complete and submit to Commerce for approval signed Uniform Commercial Code (UCC2) Forms for fixtures (assets attached to realty) with acquisition costs of \$5,000 or more and purchased under Commerce contracts. Go to (<http://apps.leg.wa.gov/rcw/>); see RCW 62A.9A, Secured transactions, sales of accounts, contract rights and chattel paper – Part 5, Filing.
 - b. UCC2 Forms may be obtained at the local county Auditor's Office.
 - c. Commerce will be named as Secured Party.
 - d. If approved, Commerce will sign the completed statements and file them with the local county Auditor's Office in the county where the real estate is located.
 - e. Commerce and local agencies will keep copies of all UCC filings.

Weatherization Policy

See also:

[Exhibit 6, Fund Matrix](#)[Exhibit 6.7, Budget Revision Request Form](#)

Replaces: Section 6.7 – July 2015

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 must 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 must 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 must submit any T&TA budget category fund transfer requests in writing with an **Exhibit 6.7, Budget Revision Request Form**. Local agencies must 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 must 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 must retain records of all Commerce approved budget revisions and provide those records upon request.

SECTION 6.8 AUDITS

A. Policy

1. All program funds made available to Commerce local agencies will be audited annually in accordance with the following:
 - a. Generally accepted accounting principles.
 - b. The Office of Management and Budget (OMB) Compliance Supplement for Single Audits of State and Local Governments.
 - c. OMB Circular A-133, Audits of States, Local Governments, and Non-Profit Organizations or Uniform Guidance – Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, as appropriate.
 - d. DOE 10 CFR 600, Financial Assistance Rules.
 - e. All state and federal laws and regulations governing the programs in which local agencies participate.
2. 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 Circular A-133 or Uniform Guidance, DOE allows the costs of financial audits to come off the top of the contract.

3. Local agency auditing will be conducted by any of the following entities:
 - a. Office of State Auditor.
 - b. A single independent Certified Public Accountant (CPA) firm selected by Commerce.
 - c. CPA firms selected by the local agency at Commerce's discretion.
4. All auditors employed must provide positive assurance to local agencies that they meet required independent CPA provisions, including annual training.

B. Procedure

Local agencies must allow Commerce access to all audit reports upon request, and if applicable, audit-finding action plans.

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CHAPTER 7

QUALITY ASSURANCE

Weatherization Policy

Replaces: Policy 7.1 – July 2015

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 must define written internal monitoring procedures to perform regularly as a means for quality control, compliance assurance, and risk assessment. Such procedures must 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 must 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 must 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), must 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, must 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 must 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 must 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 must 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 the agency:
- 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 reason.
7. **Applying for the Auditor/Inspector Separation Waiver:** To request the Auditor/Inspector Separation Waiver, Local Agencies must:
- 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 must:
- 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 must be inspected and monitored by Commerce, and
- c. If required by Commerce, Local Agencies must 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 must:

- a. Use the required QCI Form: **Exhibit 7.1A, *Quality Control Inspection Form***
- b. Document in the client 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 must 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 must 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.

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.

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.

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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 must 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.

Weatherization Policy

Replaces: Section 8.2 – July 2015

See also:

POLICY 8.2 – GENERAL WEATHERIZATION WORK PLAN - *DELETED*

This policy left intentionally blank

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 must include a hard copy of Commerce notification.

Weatherization Policy

See also:

[Exhibit 8.4A, Certification Regarding Debarment, Suspension, or Ineligibility and Voluntary Exclusion](#)

Replaces: Section 8.4 – April 2010

[– Primary Tier Covered Transactions.](#)

POLICY 8.4 SUBCONTRACTING

1. **Subcontracting Weatherization Services:** Local agencies may subcontract labor and installation services in accordance with procurement standards described in Commerce's contract *General Terms and Conditions, and Special Terms and Conditions*.
 - a. 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.
 - b. Local agencies are responsible for ensuring that subcontractors are familiar with program measures, installation specifications, and current techniques and methodologies.
2. **Certifying Annually:** Local agencies must 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.
3. **Reviewing Information:** Commerce reserves the right to review and approve the selection process and the contract form used by local agencies.
4. **Documenting Subcontracts:** Local agency files must include all contracts entered into with subcontractors.

Weatherization Policy

Replaces: Section 8.4.1 – July 2016

See also:
[Exhibit 8.4.1A, Property Owner Release Form](#)

POLICY 8.4.1 WARRANTIES AND OWNER RELEASE

1. Local agency subcontractors must provide a one-year warranty against defects in materials, manufacture, design, or installation of work performed under contract.
 - a. Local agencies and their subcontractors must provide homeowners with the original warranty paperwork for materials and appliances installed or provided.
 - b. Local agencies must confirm homeowner receipt of all warranty information.
2. Local agencies must receive owner authorization to install measures on a dwelling unit. **Exhibit 8.4.1A, Property Owner Release Form**, is an example of acceptable documentation.

B. Procedure

1. Client files must include the following documentation:
 - a. Confirmation of homeowner receipt of warranty information.
 - b. Scope of Work.
 - c. **Exhibit 8.4.1A, Property Owner Release Form**, or equivalent documentation.

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, must 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 must 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 must be reported on the **Standard Form LLL, Disclosure of Lobbying Activities**.
4. **Documenting Certifications and Disclosures:** Local agency files must 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.

Weatherization Policy

Replaces: Section 8.6 - July 2015

See also:
Contract Management System (CMS) Portal via [SAW](#)

POLICY 8.6 ISSUANCE OF WORKING CAPITAL ADVANCES

1. **Requesting Working Capital Advance:** A local agency may request an initial working capital advance one month prior to planned expenditures using the “Advance Request” line in request for reimbursement through the Contract Management System (CMS) Portal.
 - a. Requests for an advance may not exceed the local agency’s planned expenditures for the first sixty days’ Administration/Program or 10 percent of the total Administration/Program.
 - b. Commerce will issue the advance once both parties sign the weatherization program contract and the local agency submits the request for advance.
 - c. The working capital advance must be liquidated within sixty days of issue.
 - d. Examples:
 - (1) If a local agency has a \$10,000 advance 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 “Advance Request” space on its request for reimbursement. Commerce will apply the \$8,000 the local agency spent towards liquidation of its original advance to show that those funds were expended first. Commerce will issue a new advance for \$8,000 leaving the local agency with the \$2,000 remaining from the initial advance and new advance of \$8,000 for a total of \$10,000.
 - (2) If a local agency has a \$10,000 advance and sends in a request for reimbursement with \$12,000 of expenditures but wants to maintain only a \$10,000 advance, the local agency should enter \$10,000 in the “Advance Request” space.
 - (3) If a local agency has a \$10,000 advance 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 advance of \$5,000.

- (4) If a local agency has a \$10,000 advance and sends in a request for reimbursement for \$2,000 and requests an advance 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 advance will not be approved and the expenditures will be applied against the \$10,000 advance. Future requests for reimbursement will also be applied against the advance until local agency expenditures increase or the advance is completely liquidated.
2. **Deducting Reimbursements from Advance:** When Commerce receives a request for reimbursement after the advance is issued, the requested reimbursement will be deducted from the advance.
3. **Requesting Additional Advance:** When an advance is reduced and performance verifies need, the local agency may submit a request for an additional advance on any month's request for reimbursement to bring them up to the sixty days of Administration/Program or ten percent of the total Administration/Program.
4. **Returning Over-Projected Advance:** After sixty days, if the local agency has over-projected its advance needs or has more than ten percent cash on hand, Commerce may request that the excess amount be returned by a check accompanying that month's request for reimbursement.

When cash advance needs have been over-projected and are reconciled, the local agency may request an additional advance for sixty days of Administration/Program or ten percent of the total Administration/Program. Commerce may, however, adjust the advance request based on the previous sixty days expenditures.

5. **Requiring Justification and Prior Approval:** Written justification and prior approval is required for advance payments exceeding ten percent (10%) of the total contract amount.
 - a. Local agencies must submit their requests using the "Advance Request" section on the request for reimbursement (A19 forms) through the CMS Portal and also submit a justification for requesting the additional advance.
 - b. Additional advances will be approved to meet occasional special needs required to meet exceptional production demands, not as a regular fiscal policy.
6. **Billing any Outstanding Advance:** In any given year, all outstanding local agency advance amounts must be applied to allowable program costs on the June 19-1A Reimbursement Request Form and submitted to Commerce no later than July 15th. Outstanding advance amounts not cleared as above by July 15th will be billed to the local agency for payment.

Weatherization Policy

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 must 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 must report each month on a separate form.
 - (3) Local agencies must report each fund source on a separate form.
 - (4) Local agencies must 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 must 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 must submit a corrected request for reimbursement within ten working days from the date returned.
- (8) Local agencies must 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 must 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 must 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 must 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 must 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 must 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.

Weatherization Policy

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

1. **Submitting Final Contract Closeout Reports:** Local agencies must 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](#).

2. **Submitting Timely Reports:** Local agencies must 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.

3. **Requiring Reports:** Local agencies must 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.
4. **Returning Funds:** Unexpended funds returned to Commerce at the end of a contract period must be returned with Administrative and Program Support funds in proportion to contract awards.

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 must claim as unit production only units which are final inspected by a Quality Control Inspector (QCI) and closed.
 - a. Units must 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 must 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 must be used first to weatherize units in the current contract period.
3. Units weatherized with refunds must be included in the total unit count for the contract period in which they were spent. Units must 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 must 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 must track program income and expend it first to avoid reporting at year's end.
2. Local agencies must 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 must have in place a system for tracking all program income.
2. Local agencies must report all program income at the end of each contract period. See [Section 8.8, Final Contract Closeout Report](#), for policies and forms.

SECTION 8.12 INVENTORY CONTROL

A. Policy

1. Local agencies must establish a written inventory policy.

Written inventory policies must include the coordination of all functions – including scheduling, completions, purchasing, storage, and cash flow.

2. Local agencies must maintain records, perform inventories, and maintain control systems to prevent loss, damage, or theft of equipment, tools, materials, and supplies.
3. Local agencies must use a [*Master Control System*](#).
4. Quarterly physical counts must be done to verify book records.
5. A daily usage system must be a central feature of the inventory system.
6. An automatic ordering system for frequently used materials must exist.
7. All non-expendable purchases with a value of \$5000 or more, and which have a useful life of more than a year, must be tagged with a unique number to reflect funding sources and must be logged into property control records for identification purposes.
8. All materials received must be accounted for by invoices from vendors which describe the material(s), number of units, unit cost, total costs, shipping charges, if any, and sales tax.

B. Procedure

1. Local agency files must include a written inventory policy.
2. See [*Section 8.8, Final Contract Closeout Report*](#), for policies and procedures pertaining to equipment inventory.

SECTION 8.12.1 DISPOSITION OF EQUIPMENT/VEHICLES**A. Policy**

1. Equipment/Vehicles purchased for \$5,000 or more:
 - a. Local agencies are required to maintain an inventory for all purchases of equipment/vehicles with a useful life of one year or more and a purchase price of \$5000 or more. When wanting to acquire replacement equipment/vehicle, the Local Agency (LA) may use the equipment/vehicle to be replaced as trade-in, subject to approval by DOE for DOE related program purchases, all others by Department of Commerce (Commerce).
 - b. If an LA no longer has a need for the equipment/vehicle purchased with weatherization funds for a purchase price of \$5000 or more, the LA must:
 - (1) Notify Commerce in writing (Equipment/Vehicle Disposition Form) of its intent to dispose of vehicle/equipment. The notice must include a complete description, including the condition of the equipment/vehicle.
 - (2) The LA will offer equipment/vehicle to LA within the Weatherization Program Network at no cost except for transfer costs.
 - (a) This process is coordinated with the Commerce representative.
 - (b) Equipment/Vehicle will be offered to LA on a first come, first served basis.
 - (c) If no LA wants the equipment it may, with written Commerce approval, be sold.
 - (d) Once it is determined that there are no Local Agencies wanting the equipment/vehicle being offered, the sale will proceed as stated in items 2. or 3. below.
2. Equipment/Vehicle with a Fair Market Value of \$5,000 or more:
 - a. The LA must advertise the equipment in a local community publication, asking for sealed bids to be submitted by a specific date. The opening bid date must be published in the advertisement.
 - b. Equipment/Vehicle must be sold to the highest bidder.
 - c. The awarding agency (Federal Government) shall have a right to an amount calculated by multiplying current Market Value or proceeds from the sale by the awarding agency's share of the capital asset/vehicle/equipment. The remaining proceeds must be used as program income for program which originally purchased this equipment.

3. Equipment/Vehicle with a current per unit Market Value under \$5,000
 - a. Commerce will approve or recommend method of sale or disposition.
 - b. If there are Local Agencies wanting the equipment/vehicle, then it will be offered on first-come first-served bases without cost except transfer costs.
 - c. The local agency must use the income in the program which originally purchased the equipment/vehicle.
 - d. Proceeds from equipment/vehicle sale must be tracked and reported as program income.
4. Equipment/Vehicles beyond repair with a minimum Fair Market Value:
 - a. With Commerce's approval it can be sold for scrap value. Proceeds are to be treated and reported as program income.
 - b. Copies of paperwork from salvage sale must be provided to Commerce for their records.

B. Procedure

1. Equipment/Vehicle Disposition:

At any time during the life cycle of an equipment/vehicle whose purchase price was \$5,000 or more the agency may use the equipment/vehicle to be replaced as a trade-in, subject to approval by DOE for DOE related purchases and Washington State Department. of Commerce for all other funded purchases. For all other Equipment/Vehicle dispositions the following procedure will be followed.

2. Notice/Request for Disposition:

When an agency determines equipment/vehicle is no longer needed, agency is required to notify Commerce Representative using the Equipment/Vehicle Disposition Form. Notice shall be in e-mail form stating reason "Equipment/Vehicle" is no longer needed or useful. Notice shall identify equipment/vehicle and provide Model#, Serial# and VIN#, and other required information in Part 1 of Equipment/Vehicle Disposition Form.

3. Equipment/Vehicle whose Fair Market Value is \$5,000 or more:

- a. Commerce will give their approval or not to proceed with the disposition process by signing the completed Part 1 section of the disposition form.

- b. Once approved for disposition, the LA is required to send one e-mail to all LAs within the Weatherization Network with a cc to the Commerce representative as required in Part 2 of the Equipment/Vehicle Disposition Form.
 - (1) E-mail shall offer equipment/vehicle at no cost to LAs within the Weatherization Network. Equipment/Vehicle will be offered on a first-come, first served bases.
 - (2) E-mail shall include specifications/description, age, condition, & photos if available.
 - (a) After 14 days the initiating LA will know whether someone wants or doesn't want this equipment/vehicle at no cost other than transfer fees.
 - i. LA wishing to dispose of equipment/vehicle will submit the Equipment/Vehicle Disposition Form-Part 2, to the Commerce representative indicating whether an LA within the Weatherization Network wants or doesn't want this equipment/vehicle.
 - (b) Commerce will review and approve or disapprove this request (Equipment/Vehicle Disposition Form) to proceed with either the sale or transfer process on part 2 of the Equipment/Vehicle Disposition Form. The decision will be based on most of the information contained in the completed Disposition Form parts 1 and 2.
 - i. If on a first-come first-served basis an agency was selected, Commerce and the LA that has the equipment/vehicle will begin transfer process.
 - ii. If no LA was interested Commerce will authorize agency to begin formal sales bid process. Sale shall be publically posted and follow LA's Notice of Sale Offering (must be documented). Highest bidder, (following proper procurement practices) shall be selected and notified. Commerce will collect proceeds from sale and follow process for returning funds to awarding agency.
4. Equipment/Vehicle with a Fair Market Value of \$5,000 or less:
- If fair market value as determined by highest bidder is less than \$5,000, then the sales process will begin with copies being sent to Commerce for their records.
- a. An Equipment/Vehicle subject to the provisions of this policy whose Fair Market Value (determined by industry comparable pricing, condition, age, and useful life) is less than \$5,000, is NOT subject to DOE approval and MAY be allowed to dispose of said item, with the approval of Washington State Dept. of Commerce.
 - b. Proceeds from this sale may be retained and if so, must be used by Local Agency's Weatherization Program operations only as program income.

5. Documentation Required:

Local agency files must include at a minimum the following:

- a. Copy of completed equipment/vehicle disposition form.
- b. Copy of email notice offering equipment/vehicle to LA
- c. Copy of award communication.
- d. Equipment/Vehicle sales receipt.

6. Equipment/Vehicles beyond repair with a minimum Fair Market Value:

- a. With Commerce's approval may be sold for scrap value. Proceeds are to be treated and reported as program income.
- b. Copies of paperwork from salvage sale must be provided to Commerce for their records.

7. Income Reporting & Close-out Requirements:

See [Section 8.11, Program Income](#) & See [Section 8.8, Final Contract Closeout Report](#), for policies and procedures 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 must 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 must document the receipt and transfer of materials.
 4. Transfers must 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 must be reported in the [Final Contract Closeout Report \(Section 8.8\)](#).

B. Procedure

1. Local agency files must 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](#)

POLICY 8.13 PREVAILING WAGE**A. Policy****POLICY PURPOSE**

It is the responsibility of Low-Income Weatherization Assistance Program funded agencies (further known as Local Agencies) to comply with The Prevailing Wage Law ([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 must follow all applicable laws when bidding, contracting, and paying for weatherization work. Local Agencies must review all Washington State Department of Labor and Industries (L&I) approved “Intents to Pay Prevailing Wage” and “Affidavits of Wages Paid” 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 of Wages Paid” for the project have been approved by 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.

Responsible Entity	Actions
Local Agency	Bidding and Contracting
	<ol style="list-style-type: none"> 1. Post bid specification and contracts that state the following: <ol style="list-style-type: none"> a. 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. b. Ensure all contractors and subcontractors (including owner/operators and sole proprietors) file Intent to Pay Prevailing Wage and Affidavits of Wages Paid with L&I. c. 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. <p><i>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.</i></p>
Contractors and Sub-contractors	Bid Documentation and Intent to Pay Prevailing Wages
	<p><u>Include the following documentation in all bids:</u></p> <ol style="list-style-type: none"> 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. <p><u>Once a contract (or sub-contract) is awarded:</u></p> <ol style="list-style-type: none"> 3. File Intent to Pay Prevailing Wage with L&I and if applicable, verify subcontractors have also filed Intent to Pay Prevailing Wage forms with L & I. 4. Provide Intent ID # or a copy of the L&I approved Intent to Pay Prevailing Wage form for all laborers, including subcontractors to Local Agency.
Local Agencies	Verifying Contractor Eligibility
	<ol style="list-style-type: none"> 1. Verify all contractors and subcontractors are: <ol style="list-style-type: none"> a. Registered and licensed as contractors, as required by Washington law. b. Not identified on the current Debarred Contractor List maintained by L&I. <p><i>Note: if a contractor is identified on the Debarred Contractor List, they cannot perform work on federal or state funded projects.</i></p>

Local Agencies (with employees who perform labor work), Contractors, and Subcontractors	<p style="text-align: center;">Payroll Records</p> <ol style="list-style-type: none"> 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. 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. <p><i>Note: Employees who perform labor work in multiple counties should have the county where the work was performed included on their paycheck documentation.</i></p>
Contractors (if applicable)	<p style="text-align: center;">Paying Subcontractors</p> <ol style="list-style-type: none"> Verify all vouchers/invoices submitted by subcontractors include language stating prevailing wages for projects identified have been paid in accordance with the approved statements of Intent to Pay Prevailing Wages and Affidavits of Wages paid as filed with L&I. Issue progress (partial) payments to subcontractors only after they have provided proof of approved Intent to Pay Prevailing Wage from L&I for all laborers performing work on weatherization projects. Issue final payment* to subcontractors only after they have received proof of approved Affidavits of Wages Paid from L&I. <p><i>*If no progress payment is issued, Contractors will need to complete steps 1-3 before submitting invoices to Local Agencies.</i></p>
Local Agencies	<p style="text-align: center;">Paying Contractors</p> <ol style="list-style-type: none"> Verify all vouchers/invoices submitted by contractors and subcontractors include language stating prevailing wages for projects identified have been paid in accordance with the approved statements of Intent to Pay Prevailing Wages and Affidavits of Wages paid as filed with L&I. Issue progress (partial) payments to contractors only under the following circumstances: <ol style="list-style-type: none"> Contractors and subcontractors have provided proof of approved Intent to Pay Prevailing Wage for all laborers performing work on weatherization projects. Approved Intent to Pay Prevailing Wages provided by contractors and their subcontractors are reviewed by the Local Agency to verify the worker classification(s) listed aligns with the worker classifications reasonably expected to be utilized on weatherization projects. Classifications approved on the Intent should also align with contractor and subcontractor original bid documentation. Issue Final Payment* to contractors only under the following circumstances: <ol style="list-style-type: none"> Verify contractors and subcontractors received approval from L&I for their Affidavits of Wages Paid. Verify the work classifications listed on the Affidavit aligns with the work classification(s) included in the contractors and subcontractors bid.

	<i>*If no progress payment is issued, Local Agency will need to complete all steps above.</i>
Local Agencies, Contractors, and Subcontractors	Proof of Payroll
	1. If requested by an interested party, Washington State Certified Payroll records must be filed within ten days with L&I, the Local Agency, and the Department of Commerce. RCW 39.10.010 (4)

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

[Multifamily Table of Contents](#)

[Supporting Documents - Table of Contents](#)

CHAPTER 9

HEALTH AND SAFETY

Weatherization Policy

See also:

[Field Guide – Retrofitting Washington](#)[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. Remediating 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/Fluorescents:** 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 Fluorescents (mercury) disposal.

Weatherization Policy

See also:

[WAC 296-155-120](#)[Policy 9.1.4 Confined Spaces](#)[L&I, Asbestos Awareness Training](#)[Weatherization Program Notice \(WPN\) 17-7 Weatherization Health and Safety Guidance](#)

Replaces: Policy 9.1.1 (PM 17-02 – Nov 15, 2017)

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 has an Asbestos Awareness Training available online.
(https://www.lni.wa.gov/safety/trainingprevention/online/courseinfo.asp?P_ID=103)
- 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.

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 must conduct safety meetings monthly.
2. **Attending Safety Meetings:** Local agencies Weatherization staff, especially field staff must 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 must document each safety meeting with recorded minutes kept on file. Minutes must include:
 - a. List of employee attendance; and
 - b. Topics discussed and concerns.

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 must 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 must also be included in the discussion.
 - b. Inspecting condition of personal safety equipment and confirming that all crew members are adequately supplied. Crew members must 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 must document each inspection performed including: Date; Concerns discovered, and Actions required or taken to correct concerns.

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 - July 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:** Local Agencies' auditors and crew leads shall receive "Confined Space" training and a *Competent Person-Confined Space* certification.

Exceptions:

- a. Online video training is available for self-training (See **Section 4b**, below).
- b. It is strongly recommended all weatherization workers take confined space training.
4. **Certifying a Competent Person-Confined Space:** At a minimum, each [Competent Person-Confined Space](#) shall meet all the following requirements:
 - a. Complete OSHA 10 or OSHA 30 training and receive certification.
 - b. 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).
 - c. 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 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.

Weatherization Policy

See also:

[Weatherization Program Notice \(WPN\) 17-7 Weatherization Health and Safety Guidance](#)[Policy 5.2.1, Energy Audit](#)[Exhibit 5.S1, Mold Assessment and Release example](#)[Exhibit 5.S2A, Pollution Source Survey](#)[Policy 9.2.1, Weatherization Plus Health](#)[Policy 5.1.3, Deferral Standards](#)

Replaces: Section 9.2 – July 2012

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.
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.
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) 17-7*. 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.S1, Mold Assessment and Release example**, and **Exhibit 5.S2A, Pollution Source Survey**.

- b. **Slip, Trip, and Fall Prevention:** Local agencies may install the following measures with Matchmaker Wx H&S funding:
 - (1) Handrails
 - (2) Grab bars
 - (3) Shower mat
 - (4) Ramps and fixing irregular steps (limited)
 - c. **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.

Weatherization Policy

See also:

Policy 1.4.2, *Leveraging Owner Contributions*
 Policy 1.1, *Priority and Outreach to Eligible Weatherization Clients*
 Exhibit 9.2.1A, *Local Agency Plus Health Work Plan*
 Exhibit 9.2.1B, *Self Declaration of Medical Condition Form*
 Exhibit 9.2.1C, *Plus Health Over Limit Request Form*
 Exhibit 9.2.1D, *Plus Health Client Data Collection Form*
 Exhibit 5.S2A, *Pollution Source Survey*
 Exhibit 5.S2B, *Resource Guide to Pollution Source Survey Home Rating Scale*
 Exhibit 5.S1, *Mold Assessment and Release Form*
[HB 1720 – Matchmakers Legislation](#)
[Overview of the Healthy Home Rating System \(HHR\)](#)
[Healthy Home Rating System – Operating Guidance](#)
[Healthy Home Rating System – Scoring Sheet](#)

Replaces: Policy 5.8.4 – Jan 1, 2016

POLICY 9.2.1 WEATHERIZATION PLUS HEALTH (WX+H)

The primary purpose of Weatherization Plus Health (Wx+H) is to integrate weatherization and healthy homes improvements to reduce respiratory symptoms of eligible low-income clients. The Wx+H program adds limited Healthy Homes Improvements to the existing suite of approved weatherization activities.

1. Program Management and Administration

- a. Local agencies wishing to conduct a Wx+H Program shall submit and have their **Exhibit 9.2.1A, Local Agency Plus Health Work Plan** approved by the Matchmaker Program Manager.
- b. Local agencies shall conduct the Wx+H Program in conjunction with the Weatherization Program.

Exceptions:

- (1) Local agencies may perform Stand-alone Plus Health (+H) without Wx if they confirm and document there are no weatherization opportunities. See **Section 3(c), Assessing Wx+H Projects (3)** (below) for additional details.
- (2) Local agencies may provide Stand-alone +H without Wx client education and low-cost/no-cost measures to eligible rental clients without conducting or assessing for Wx. See **Section 4, Client Education and Follow up** (below) for additional details.
- (3) Local agencies may provide Stand-alone +H without Wx to eligible large multifamily dwellings.

- c. Local agencies shall serve homes in accordance with the State of Washington Weatherization Manual (Policies and Procedures and Supporting Documents). The more specific Wx+H requirements take precedence over the general Weatherization policies.
- d. While landlord contributions are not required for the Wx+H, local agencies should solicit landlord contributions. See **Policy 1.4.2, *Leveraging Owner Contributions*** for more information. Document attempts in the client file.

2. Establishing Community-Service Delivery Partnership

- a. While not a requirement, establishing partnerships with health providers and other community partners is encouraged.

3. Intake and Needs Assessment:

- a. **Intake – Prioritizing Clients and Client Need:** Local agencies shall prioritize clients consistent with the Weatherization priorities and by evidence of a respiratory illness medical diagnosis.
 - (1) Priority for Weatherization Services. See **Policy 1.1, *Priority and Outreach to Eligible Weatherization Clients***.
 - (2) For Installed Measure Costs (IMCs) \$4,000 or less, clients may self identify respiratory illness using the **Exhibit 9.2.1B, *Self Declaration of Medical Condition Form***.
 - (3) For IMCs over \$4,000, client will provide a referral by a Medical Professional or verification of respiratory health services the client has received (i.e. emergency room documentation, DSHS services documentation, etc. could suffice as verification of respiratory health services).
- b. **Establish Measure Need:** Local agency shall develop tools, documents, and protocols to establish occupant need, home need, or both, for Wx+H Measures.

In addition to the Local agency developed tools, the following or deemed equivalent documents are also required:

- (1) Pollution Source Survey results. See **Exhibit 5.S2A, *Pollution Source Survey***.
- (2) Mold and Moisture Assessment results. See **Exhibit 5.S1, *Mold Assessment and Release Form***.
- (3) [Optional] HUD's Healthy Homes Rating System (see links above).

c. Assessing Wx+H Projects:

- (1) Local agency shall perform a Wx+H assessment using Wx+H assessment tools, documents, and protocols as listed in **Section 3b, *Establish Measure Need*** (above).
- (2) Local agencies' auditor (certified as a Building Analyst (BA), Energy Analyst (EA), or a Quality Control Inspector (QCI)) with the required Wx+H training shall assess units to either provide or defer Wx+H Measures and establish the Scope of Work.

Exception: Local agency staff, including contractors and partners, with the required Wx+H training (See **Section 6, *Quality Control/Quality Assurance Monitoring/Training*** below), including but not limited to: a Medical Professional, Healthy Homes (HH) Educator, or HH Project Coordinator may assist the responsible auditor with the Wx+H assessment and make recommendations for Wx+H Measures.

- (3) Local agencies shall perform a Wx Energy Assessment or Wx Energy Pre-Assessment in conjunction with the Wx+H Assessment.

Exceptions: A new Wx Energy Audit is not required if providing Stand-alone +H without Wx to eligible large multifamily dwellings. A new Wx Energy Audit is not required if a previous Wx Energy Audit or Wx final inspection date is within one year of the Wx+H client income eligibility verification date. Confirm client eligibility.

4. Client Education and Follow-up

- a. Local agencies may provide client education and follow-up after the job is final inspected.
- b. On a limited basis, local agencies may provide Plus Health (+H) client education and low-cost/no-cost measures to eligible rental clients. Client file shall document the local agency's reasons for providing Plus Health (+H) client education and low-cost/no-cost measures without integrating Weatherization.

5. Installation of Healthy Homes Measures

- a. **Funding Limit for Wx+H Measures:** Local agencies shall not exceed \$8,000 Installed Measure Costs (IMC), including materials and labor of Wx+H funding per unit.

Exception: Local agencies may exceed the set maximum with appropriate written justification and prior approval from Commerce's Matchmaker Program Manager. Please use the **Exhibit 9.2.1C, *Plus Health Over Limit Request Form*** when submitting the request.

- b. **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 VOC content or low VOC emissions. When installing new products and materials, consider using the least toxic product or material feasible to effectively do the job.
- c. **Measures:** Local agencies may install any of the following allowable Wx+H Measures with Wx+H funding. For measures that are allowed in either the Wx or Wx+H program, the funding guidance is to first fund the measure with Wx funds, if possible. If not, then fund the measure with Wx+H funds.
- (1) Wx+H Client Education
 - (2) Wx+H Green Cleaning Kit
 - (3) Wx+H Dust Mite Cover
 - (4) Wx+H Walk-off Door Mat
 - (5) Wx+H Water heater Temperature Adjustment
 - (6) Wx+H CO Detector. See **Policy 9.5, *Smoke Detectors, Carbon Monoxide (CO) Detectors, & Fire Extinguishers.***
 - (7) Wx+H Smoke Detector. See **Policy 9.5, *Smoke Detectors, Carbon Monoxide (CO) Detectors, & Fire Extinguishers.***
 - (8) Wx+H Remove Toxic Household Chemicals
 - (9) Wx+H HEPA Vacuum Cleaner
 - (10) Wx+H HEPA Furnace Filter
 - (11) Wx+H Pest Mitigation. See **Policy 9.11, *Pests.***
 - (12) Wx+H 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 Abatement
 - (13) Wx+H Mechanical Ventilation (exhaust only). See **Policy 9.3, *Indoor Air Quality – Mechanical Ventilation.***
 - (14) Wx+H Advanced Mechanical Ventilation
 - (15) Wx+H Roofing

- (16) Wx+H Flooring
- (17) Wx+H Gutter and Downspout
- (18) Wx+H Comprehensive Cleaning (one time)
- (19) Wx+H HVAC System Cleaning
- (20) Wx+H Crawlspace Improvements
- (21) Wx+H Air Filter/Purifier
- (22) Wx+H TBD

6. Quality Control/Quality Assurance Monitoring/Training

- a. **Training and Certification Required:** Local agencies' Wx+H staff, contractors, and partners shall receive a certification of completion for the Healthy Homes Essential training or be certified as a BPI Healthy Homes Evaluator if they are conducting the following tasks:

- Audit/Assessment
- QCI
- Client Education

Exceptions:

- (1) Local agencies may meet the Wx+H training requirement with a course that is deemed equivalent. Commerce can provide a list of deemed equivalent trainings as recommended by the Building Performance Center.
- (2) Crews, contractors, and subcontractors installing measures.
- (3) Staff providing services not specific to Wx+H.

- b. **Inspecting Wx+H Units:** A certified Quality Control Inspector (QCI) with the required Wx+H training, someone other than the auditor or the installer (s), shall conduct final inspections for installed Wx+H Measures.

Exceptions:

- (1) Local agency staff, including contractors and partners, with the required Wx+H training (See **Section 6a, Training and Certification Required** above) may verify delivery of Wx+H Measures that do not require installation.
- (2) For projects with no Wx measures available and Wx+H measures are installed, no separation of duties between QCI inspector and Auditor is required.

7. Reporting and Evaluation

- a. Please enter all applicable information required by WIDS. As needed, additional information may be requested by Commerce.
 - (1) Enter Plus Health client data into the **Exhibit 9.2.1D, *Plus Health Client Data Collection Form***. This form is to be retained by the agency and provided to Commerce on a as needed basis.
- b. Local agencies shall document justification for Wx+H measures in client file with the documents listed in **Section 3, *Intake and Needs Assessment*** (above), based on established need of the occupants, the need of the home, or both.
- c. 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.

Weatherization Policy

See also:

[Weatherization Program Notice \(WPN\) 17-7 Weatherization Health and Safety Guidance](#)
[Weatherization Assistance Program Technical Assistance Center \(WAPTAC\)](#)
[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.
- (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. See **Policy 5.1.2, Wx Project Documentation** for requirements.

Weatherization Policy

See also:

[Weatherization Program Notice \(WPN\) 17-7 Weatherization Health and Safety Guidance](#)
[Weatherization Assistance Program Technical Assistance Center \(WAPTAC\)](#)
[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 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.

Weatherization Policy

See also:

[Exhibit 5.3.1A, Combustion Safety Test Report](#)[Exhibit 5.3.1B, Technical Support Document](#)[Table 3.1: Carbon Monoxide Test Action Levels for Ovens](#)[Table 4: CAZ Depressurization Limits](#)[Variance #1 – SWS Sections 2.0201.1a and 2.0201.3a](#)[Variance #2 – SWS Sections 2.0201.1e, 2.0201.3e, and 2.0299.1](#)[Variance #3 – SWS Sections 2.0201.1f, 2.0201.3f, 2.0203.2a-c, 2.0203.3c, 2.0203.4c, 2.0203.5a-b, and 2.0203.6c](#)[Variance #4 – SWS Sections 2.0201.1g and 2.0201.3g](#)Replaces: Policy 9.4 – July 2015 [Variance #5 – SWS Sections 2.0203.1a-b, 2.0203.2d-e, 2.0203.4a-b, 2.0203.5c-d, and 2.0205.1](#)

POLICY 9.4 COMBUSTION SAFETY TESTING

1. **Testing for Combustion Safety:** All homes with combustion appliances must be tested for combustion safety both pre- and post-weatherization work. See **Exhibit 5.3.1A, Combustion Safety Test Report** and **Exhibit 5.3.1B, Combustion Safety Technical Support Document**, for required form and supporting material.

- a. **Pre-Weatherization Combustion Safety Testing**

Local agency BPI BA certified auditor 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. An **Exhibit 5.3.1A, Combustion Safety Test Report** shall be filled out for each appliance and be placed in the client file.

- b. **Post-Weatherization Combustion Safety Testing**

Local agency BPI QCI certified inspector shall perform a Combustion Safety Test for every combustion appliance at the conclusion of the weatherization project.

- c. **In-progress Combustion Safety Testing**

Local agency or Subcontractor, trained in combustion safety testing shall perform a worst-case depressurization test **Exhibit 5.3.1B, Combustion Safety Technical Support Document, page 3** and draft test **page 6, Line # 13**) 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.

Variance #5: DOE granted a variance from SWS Sections 2.0203.1a-b, 2.0203.2d-e, 2.0203.4a.b, 2.0203.5c-d, and 2.0205.1 Combustion Safety Testing allowing: WA to add combustion air only when performance testing (worst-case draft and depressurization testing and combustion testing) indicates additional combustion air is needed.

2. **Draft and Spillage Tests:** Local agency shall perform spillage and draft tests for all natural and induced draft space-heating systems and water heaters. Draft and spillage shall first be tested under worst-case (**Exhibit 5.3.1B, Combustion Safety Technical Support Document page 3**) conditions, and then repeated for natural conditions if the appliance fails under worst-case.

- a. **Single Chimney with Multiple Appliances**

When a chimney 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.

- b. **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.

- c. **Draft Testing**

Local agency shall measure vent draft pressure at steady-state operating conditions of all heating and hot water combustion appliances.

Exceptions:

- (1) Sealed-Combustion or Power-Vented (90% +): No draft measurement required. Recommend technician confirm draft at 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.
- (2) Solid fuel-burning appliances.

(3) Gas fireplace inserts.

- (a) Atmospheric or Natural Draft (70%): Draft testing shall be done in the center of the longest, straightest, accessible section of the vent connector. Holes made for the purpose of measuring draft shall be drilled using 5/16th bit. Once test is complete, seal hole with High Temperature RTV silicone caulk. Cover with aluminum tape or plug with a 3/8 inch tap bolt made of stainless steel or nylon.
- (b) Induced Draft (80%): Draft testing shall be done a minimum of three (3) feet downstream of the inducer motor. The preferred location for CO testing is the same hole used for draft testing. Holes made for Draft and 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.

Appliances shall draft at or above (i.e. have more draft) the minimum acceptable draft level detailed in Table 1 in the **Exhibit 5.3.1B, Combustion Safety Technical Support Document**. If the draft test fails, the local agency shall make appropriate repairs before proceeding with weatherization services or defer the project until problem is corrected.

d. **Spillage**

Local agency shall test for spillage on all atmospheric draft and induced draft appliances. Any appliance that continues to spill flue gases beyond the maximum established time limits identified in Table 2 in the **Exhibit 5.3.1B, Combustion Safety Technical Support Document** fails the spillage test. If the unit fails, the test shall be done in natural conditions. The local agency shall make appropriate repairs or defer the project until the problem is corrected.

Induced draft heating systems shall be checked for spillage at the base of the chimney liner or flue. 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.

Exception: Wood stoves and fireplaces shall not be tested for spillage.

Variance #3: DOE granted a variance from SWS Sections 2.0201.1f, 2.0201.3f, 2.0203.2a.c, 2.0203.3c, 2.0203.4c, 2.0203.5a.b, and 2.0203.6c Combustion Safety Testing allowing: WA to continue to use WA Combustion Safety Test Report Form, TSD, and the action levels established by the BPI Building Analyst Technical Standards. WA uses spillage not to exceed one minute.

3. **Carbon Monoxide Above Acceptable Levels:** 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.

4. **Carbon Monoxide Tests:** Local agency shall perform a CO test in all combustion appliances.

Exception: Carbon monoxide testing of wood burning appliances flue gases is not required.

- a. Local agency shall measure CO in the undiluted flue gases in the flue of the appliance, using a digital gauge that measures in parts per million (ppm). For all combustion appliances, CO shall be measured at steady-state operating conditions. CO levels must be recorded and appropriate actions taken, as detailed in Table 3: Combustion Safety Test Action Level Table.

(1) **Atmospheric or Natural Draft (70%):** CO testing shall be done in the undiluted flue products at the heat exchanger cell outlets.

(2) **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. The preferred location for CO testing is the same hole used for draft testing. Holes made for Draft and 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.

(3) **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

- b. 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.

c. **Gas Ovens:**

Gas ovens CO shall be tested in accordance with the **Exhibit 5.3.1B, Combustion Safety Technical Support Document**.

For Action Levels see BPI's **Table 3.1: Carbon Monoxide Test Action Levels for Ovens** in the Technical Support Document (Line 18 in Combustion Test Report)

d. **Ambient Carbon Monoxide:**

Local agency shall monitor ambient CO levels 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.

Variance #1: DOE granted a variance from SWS Sections 2.0201.1a and 2.0201.3a Combustion Safety Testing allowing: WA to continue to use WA Combustion Safety Test Report Form, TSD, and the action levels established by the BPI Building Analyst Technical Standards. For ambient CO level, WA currently uses 9ppm.

Variance #4: DOE granted a variance from SWS Sections 2.0201.1g and 2.0201.3g Combustion Safety Testing allowing: WA to continue to use WA Combustion Safety Test Report Form, TSD, and the action levels established by the BPI Building Analyst Technical Standards. WA sets CO Action Levels in Table 3 Combustion Safety Test Action Level that range from 0 to >400 with associated actions.

5. **After Appliance Replacement or Service:** After combustion appliance replacement or service, no additional weatherization work can be done unless the CO levels are within acceptable ranges. Appliance replacement is prohibited with DOE funding.

Exception: Ovens and ranges with CO levels above acceptable ranges does not prohibit Wx services

6. **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 **Table 4: CAZ Depressurization Limits**.

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.

Variance #2: DOE granted a variance from SWS Sections 2.0201.1e, 2.0201.3e, and 2.0299.1 Combustion Safety Testing allowing: WA to continue to use WA Combustion Safety Test Report Form, TSD, and the action levels established by the BPI Building Analyst Technical Standards. WA Table 4 CAZ Depressurization Limits range from -2 to -50.

7. Documenting Combustion Safety Testing:

- a. Local agency shall document in the client 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 5.3.1A, *Combustion Safety Test Report***.
- c. Receipts or invoices for any corrective work.
- d. Documentation of installation, location, and model type.

8. **Deferral:** If deferral is required, the local agency shall notify the owner/client in writing of the health and safety issue.

9. **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.

10. **Required equipment:** Local agency shall:

- a. Use a digital manometer to perform all pressure diagnostic-testing measurements.
- b. Use a digital CO measurement device that is capable of measuring 1ppm to 1000 ppm.
- 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.

Allowable Costs

Combustion safety testing and appliance cleaning & repair are allowable costs under DOE, HHS, BPA and MM 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.

Specific fund source limitations or allowances are as follows:

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

Weatherization Policy

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.

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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 MM 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.

Weatherization Policy

See also:

[Exhibit 5.S1, Mold Assessment and Release Form example](#)[A Brief Guide to Mold, Moisture and Your Home](#)<http://www.epa.gov/mold/moldresources.html>[A 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 2017

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.S1, Mold Assessment and Release Form example**. 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 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:
 - (1) Kitchens with gas combustion appliances.
 - (2) 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.
 - (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 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.
- 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).
 - 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

- 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.
 - 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.
 - 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.

Weatherization Policy

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.

Weatherization Policy

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](#)

Replaces: Policy 9.8 - July 2017

[Weatherization Program Notice \(WPN\) 17-7 Weatherization Health and Safety Guidance](#)

POLICY 9.8 LEAD-BASED PAINT

1. **Lead Compliance:** All weatherization agencies shall comply with the requirements of the Environmental Protection Agency (EPA) Lead; Renovation, Repair and Painting Program (RRP) *Final Rule, 40 CFR Part 745, Subpart E, Residential Property Renovation, Pre-Renovation Lead Information Rule* or applicable state Washington Administrative Code (WAC).
2. **RRP Protocols** apply to dwelling units:
 - a. Constructed before 1978; presumed lead-based paint. **Exhibit 9.8B, Test Kit Documentation Form**, or equivalent is required when lead-based paint is presumed to exist in the dwelling unit.

Exception: Dwelling unit tested and determined to be free of lead-based paint.
 - b. Tested positive for lead.
3. **Testing for Lead:** Testing to determine the presence of lead in paint that will be disturbed by WAP measure installation is allowed with EPA-approved testing methods. Testing methods shall be economically feasible and justified. **Exhibit 9.8B, Test Kit Documentation Form**, or XRF testing documentation is required for any lead testing. See **Policy 5.1.2, Weatherization Project Documentation** for requirements.
4. **Following RRP Protocols:** Local agencies shall comply with the current EPA Renovation, Repair and Paint Rule (RRP) protocols. **Exhibit 9.8C, Renovation Recordkeeping Checklist**, or equivalent is required when any work disturbing painted surfaces is performed on a dwelling unit which presumed or test positive for lead.
 - a. **Credentials:** All work in target housing (pre-1978 homes or test positive for lead) shall have:
 - (1) A Certified Renovator assigned to the project.

- (2) RRP trained workers, crews, contractors, subcontractors, and monitors if they are disturbing paint.

Exception: Workers who are in their first nine months of employment are exempt from the worker certification requirement, but they shall be working with a certified lead-safe weatherization worker any time they are performing lead-safe weatherization work.

- b. **Audit:** All homes shall receive a comprehensive, on-site, home energy audit prior to receiving weatherization services. Include the cost of this audit in the average cost per home.
- c. **Containment:** Lead containment is *ALWAYS* required in target housing (pre-1978 homes or test positive for lead):
 - (1) [Level 1 containment](#) is required for less than or equal to [de-minimus level](#) work.
 - (2) [Level 2 containment](#) is required for more than de-minimus level work.
- d. **Cleaning:** After all lead work, cleaning is required.

Exception: Work on de-minimus level is allowed without clean verification

Exception to the Exception: The de-minimus level exemption shall NOT apply to any of the following work:

- (1) Window replacement,
- (2) Demolition of painted surface areas, or
- (3) Using any of the prohibited work practices, including but not limited to:
 - (a) Open-flame burning or torching;
 - (b) Machines to remove paint through high-speed operation without HEPA exhaust control;
 - (c) Operating a heat gun at temperatures at or above 1100 degrees Fahrenheit.
- e. **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.
- f. **Lead Documentation:** See **Policy 5.1.2, Weatherization Project Documentation** for requirements.
- g. **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:** All individuals (Auditors, QCI, Wx Workers, Crew, Contractors, Subcontractors, and Certified Renovators) and firms performing weatherization work and disturbing paint in target housing (pre 1978 and test positive for lead) shall have the Renovation, Repair, and Painting (RRP) Training following training and worker certification and shall be a current EPA RRP Certified Renovator.

Exception: Lead Risk Assessor certification will suffice for the EPA RRP Certified Renovator requirement.

- a. **Hands-on Training:** The hands-on portion of the training shall include all of the 11 required RRP hands-on activities, plus an additional four (4) hours of hands-on training in work practices that includes setting up a window J-bag and performing a window change-out; performing a thermostat change-out; setting up a trough for an exterior wall drill and practicing drilling using water mist, shaving cream and a shrouded drill hooked up to a HEPA vacuum; drilling through sheetrock using mist, shaving cream and a vacuum held near the hole saw; setting up a zip wall; and performing a HEPA vacuum filter change-out.
- b. **Documenting Records of Certification:** Local agency shall keep records of certification at the local agency's office for all workers performing lead-safe work. Subcontractors shall provide the local agency with records of certification of workers who are performing lead-safe weatherization work.

6. **RRP Costs:**

- a. The cost of RRP (labor, material, and related costs) is a health and safety cost (H&S), insofar as it exceeds the cost of allowable energy conservation measures (WxM). Charge the cost-effective RRP amount to WxM where you still achieve an $SIR \geq 1$, then charge the remainder to H&S.

Example: 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.

- b. Equipment purchases used specifically for testing for lead or other health risks are a health and safety cost.

7. **Deferral:** Deferral is required when the extent and condition of lead-based paint in the house would potentially create further health and safety hazards. See **Policy 5.1.3, Deferral Standards**.

8. **Client Education:** Local agencies shall provide lead information and RRP pre-renovation education to all clients. See **Policy 5.1.4, Client Education** for requirements.

9. **Documentation:** Local agencies shall document in the client file applicable lead information: presumed or tested for lead, lead work performed, and photos and client receipt documentation verifying client received lead information. See **Policy 5.1.2, Wx Project Documentation** for requirements.

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](#)[Variance #16 – SWS Sections 5.3002.4b and 5.3002.13b](#)[Policy 5.1.3, Deferral Standards](#)[Policy 5.1.4, Client Education](#)[Policy 5.1.2, Weatherization Project Documentation](#)

Replaces: Section 9.9 – July 2016

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, test results and client signature of the receipt of test results.

Variance #16: DOE granted a variance from SWS Sections 5.3002.4b and 5.3002.13b Mold and Asbestos Testing allowing: WA does not allow mold testing. WA allows, but does not require asbestos testing.

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.

- d. If asbestos tape is observed inside the duct, no diagnostic testing shall be performed prior to encapsulation.
- 9. **Deferral:** Local agencies may defer specific measure(s) or the entire weatherization project due to ACM. See **Policy 5.1.3 Deferral Standards**. When deferral is necessary due to asbestos, occupant shall provide documentation that a certified professional performed the remediation before work continues.
- 10. **Client Education:** Local agencies shall provide asbestos information to all clients. See **Policy 5.1.4, Client Education** for requirements.
- 11. **Documentation:** Local agencies shall document in the client file client receipt of asbestos information, ACM test results, paid invoices for all contractor billing, including AHERA inspector. See **Policy 5.1.2, Wx Project Documentation** for requirements.

Local agencies shall also document contractor and crew asbestos training and certifications.

Weatherization Policy

See also:

[EPA - A Citizen's Guide to 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 must 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 must 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 must 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 must be deferred. See **Policy 5.1.3, *Deferral Standards*** for requirements.
7. **Client Education:** Local agencies must 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.

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.



Department of Commerce
Innovation is in our nature.

Supporting Documents

For Managing the Low-Income Weatherization Program

[Supporting Documents - Table of Contents \(TOC\)](#)

for
United States Department of Energy (DOE)
United States Department of Health and Human Services (HHS)
Bonneville Power Administration (BPA)
and
Matchmaker (MM)

Prepared By:
Washington State Department of Commerce
Energy Division

July 2018 Edition



WEATHERIZATION WORKS

Supporting Documents for Managing the Low-Income Weatherization Program

Cross References: The small exhibit numbers (i.e. (Ex 1.1.A)) following titles are the old Wx exhibit numbers, for reference.

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July 2016

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July 2018

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Section 1.1 Qualifying Clients

Section 1.2 Enrolling Clients

Exhibit 1.2.3A [Percent of Native American Low-Income Households](#) (Ex 1.1.A) July 2016

Section 1.3 Documenting Eligible Clients

Exhibit 1.3.1A [Income and Residence Verification Checklist](#) (Ex 1.4.1A) July 2016

Exhibit 1.3.1B [Household Information Form](#) (LIHEAP Ex 501) July 2017

Exhibit 1.3.1C [Household Member and Income Information Form](#) (Ex 1.4.1A) July 2016

Exhibit 1.3.1D [Declaration of No Income](#) (LIHEAP Ex 504D) July 2016

Exhibit 1.3.1E [Sample Wx Program Utility Info Release Waiver](#) (Ex 2C) July 2016

Exhibit 1.3.1F [Qualified Alien Documents](#) July 2016

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Exhibit 1.3.3B [Wx Program Rental Property Owner/Agency Agreement](#) July 2018

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April 2009

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
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

H

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

M

MM Matchmaker, formerly Energy Matchmaker (EM)

MVL Minimum Ventilation Level

N

NEC	National Electrical Code
NHPA	National Historic Preservation Act
NPS	National Park Service

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

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

WWW World Wide Web

Wx or WX Weatherization

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 also [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.

Additional Work

Problems observed during monitoring inspections that need to be corrected, such as a plumbing leak that needs repair to protect the under-floor 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.

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 also [*Friable*](#)

Any material containing more than one percent (1%) asbestos.

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. An Energy Auditor for the Wx Program must be certified as either a Building Analyst (BA) or a Quality Control Inspector (QCI) by the Building Performance Institute (BPI).

Average Cost Per Unit (ACPU)

See also [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) must be at or below this figure at the end of each program year.

Budget Categories included in DOE ACPU: Weatherization Measures Installed Measure Costs, Weatherization-Related Repair Measures 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.

Base-load 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.

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 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 MM) 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 MM) 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.

British thermal unit (Btu)

The quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit.

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 also [*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.

By-passes

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.

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 also [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.

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 also [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 must 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 **Policy 9.5, *Smoke Detectors, Carbon Monoxide (CO) Detectors, & Fire Extinguishers***

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.

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 MM)

Any funds from the Department of Energy, Bonneville Power Administration, Low-Income Housing Energy Assistance Program, and Matchmaker 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)).

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 also [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 also [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 must be approved by the Matchmaker Program Manager.

Computerized Audit Tool

Energy use analysis software approved by the Department of Energy for use in determining cost-effective conservation 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.

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

A Savings-to-Investment Ratio (SIR) of 1.0 or greater. See *Savings-to-Investment Ratio (SIR)*.

Crawlspace Improvements

Replacing or adding ground cover and installing crawlspace ventilation. Other installations or actions must be approved by the Matchmaker Program Manager.

D**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.

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.

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 also [Completed Unit](#)

A dwelling unit that meets both the definition of a DOE Weatherized Unit and has DOE funds used directly on it must 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 also [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 or priority list 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 meets both the definition of a DOE weatherized unit and has DOE funds used directly on it must 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).

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. 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.

Auditor must 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 must be a U.S. citizen or “qualified alien.” Each household member’s citizenship status must 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.

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 must be approved by the Matchmaker Program Manager.

Flue

A channel for combustion gases.

Friable

Material can be crumbled, pulverized, or reduced to powder by the pressure of an ordinary human hand.

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 must be <\$250 per unit. (See [Exhibit 5.1A\(2\), page 2, General Heat Waste Reduction List](#).)

Green Cleaning Kit

Local agencies must 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 must 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) Measures

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 \(WPN\) 17-7 Weatherization Health and Safety Guidance](#)

Health and Safety (H&S) Measures Costs

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 and workers. See [*Weatherization Program Notice \(WPN\) 17-7 Weatherization Health and Safety Guidance*](#)

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

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 must 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.

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 eight percent (8%). The annual energy burden of households with high energy burden is greater than eight percent (>8.0%).

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.

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 Repairs

See [Weatherization-Related Repairs](#).

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 on Wx projects and ensures all measures installed meet specifications. An Inspector performing final inspections for the Wx Program must 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 Measure Costs

Contractor: Verifiable contractor costs (including material and labor costs) to install Weatherization (Wx) Measures, 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.

Installer

The person installing a weatherization measure.

Insulation

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. See [R-value](#).

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.

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 must 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.

Leveraged Funds

Funds that are not from the following sources: Bonneville Power Administration (BPA), United States Department of Energy (DOE), Matchmaker (MM), or United States Department of Health and Human Services (HHS).

Leveraging Costs

Funds used for leveraging activities in accordance with the 10 CFR 440.14(b) (9) (xiv), such as utility funds.

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).

Low-cost, No-cost Costs

Costs included in Program Support to carry out Low-Cost/No-Cost weatherization activities providing 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).

M**Major Measure**

Weatherization Measures (energy efficiency measures) listed in the Priority List.

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.

Mechanical Ventilation (exhaust only)

Follow specifications in ASHRAE 62.2.2013 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 also [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***

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.

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.

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 of Weatherization Measures

A State-approved table that establishes levels of insulation that may be added to and installed in buildings. See **Policy 5.2.4, *Priority List***.

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 (Incidental 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, Consumer Conservation Education costs, and cost to carry out Low-Cost/No-Cost Weatherization activities.

Program File

The file that contains documents required for the administration of a weatherization program.

Project File

See also [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 must 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

A client or household member that meets any of the listed Immigration Statuses and provides the associated verification documentation. See **Exhibit 1.3.1F, *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.

Remediation

See also [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 must have the owner/tenant approval to remove toxic chemicals from the home. Local agencies must also dispose of toxic chemicals properly.

Return Air

Air circulating back to the furnace from the house, to be heated by the furnace and supplied to the rooms.

Reweatherization

To install or provide materials for a dwelling unit previously weatherized.

R-value

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. See [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 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 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.

Single-Family Dwelling

A structure containing no more than one dwelling unit.

Site Work

See [Installation](#).

Slip, Trip, and Fall 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

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.

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 electric baseboards, electric radiant or quartz heaters, heating panels, gas- or kerosene-fired unit heaters, wood stoves, and infrared radiant heaters.

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	40	50	55	60	65	70	75	80	85	90
sones	1	2	3	4	6	8	11	16	22	32

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-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 installs weatherization measures and carries liability insurance and assurance bonding for all work performed for local agencies. All entities acting as subcontractors must possess either a state contractor's or similar license.

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.

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 Residential Energy Analysis Tools

A computerized tool that is 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 MM)).

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 MM)).

Utility Funding

Any funds from a utility.

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 must 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.

Weatherization Audit

The process of identifying energy conservation opportunities in building.

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 Measures

Energy efficiency measures (building shell and equipment) determined to be cost-effective by DOE approved Commerce standards.

Weatherization Measures Costs

The Installed Measure Costs for energy efficiency measures (building shell and equipment) determined to be cost-effective by DOE approved Commerce standards.

Weatherization-Related Repairs (Incidental Repairs)

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) must be included in the cost of the package of measures installed in a dwelling.

Weatherization-Related Repairs Costs (Incidental Repairs)

The Installed Measure Costs for repairs necessary for the effective performance or preservation of weatherization materials.

Weatherized Unit

See also [*DOE Weatherized Unit*](#)

A dwelling on which a DOE-approved energy audit or 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.

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.

Wx+H Client Education

Local agencies must 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.

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.

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%	
	Mason	8.26%	Skokomish/Squaxin Island
	Thurston	4.04%	Chehalis Confederated/Nisqually
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%	

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%	
	San Juan	2.50%	
	Whatcom	5.05%	Lummi Nation/Nooksack
Yakima Valley Farm Workers Clinic	Yakima County S. of Union Gap	5.25%	Yakama Nation
Opportunities Industrialization Center of Washington	Yakima County N. of Union Gap	0.89%	Yakama Nation
<i>Data compiled from the 2000 Census, Households at 125% Poverty.</i>			

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	

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 <u>OR</u> <input type="checkbox"/> *Crisis - Imminent <u>OR</u> <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 Cost per Month: \$	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 Number of Bedrooms:	<input type="checkbox"/> SSI <input type="checkbox"/> TANF <input type="checkbox"/> GA <input type="checkbox"/> VA <input type="checkbox"/> Soc. Sec. <input type="checkbox"/> Military <input type="checkbox"/> Earned Income <input type="checkbox"/> Pension <input type="checkbox"/> Self Employed <input type="checkbox"/> Child Support <input type="checkbox"/> Unemployment <input type="checkbox"/> Other	
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 2 <input type="checkbox"/> Natural Gas 3 <input type="checkbox"/> Propane 4 <input type="checkbox"/> Oil 5 <input type="checkbox"/> Wood 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.)

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	*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 that I know or have satisfactory evidence that (name of person) is the person who appeared before me, and said person acknowledged that (he/she) signed this instrument and acknowledged it to be (his/her) free and voluntary act for the uses and purposes mentioned in the instrument.

Dated: _____

(Signature)

(Seal or stamp)

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:** _____

List of Qualified Alien Documents

The following is a list of documents acceptable to prove a clients Qualified Alien status.

Certain [USCIS](http://www.ncosc.net/Foreign_Nationals/Travel_Doc_Identification.pdf) documents can be viewed online at:

[http://www.ncosc.net/Foreign_Nationals/Travel Doc Identification.pdf](http://www.ncosc.net/Foreign_Nationals/Travel_Doc_Identification.pdf)

IMMIGRATION STATUS	VERIFICATION DOCUMENT (USCIS <i>U.S. Citizenship and Immigration Services</i> FORMS)
Legal Permanent Resident - a person who has been granted lawful permanent residence in the United States	<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>
Special Immigrants - A special immigrant is a person who qualifies for a green card (permanent residence) under the United States Citizenship and Immigration Services (USCIS) special immigrant program.	<ul style="list-style-type: none"> I-94 or passport stamped with an "S" category

Exhibit 1.3.1F

<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 • 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)

Exhibit 1.3.1F

	<p>of the INA</p> <ul style="list-style-type: none"> • 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>
<p>American Indian Born In Canada</p>	<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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Weatherization Program Rental Property Owner/Agency Agreement

- | | | |
|--|---|--|
| <input type="checkbox"/> Single-Family | <input type="checkbox"/> Mission Based | <input type="checkbox"/> Low-Rise: Garden Apartment |
| <input type="checkbox"/> Duplex | <input type="checkbox"/> Private Investor-Owned | <input type="checkbox"/> Low-Rise: Corridor Building |
| <input type="checkbox"/> Triplex | <input type="checkbox"/> Shelter | |
| <input type="checkbox"/> 4-Plex | <input type="checkbox"/> 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, *Leveraging Owner Contributions* for examples and recommended minimums.)

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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:

<i>(Planned improvement)</i>	<i>(Estimated time frame)</i>
<i>(Planned improvement)</i>	<i>(Estimated time frame)</i>
<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

July 2018

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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)

Rental Property Owner Agreement and The Weatherization Assistance Program



Exhibit 1.3.3C

What Landlords need to know

Keep this info sheet with your property records

Property Owner Benefits of Weatherization



Greater **tenant retention** because renters will lower utility bills and increase the comfort of the home.



With your investment and partnership, you have the potential to **improve your property**.



By weatherizing your property, you will **save energy** and contribute to conservation efforts.

What is the Washington Weatherization Assistance Program?

The Weatherization Assistance Program is a state and federally funded program managed locally by community action agencies, housing authorities, or local government agencies.

What Does the Program Provide?

- 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

How does a property qualify for weatherization?

All rental units are eligible, whether single family homes or apartments, as long as the occupants are income-eligible.



Department of Commerce

The Owner/Agency Agreement

This agreement outlines the requirements for a rental property owner/landlord who applies for weatherization services.



The Agreement ensures the tenant receives the full benefit of the energy-saving measures installed.

1

Rent cannot increase based on the weatherization improvements to the home. A rent schedule must be submitted prior to completion of weatherization work.

2

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.

3

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.

4

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.

More Weatherization Fast Facts:



In 2016 Washington
low income residents
saved
\$600,000
on their energy bills



From 2012-2017
5,397
rental units were
weatherized



Weatherizing
Washington homes
since
1978

Tenant rights and The Weatherization Assistance Program



Exhibit 1.3.3D

What Renters need to know

Keep this info sheet with your lease rental contract

Benefits of Weatherization



Weatherization can provide greater comfort and **reduced utility bills**, at no cost to the tenant



Residents of weatherized homes have **better health** including fewer headaches, allergies, flu, and breathing issues.



Weatherization **improves the safety** of a home by reducing moisture and increasing ventilation.

What is the Washington Weatherization Assistance Program?

The Weatherization Assistance Program is a state and federally funded program managed locally by community action agencies, housing authorities, or local government agencies.

What Does the Program Provide?

- 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

What makes someone or a building eligible for Weatherization?

All rental units are eligible, whether single family homes or apartments, as long as the occupants are income-eligible.



Department of Commerce

Tenant Rights and The Weatherization Program

Your home has been weatherized, here is what you need to know as a renter.



Know Your Rights As Renter

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:

- No increase in rent *due to weatherization work*
- No evictions except for good cause

Will my rent increase due to weatherization work?

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.

Can my landlord evict me once weatherization work begins?

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.

What if I feel the rental property owner has breached the agreement?

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.

Weatherization Program Facts



In 2016 Washington
Low Income
Residents saved
\$600,000
on their energy bills



From 2012-2017
5397
Rental units were
weatherized



Weatherizing homes
in Washington since
1978

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

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 _____

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 federal poverty guidelines or 60 percent of the state median income, whichever is greater. 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)

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
February 5, 2010

WHEREAS, the United States Department of Energy (DOE) administers the following financial assistance programs: *the Energy Efficiency and Conservation Block Grant Program* under the Energy Independence and Securities Act of 2007 (EECBG); *the State Energy Plan* under the Energy Policy and Conservation Act of 1975 and the State Energy Efficiency Programs Improvement Act of 1990 (SEP); and *the Weatherization Assistance Program* (WAP) for LowIncome Persons under Title IV of the Energy Conservation and Production Act, the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007, and the American Recovery and Reinvestment Act of 2009 (ARRA); collectively referred to as the "Programs";

WHEREAS, the unprecedented levels of funding available to the Programs, due in large measure to ARRA, has created a large volume of projects requiring expedited historic preservation reviews to ensure the timely obligation of funds, that create new jobs, and improve local and state economies;

WHEREAS, the Washington State Historic Preservation Officer (SHPO) and Director of the Washington Department of Archeology and Historic Preservation (DAHP) is experiencing unprecedented numbers of requests for historic preservation review of undertakings funded by all Federal Agencies, including undertakings funded by the Programs;

WHEREAS, the Washington Department of Commerce (Recipient) is receiving financial assistance from DOE to carry out the Programs;

WHEREAS, the projects funded by the Programs are undertakings subject to review under Section 106 of the National Historic Preservation Act, 16 U.S.C 470f (NHPA) and its implementing regulations at 36 CFR part 800 and include rehabilitation, energy efficiency retrofits, renewables, and weatherization (undertakings);

WHEREAS, DOE has determined that these undertakings may adversely affect properties that are listed in or eligible for listing in the National Register of Historic Places (National Register) and subject to the requirements of the National Historic Preservation Act (NHPA);

WHEREAS, in accordance with 36 CFR 800.14(b)(4), the Advisory Council on Historic Preservation (the ACHP) has designated this Agreement as a Prototype Programmatic Agreement (PA), which does not require the participation or signature of the ACHP;

WHEREAS, DOE, the ACHP, and the National Conference of State Historic Preservation Officers (NCSHPO) have determined that the requirements of Section 106 can be more effectively and efficiently fulfilled if a programmatic approach is used to stipulate roles and responsibilities, exempt undertakings from Section 106 review, establish tribal protocols, facilitate identification and evaluation of historic properties, establish treatment and mitigation measures, and streamline the resolution of adverse effects;

WHEREAS, by memorandum dated August 28, 2009 (attached as Appendix C), DOE delegated certain tasks necessary for compliance with Section 106 of the NHPA to grantees and sub-grantees of funding from the Programs (Recipients);

WHEREAS, according to the August 28, 2009 memorandum, the Recipients are authorized, to initiate Section 106 compliance in accordance with 36 CFR 800.2 (c)(4);

WHEREAS, the undertakings covered under this PA are not located on Tribal lands and are primarily smaller scale activities and routine projects, without the potential for adversely affecting historic properties, rather than complex undertakings with a greater potential to adversely affect historic properties, which would require completion of the typical Section 106 review process;

WHEREAS, DOE and the ACHP were guided by the principles set forth in the ACHP's Affordable Housing Policy statement, adopted on November 9, 2006, in negotiating this Programmatic Agreement upon which this PA is based;

NOW, THEREFORE, DOE, the Washington Department of Commerce and the Washington SHPO agree that the Programs shall be administered in accordance with the following stipulations to satisfy DOE's Section 106 responsibilities for all individual undertakings of the Programs:

STIPULATIONS

DOE, the Recipient, and the SHPO shall ensure that the following stipulations are carried out:

1. Roles and Responsibilities

- A. DOE shall be responsible for providing oversight of the PA, executing PAs with SHPOs, participating in the resolution of disputes between the SHPO and the Recipient, and providing technical assistance and guidance as needed. DOE shall be responsible for government-to-government consultation with Indian tribes, unless the Indian tribe agrees to the delegation of this responsibility to a Recipient.
- B. The Recipient shall be responsible for consulting with consulting parties and conducting Section 106 reviews in a timely manner, preparing documentation for the SHPO and DOE, and maintaining records on undertakings. Undertakings that involve properties greater than 45 years old and are not listed on either Appendices A or B shall be submitted to the SHPO for review in accordance with this agreement.
- C. Recipient shall ensure that the provisions of this PA apply to its sub-awards.

- D. The Recipient is encouraged to use qualified professionals in conducting their Section 106 requirements.
- E. The SHPO shall be responsible for reviewing project documentation and participation in consultation as set forth in this P A.
- F. The ACHP shall be responsible for providing technical guidance, participating in dispute resolutions if appropriate, and monitoring the effectiveness of this PA.

II. Tribal Review

- A. Execution of this PA presumes that DOE will conduct its government-to-government responsibilities with federal recognized Indian tribes or its Section 106 consultation requirements with Native Hawaiian Organizations (NHO) consistent with Federal laws and regulations. The Recipient shall not substitute for DOE in matters related to potential effects on historic properties of cultural and religious significance to Indian tribes, except with the concurrence of the Indian tribe or NHO.
- B. DOE acknowledges that Indian tribes possess special expertise in assessing the National Register eligibility of properties with tribal religious and cultural significance, and requires the Recipient to consult with them, as appropriate, in identifying historic properties listed in or eligible for listing in the Area of Potential Effect (APE) of program areas.
- C. If the Recipient notifies DOE that an undertaking may result in an adverse effect on cultural resources with tribal religious and cultural significance, DOE shall notify Indian tribes of individual undertakings that may result in an adverse effect on cultural resources with tribal religious and cultural significance and invite them to participate in consultations. Indian tribes and the Recipient may develop a bi-party agreement that outlines their review procedures for undertakings covered in a PA. Such agreements will be submitted to DOE for review and approval, and a copy sent to the ACHP for its records.

III. State Interagency Agreements

The Recipient may review an undertaking in accordance with the terms of an interagency agreement, in lieu of the other terms of this PA, if:

- A. The interagency agreement was executed by the Recipient and the SHPO on or before February 5, 2010, and will be executed no later than February 19, 2010;
- B. The Recipient and SHPO both agree through execution of this PA that the interagency agreement applies to the undertaking and provides a historic preservation review process that is similar to that provided by the other terms of this PA; and
- C. DOE does not object to the use of the interagency agreement to fulfill the requirements of Section 106 of the NHPA for the undertakings.

IV. Exemptions from Section 106 review

- A. The Recipient shall not submit to the SHPO undertakings listed in Appendices A or B as they do not have the potential to cause effects on historic properties even when historic properties may be present. The Recipient and the SHPO may agree to modify Appendix A and/or Appendix B, with advance notification of such modifications to the ACHP and DOE. Recipient will maintain file records with verification that undertakings were determined to be exemptions for a period of three (3) years from project completion and make them available for review if requested by DOE or the ACHP.

- B. If a property has been determined to be ineligible for inclusion in the National Register within the last five (5) years from the date the Recipient made its application for DOE financial assistance, then no further review is required under this PA.
- C. Recipients of any of the Programs may utilize either Appendix A or Appendix B in identifying exempt undertakings, regardless of whether the Exhibit on which the undertaking relates to another federally funded program.

V. Review Procedures for Non-exempt Undertakings

- A. *For undertakings not exempted under Stipulation III or IV, if the Recipient has an executed Section 106 Agreement per 36 CFR part 800 for Community Development Block Grants (CDBG) with the SHPO that* 1) is still in effect; 2) covers the same undertakings as the DOE grant programs; and 3) is up to date with reporting to the SHPO, **no separate Section 106 review is needed.**
- B. Otherwise, the Recipient shall review the undertaking in accordance with Stipulations VI through X below, or consistent with SHPO approved historic preservation protocols. The Recipient and/or sub-grantees may make use of the DAHP EZ I, EZ 2, and EZ 3 form series to aid in fulfilling its Identification, Evaluation, and Treatment consultation requirements as described in Stipulations VI and VII.

VI. Identification and Evaluation

- A. The Recipient shall establish the Area of Potential Effect (APE) for all program undertakings defined in the DOE grant agreement for the State.
- B. The Recipient shall complete the identification and evaluation of historic properties utilizing existing information including the National Register, state surveys, and county and local surveys. In addition, the Recipient and SHPO may use or develop protocols with 36 CFR Section 800.4 for the review of consensus determinations of eligibility.
- C. The Recipient shall consult with Indian tribes or NHOs to determine if there are historic properties of religious or cultural significance that were not previously identified or considered in surveys or related Section 106 reviews, as appropriate.
- D. Archaeology surveys are required only for new ground disturbing project undertakings and shall be limited in scope subject to the concurrence of Indian tribes or NHOs that may attach religious or cultural significance to historic properties in the project area. Project undertakings requiring more than minimal ground disturbance shall be forwarded to the SHPO and THPOs or Indian tribes or NHOs concurrently for review.
- E. In order to avoid potential delays, prior to initiating undertakings the SHPO may review the Recipient's scopes of work for above ground surveys and archaeology surveys that are deemed necessary to administer the Recipient's Programs and to implement the terms of this PA.
- F. The Recipient shall refer disputes regarding determinations of eligibility to DOE for review and referral to the Keeper of the National Register in accordance with 800.4(c)(2).

VII. Treatment of Historic Properties

- A. When the Recipient and the SHPO concur that an undertaking is designed and planned in accordance with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (36 CFR Part 68, July 12, 1995 *Federal Register*) (Standards), that undertaking will not be subject to further Section 106 review.
- B. The Recipient and SHPO will make best efforts to expedite reviews through a finding of "No Adverse Effect with conditions" when the Recipient and the SHPO concur that plans and specifications or scopes of work can be modified to ensure adherence to the Standards. If the undertaking cannot meet the Standards or would otherwise result in an adverse effect to historic properties, the Recipient will proceed in accordance with Stipulation VIII.

VIII. Resolution of Adverse Effects

- A. The Recipient shall consult with the SHPO, and Indian tribes or NHOs as appropriate, to resolve adverse effects. The Recipient will notify DOE of the pending consultation, and DOE will participate through its designated representative.
- B. The Recipient may use standard stipulations included in Attachment A of this PA, or as negotiated as part of this PA between the SHPO and the Recipient, or if the project warrants, use of an alternate PA due to the complexity of the project activity.
- C. Consultation shall be coordinated to be concluded in 45-days or less to avoid the loss of funding. In the event the consultation extends beyond this period, DOE shall formally invite the ACHP to participate in consultation. The ACHP will consult with DOE regarding the issues and the opportunity to negotiate a Memorandum of Agreement (MOA). The purpose of this MOA is to avoid, minimize, or mitigate the adverse effect of the project on historic properties. Within seven (7) days after notification, the ACHP will enter consultation and provide its recommendation for either concluding the Section 106 review through an MOA or Chairman's comment from the ACHP to the Secretary of DOE within 21 days.
- D. In the case of an ACHP Chairman comment, DOE may proceed once DOE provides its response to the ACHP.

IX. Emergency Situation Undertakings

- A. When an emergency undertaking is required for historic properties associated with the undertakings, the Recipient shall allow the SHPO five (5) business days to respond, if feasible. Emergencies exist when there is a need to eliminate an imminent threat to health and safety of residents as identified by local or County building inspectors, fire department officials, or other local or County officials.
 - 1. The Recipient shall forward documentation to the SHPO for review immediately upon notification that an emergency exists. Documentation should include a) nature of the emergency; b) the address of the historic property involved; c) photographs showing the current condition of the building; and d) the time-frame allowed by local officials to respond to, or correct, the emergency situation.
 - 2. The Recipient shall consider mitigation measures recommended by the SHPO and implement them, if feasible.

X. Public and Consulting Party Involvement

- A. The Recipient shall maintain a list of undertakings and shall make the documentation available to the public. The Recipient shall notify the SHPO if its notified of other consulting parties or public interest in any undertakings covered under the terms of the PA.
- B. The Recipient, independently or at the recommendation of the SHPO, may invite interested persons to participate as consulting parties in the consultation process for adverse effects in accordance with Stipulations VI, VII, and VIII.

XI. Administrative Coordination

- A. The Recipient, in consultation with the SHPO, may develop procedures allowing for the use of local reviews conducted by Certified Local Governments (CLG) when such procedures avoid the duplication of efforts.
- B. The Recipient, in consultation with the SHPO, may determine that an undertaking has already been reviewed under an existing Section 106 effect determination or agreement document, then no further Section 106 review under this PA is required.
- C. The SHPO shall provide comments to the Recipient within thirty (30) days, unless otherwise agreed upon by the SHPO and the Recipient, for reviews required under the terms of this PA with the exception of emergency undertakings. In the event that the SHPO fails to comment within the established period, the Recipient can assume the SHPO has concurred, and proceed.
- D. The Recipient shall advise sub-grantees in writing of the provisions in Section 110 (k) of the Act and will advise the sub-grantees that Section 106 reviews may be compromised when project undertakings are initiated prematurely.
- E. The SHPO and the Recipient shall make every effort to expedite Section 106 reviews for a period of less than the 30-day review when consistent with the terms of the DOE grant agreements and the Recipient intends to utilize the services of qualified professionals.
- F. For projects that will require either an Environmental Assessment or an Environmental Impact Statement under the National Environmental Policy Act (NEPA), nothing contained in this PA shall prevent or limit the Recipient and DOE from utilizing the procedures set forth in 36 CFR 800.8 to coordinate and conduct the historic preservation review in conjunction with the NEPA review.

XII. Discoveries

If historic properties are discovered or unanticipated effects on historic properties located within a project's APE after the undertaking has been initiated, the Recipient will implement the following procedures.

- A. The Recipient shall immediately cease all operations for the portion of the undertaking with the potential to affect historic property.
- B. The subgrantee shall advise the Recipient of the National Register eligibility of the historic property and the potential of the undertaking to impact its qualifying characteristics and an explanation of whether the SHPO or Indian tribes and NHOs concur with proposed avoidance, treatment plan or mitigation plan;
- C. The Recipient or DOE shall notify Indian tribes or NHOs of any discoveries that have the potential to adversely affect sites or buildings of religious or cultural significance to them. After reviewing such discoveries, the Indian tribes or NHOs can request further consultation on the project by notifying DOE, ACHP, and the SHPO in writing.

- D. The Recipient or subgrantee shall implement the avoidance, treatment or mitigation plan and advise the Recipient and DOE, if appropriate, of the satisfactory completion of the approved work. Once the approved work is complete the subgrantee may resume the activities that were halted to address the discovery situation.

XII Dispute Resolution'

- A. Should the SHPO object within the time frames outlined in this PA to any project undertakings, the Recipient shall consult further with the SHPO to attempt to remove the basis for the SHPO's objection. In the event that the SHPO's objection is not withdrawn, then the Recipient shall refer the matter to DOE. The Recipient shall forward all documentation relevant to DOE, who will notify and consult with the ACHP.
- B. The ACHP will provide its recommendations, if any, within 21 days following receipt of relevant documentation. DOE will take into account the ACHP's recommendations or formal comments in reaching a final decision regarding the dispute.

XIII. Reporting and Monitoring

- A. DOE, the ACHP, and the SHPO may monitor any undertakings carried out pursuant to this PA. The ACHP may review undertakings, if requested by DOE. DOE shall be entitled to address and make determinations on overall policy or administrative issues related to the implementation of these Programs.
- B. The Recipient shall adhere to DOE's established protocols for ARRA reporting program undertakings.
- C. DOE will submit annual reports to ACHP and NCSHPO commencing October 15, 2010 summarizing the Programs' undertakings, to include data on number of undertakings, the number of exempt undertakings, and reviews conducted under this PA.

XIV. Amendments

DOE, the SHPO, or the Recipient may request that this PA be amended, whereupon DOE and the SHPO, and the ACHP, if involved, will consult to consider such an amendment. Any such amendments shall be developed and executed among DOE, the Recipient, and the SHPO in the same manner as the original PA, and pertain only to this State PA.

XV. Duration of Agreement

This PA will be valid for three (3) years from the date of execution, as verified with DOE filing the PA with the ACHP.

(Federal Register Vol. 78, No. 50 – Thursday, March 14, 2013 extends the duration of the existing 44 agreements executed under the prototype PA until December 31, 2020.)

XVI. Termination of Agreement

DOE, the SHPO, or the Recipient may terminate the PA, provided that the party proposing termination notifies the other signatories and the ACHP in writing explaining the reasons for termination and affording the other signatories at least thirty (30) days to consult and seek alternatives to termination.


Signatories:

 4/19/2010

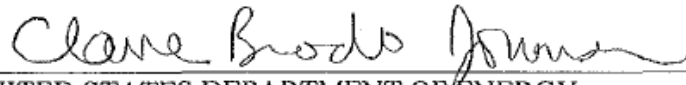
WASHINGTON DEPARTMENT OF COMMERCE Date
Tony Usibelli, Director, Washington State Energy Office

 4/21/10

WASHINGTON DEPARTMENT OF COMMERCE Date
Dan McConnon, Assistant Director, Community Services and Housing Division

 4/21/10

WASHINGTON STATE HISTORIC PRESERVATION OFFICER Date

 5/6/10

UNITED STATES DEPARTMENT OF ENERGY Date
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
OFFICE OF WEATHERIZATION AND INTERGOVERNMENTAL PROGRAMS

APPENDIX A-WAP AND SEP OR EECBP PROJECTS THAT ARE USING WAP PROCEDURES UNDERTAKINGS EXEMPT FROM SECTION 106 REVIEW

All undertakings will be done in accordance with applicable local building codes or the International Building Code, where applicable. In accordance with 36 CFR 800.3(a)(1), the following undertakings have been determined to have no potential to cause effects on historic properties:

A. Exterior Work

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

B. Interior Work

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

1) Energy efficiency work within the building shell:

- a. Thermal insulation in walls, floors, ceilings, attics, crawl spaces, ducts and foundations.
- b. Blown in wall insulation where no decorative plaster is damaged.
- c. Plumbing work, including installation of water heaters.
- d. Electrical work, including improving lamp efficiency.
- e. Sealing air leaks using weather stripping, door sweeps, and caulk and sealing major air leaks associated with bypasses, ducts, air conditioning units, etc.

- f. Repair or replace water heaters.
- g. Adding adjustable speed drives such as fans on air handling units, cooling tower fans, and pumps.
- h. Install insulation on water heater tanks and water heating pipes.
- i. Install solar water heating systems, provided the structure is not visible from the public right of way.
- j. Install waste heat recovery devices, including desuperheater water heaters, condensing heat exchangers, heat pump and water heating heat recovery systems, and other energy recovery equipment.
- k. Repair or replace electric motors and motor controls like variable speed drives.
- l. Incorporate other lighting technologies such as dimmable ballasts, day lighting controls, and occupant controlled dimming.

2) Work on heating and cooling systems:

- a. Clean, tune, repair or replace heating systems, including furnaces, oilers, heat pumps, vented space-heaters, and wood stoves.
- b. Clean, tune repair or replace cooling systems, including central air conditioners, window air conditioners, heat pumps, and evaporative coolers.
- c. Install insulation on ducts and heating pipes.
- d. Conduct other efficiency improvements on heating and cooling systems, including replacing standing pilot lights with electronic ignition devices and installing vent dampers.
- e. Modify duct and pipe systems so heating and cooling systems operate efficiently and effectively, including adding return ducts, replace diffusers and registers, replace air filters, install thermostatic radiator controls on steam and hot water heating systems.
- f. Install programmable thermostats, outdoor reset controls, UL listed energy management systems or building automation systems and other HVAC control systems.

3) Energy efficiency work affecting the electric baseload of the property:

- a. Convert incandescent lighting to more energy efficient lighting, such as, fluorescent, LED, etc.
- b. Add reflectors, LED exit signs, efficient HID fixtures, and occupancy (motion) sensors
- c. Replace refrigerators and other appliances.

4) Health and safety measures:

- a. Installing fire, smoke or carbon dioxide detectors / alarms.
- b. Repair or replace vent systems on fossil-fuel-fired heating systems and water heaters to ensure that combustion gasses exhaust safely to outside.
- c. Install mechanical ventilation, in a manner not visible from the public right of way, to ensure adequate indoor air quality if house is air sealed to building airflow standard.

APPENDIX B -SEP AND EECBG UNDERTAKINGS EXEMPT FROM SECTION 106 REVIEW

A. Category 1 -No Consultation Required

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

1. General efficiency measures not affecting the exterior of the building:

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

2. Insulation measures not affecting the exterior of the building:

- a. Thermal insulation installation in walls, floors and ceilings (excluding spray foam insulation and insulation installed through holes drilled in siding).
- b. Duct sealing, insulation, repair or replacement in unoccupied areas.
- c. Attic insulation with proper ventilation; if under an effective R8 -add additional R-19 up to R-38 (fiberglass bat only).
- d. Band joist insulation -R-11 to R19 as applicable.
- e. Water heater tank and pipe insulation.

3. Electric baseload measures not affecting the exterior of the building:

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

B. Category 2 -No Consultation Required when SOI Standards are Adhered to and Verified by Qualified Staff, if Applicable

The following undertakings may have effects on historic properties as defined in 36 CFR Part 800.5. However, if the activity or undertakings meet the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (36 CFR Part 68, July 12, 1995 *Federal Register*) (Standards) specified below then, DOE and the SHPO agree that the undertakings will have no adverse effect upon historic properties and DOE/Recipients shall not be required to further consult with the SHPO if reviews are conducted by Qualified Professionals, as defined in the *Secretary of Interior's Professional Qualifications Standards* set forth in 36 CFR Part 61, Appendix A.

Based on the above, the following work will not meet the Criteria of Adverse Effect when it adheres to the recommended approaches in the Standards and does not involve following significant spaces: entrances, entry halls, lobbies, areas for public gathering and circulation. Alternatively, if the following undertakings occur in a significant space, work will have not adverse effect on historic properties as long as it does not damage historic materials or finishes and new wiring, piping, and ductwork are concealed. All building undertakings under this section will be done in accordance with the Standards, or conditions and modifications proposed by the SHPO.

1. Efficiency and repair measures:

- a. Painting over previously painted exterior surfaces, provided destructive surface preparation treatments are not used (such as water-blasting, sandblasting and chemical removal).
- b. Installation or replacement of downspout extensions, provided that the color of the extensions is historically appropriate for the period and style of the property.
- c. Repairing or upgrading electrical or plumbing systems and installing mechanical equipment, in a manner that does not permanently change the appearance of the interior or exterior of the building.
- d. Installation of new HVAC equipment (such as pumps, motors, boilers, chillers, cooling towers, air handling units, package units, condensers, compressors, or heat exchangers) in a manner that does not permanently change the appearance of the building.
- e. Integrated shingle-style or thin film solar systems on the rear roof of the structure, behind the parapet or not visible from the public right of way.
- f. Solar systems (including photovoltaic and solar thermal) not visible from the public right of way and if ground-mounted can be installed without ground disturbance and if roof-mounted will not require new building reinforcement.
- g. Wind system additions to existing wind power facilities that will not require ground disturbance and if building mounted will not require building reinforcement.
- h. Lead-based paint abatement in accordance with the Standards and Preservation Brief #37.
- i. Building cleaning in accordance with the Standards and Preservation Briefs # 1, #6, and #10.
- j. Repairing masonry, including re-pointing and rebuilding chimneys in accordance with the Standards and Preservation Brief # 2.
- k. New lighting controls including photo-sensors and shading elements if not visible from the public right of way.
- l. New metering devices in a manner that does not permanently change the appearance of the interior or exterior of the building, or if the addition is on the exterior of the structure and is not visible from the public right of way.
- m. New water efficient fixtures and fittings in a manner that does not permanently change the appearance of the interior or exterior of the building.

2. Installation or repair of roofing, siding, and ventilation:

- a. White Roofs, Cool Roofs, Green Roofs, Sod or Grass Roofs not visible from the public right-of-way.
- b. Rainwater catches and/or gray water systems not viewable from the public right of way.
- c. Repair or replacement of existing exterior siding provided that new siding matches the existing siding in dimension, profile and texture.

- d. Flat or shallow pitch roof replacement (shallow pitch is defined as a pitch with a rise-to-run ratio equal to or less than 3" to 12") with no part of the surface of the roof visible from the ground.
- e. Roof repair or replacement with materials that closely resemble the historic materials and form, or with replacement materials that are close to the original in color, texture, composition and form to restore the original feature based on historic evidence, and in a manner that does not alter the roofline.
- f. Installing vents (such as continuous ridge vents covered with ridge shingles or boards, roof vents, bath and kitchen vents, soffit and frieze board vents or combustion appliance flues) if not located on a primary roof elevation or not visible from the public right-of-way.
- g. Installing foundation vents, if painted or finished to match the existing foundation material.

3. Windows and doors:

- a. Installing storm windows, storm doors or wood screen doors in a manner that does not harm or obscure historic windows, doors or trim.
- b. Installing insulated exterior replacement doors where the door openings are not altered and are not visible from the public right-of-way.
- c. Window or glazing treatments that do not change the appearance of the interior or exterior of the building, or if the addition is on the exterior of the structure.

ATTACHMENT A: STANDARD MITIGATION MEASURES FOR ADVERSE EFFECTS

The Recipient and the SHPO may develop and execute an Agreement that includes one or more of the following Standard Mitigation Measures, as may be modified to a particular activity, with the concurrence of both parties, for undertakings determined to have an adverse effect on listed or eligible historic resources. The ACHP will not be a party to these Agreements. However, the Recipient must submit a copy of each signed Agreement to the SHPO, and the ACHP within 30 days after it is signed by the Recipient and the SHPO.

1. Blanket/Programmatic Mitigation

The Recipient, in consultation with the SHPO and other local historic preservation agencies or nonprofit organizations, may agree to implement a blanket or programmatic mitigation measure. If all parties are amenable to this approach, other standard mitigation measures as identified below are encouraged, but not required, to be completed in fulfillment of the Agreement. Examples of blanket/programmatic measures that may undertaken include, but are not limited to: completion of a survey of historic properties; preparation of a National Register of Historic Places nomination of an eligible property or district; preparation of a historic context or preservation planning document; undertaking preservation/rehabilitation of a National Register listed or eligible property; conveyance of a lump-sum donation to a qualified historic preservation agency or organization for undertaking historic preservation activities. As with all mitigation measures in this document, the activity shall be carried out by professionals meeting the National Park Service Professional Qualifications as defined in 36 CFR Part 61. Any mitigation funds will come from the grantee's funds.

2. Recordation

The Recipient shall ensure that the historic property is recorded prior to its alteration in accordance with methods or standards established in consultation with the SHPO. The SHPO shall identify appropriate archive locations for the deposit of recordation materials and the Recipient shall be responsible for submitting required documentation to identified archive locations. The Recipient and the SHPO may mutually agree to waive the recordation requirement in situations where the integrity of the building has been compromised or other representative samples of similar historic resources have been previously recorded.

3. Architectural Salvage

The Recipient, in consultation with the SHPO, shall identify significant architectural features that can be salvaged and appropriate parties to receive the salvaged features. The Recipient shall ensure that any architectural features identified for salvage are salvaged prior to initiation of undertakings and properly stored and curated. When feasible, and determined appropriate in consultation with SHPO, salvaged architectural features shall be reused in other preservation projects.

4. Rehabilitation

The Recipient shall ensure that the treatment of historic properties which the SHPO has determined do not meet the *Standard*, or SHPO approved design guidelines, are carried out in accordance with treatments agreed upon by the Recipient and the SHPO and are incorporated in the final plans and specifications. The final plans and specifications shall be approved by the SHPO prior to initiating the undertaking.

5. New Construction

The Recipient shall ensure that the design of new buildings, or additions, which the SHPO has determined do not meet the *Standards*, or SHPO approved design guidelines, are carried out in accordance plans and specifications reviewed and approved by the SHPO prior to finalization and initiation of the undertaking.

Exhibit C---August 28, 2009 Delegation Memorandum

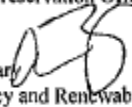


Department of Energy
Washington, DC 20585

August 28, 2009

MEMORANDUM

TO: State Historic Preservation Officers
Tribal Historic Preservation Officers

FROM: Catherine R. Zoi 
Assistant Secretary
Energy Efficiency and Renewable Energy

SUBJECT: Memorandum from EERE Regarding Delegation of Authority for Section 106 Review of Undertakings, Assisted by the U. S. Department of Energy, Office of Energy Efficiency and Renewable Energy

The Department of Energy (DOE), through the Office of Energy Efficiency and Renewable Energy (EERE), provides financial assistance to states, U.S. territories, units of local government, and Indian Tribes through the Energy Efficiency and Conservation Block Grant (EECBG) Program, Weatherization Assistance Program (Weatherization), and State Energy Program (SEP). Attached hereto is a one-page summary of the three programs. Additional program information is available at the following links: <http://www.eecbg.energy.gov/>; <http://apps1.eere.energy.gov/wip/weatherization.cfm>; http://apps1.eere.energy.gov/state_energy_program/.

Through this memorandum, DOE intends to formalize the role of the States and DOE's award recipients (Applicants) to assist DOE in carrying out its Section 106 compliance responsibilities. In order to streamline DOE's compliance with Section 106 and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800), EERE is authorizing its Applicants under the EECBG, Weatherization, and SEP programs to initiate consultation pursuant to 36 CFR § 800.2(c) (4). Effective immediately, EERE Applicants and their authorized representatives may consult with the State Historic Preservation Officers (SHPOs) and Tribal Historic Preservation Officers (THPOs) to initiate the review process established under 36 CFR Part 800 and to carry out some of its steps. Specifically, EERE Applicants are authorized to gather information to identify and evaluate historic properties, and to work with consulting parties to assess effects. EERE retains responsibility to document its findings and determinations in order to appropriately conclude Section 106 review.

EERE also remains responsible for initiating government-to-government consultation with federally recognized Indian Tribes. EERE's responsibility to consult on a government-to-government basis with Indian Tribes as sovereign nations is established through specific authorities and is explicitly recognized in 36 CFR Part 800. Accordingly, EERE may not delegate this responsibility to a non-federal party without

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.

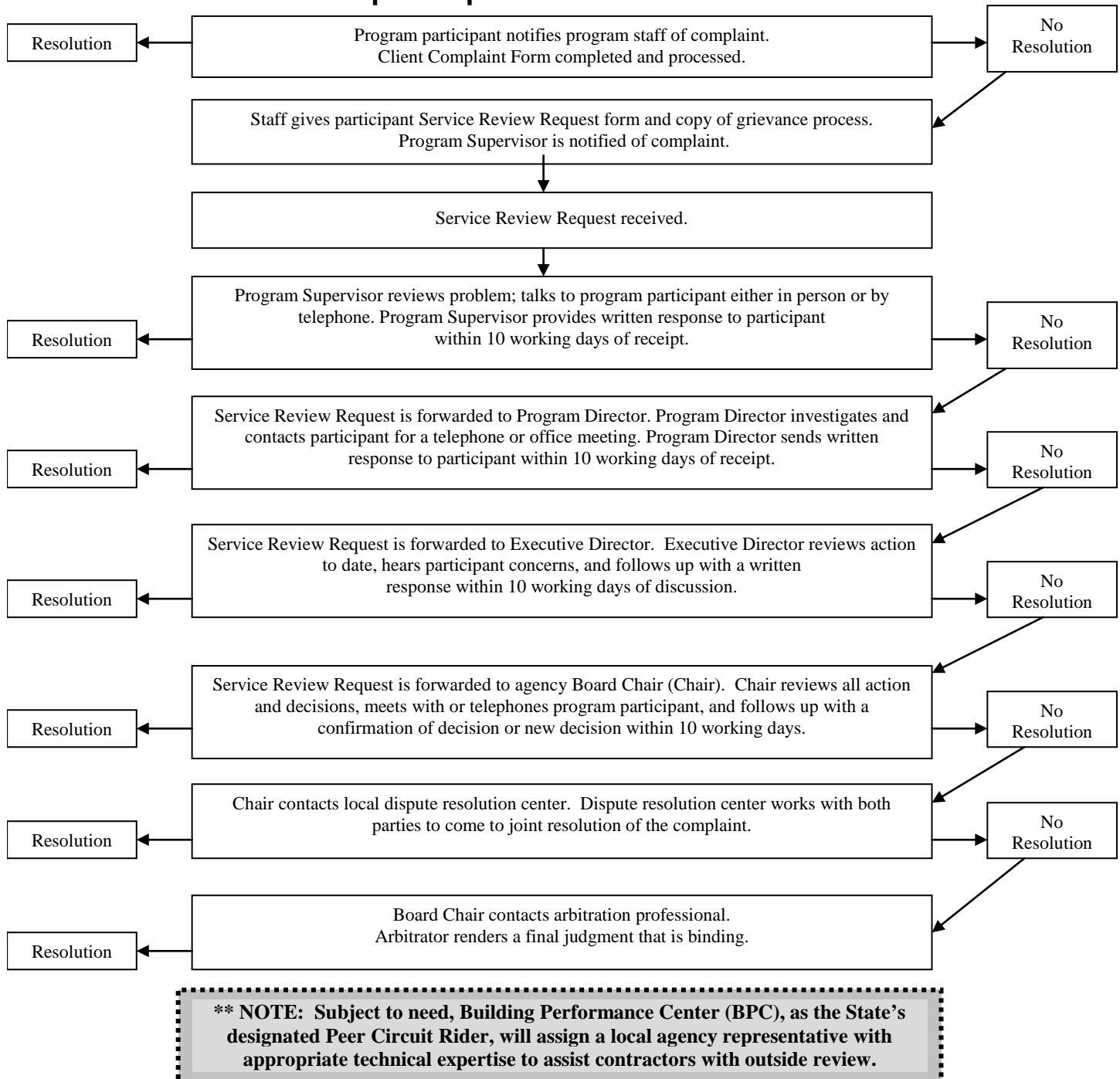
Step 3. If DAHP requests an EZ-3 form, make note of submittal date.

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 and mail one copy to the Commerce Representative listed on the Grant Face Sheet.

Date to Participant: _____

Sample Dispute Resolution Flow Chart



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 _____

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: _____

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 must 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.

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/>

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: drcle@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/>

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@nwinfo.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

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.

Link to Active Form: [Exhibit 5.1A\(1\), PL CALC-Site built](#)

Priority List Calculation Sheet – Site Built (PL CALC-Site Built)

Priority List SIR Analysis - Site Built														Inputs	Drop Down	Results																																																																																																		
Inputs																																																																																																																		
<table border="1"> <tr><td colspan="14">Site Data</td></tr> <tr><td>Commerce Project #</td><td colspan="13"></td></tr> <tr><td>Building Type</td><td colspan="13"></td></tr> <tr><td>Climate Zone</td><td colspan="13"></td></tr> <tr><td>Heating Fuel</td><td colspan="13"></td></tr> <tr><td>Area of Home (sq. ft.)</td><td colspan="13"></td></tr> <tr><td>Energy Cost Factor</td><td colspan="13">1.0</td></tr> </table>														Site Data														Commerce Project #														Building Type														Climate Zone														Heating Fuel														Area of Home (sq. ft.)														Energy Cost Factor	1.0															
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Energy Cost Factor	1.0																																																																																																																	
														Go To Results	Reset Inputs to Zero																																																																																																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15																																																																																																				
Measures	Existing Value	Post Value	Units	Maximum Unit Cost	Threshold Cost	Units Installed	Installed Cost	Leveraged Cost	Installed WRR Cost	Allowable WRR Cost Pool	SIR	Instructions																																																																																																						
Ceiling Insulation to R-49		49	R-Value	\$ 21.58 per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Post insulation is R-49; enter existing insulation R-value, sqft installed and cost																																																																																																						
Ceiling Insulation to R-38		38	R-Value	\$ 21.26 per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Post insulation is R-38; enter existing insulation R-value, sqft installed and cost																																																																																																						
Ceiling Insulation Sloped	0		R-Value	NA per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Assumes no existing insulation; enter R-value of installed insulation, sqft installed and cost; minimum is R-11																																																																																																						
Wall Insulation to R-13		0%	Percent Gaps	\$ - per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Enter the percent existing insulation gaps (100% for no insulation), sqft installed and cost																																																																																																						
Knee Wall Insulation	0		R-Value	\$ - per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Assumes no existing insulation; enter R-value of installed insulation, sqft installed and cost; minimum is R-11																																																																																																						
Floor Insulation		30	R-Value	\$ 2.27 per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Post insulation is R-30; enter existing insulation R-value, sqft installed and cost																																																																																																						
Air Sealing			Blower Door CFM50	\$ 4.63 per cfm50	\$ -	- cfm50	\$ -	\$ -	\$ -	\$ -	NA	Enter pre and post blower door measurements (CFM50) and cost																																																																																																						
Duct Insulation	0		R-Value	\$ - per lin ft	\$ -	- lin ft	\$ -	\$ -	\$ -	\$ -	NA	Assumes no existing insulation; enter R-value of installed insulation, linear feet installed and cost; minimum is R-11																																																																																																						
Duct Sealing		0		\$ 9.16 per lin ft	\$ -	- lin ft	\$ -	\$ -	\$ -	\$ -	NA	Enter linear feet sealed and cost																																																																																																						
Ductless Heat Pump				NA each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Enter units installed and cost																																																																																																						
90%+ Natural Gas Furnace				\$ 5,238.61 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Enter units installed and cost																																																																																																						
Pipe Insulation				\$ 2.71 per lin ft	\$ -	- lin ft	\$ -	\$ -	\$ -	\$ -	NA	Enter linear feet installed and cost																																																																																																						
Water Heater Insulation				\$ 723.46 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Enter units installed and cost																																																																																																						
Faucet Aerator				\$ 25.85 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Enter units installed and cost																																																																																																						
Showerhead				\$ 87.24 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Enter units installed and cost																																																																																																						
CFL Bulb				\$ 11.18 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Enter units installed and cost																																																																																																						
LED Bulb				\$ 20.29 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Enter units installed and cost																																																																																																						
Other Repairs (describe below)				NA each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	0.00	Enter number of weatherization related repairs that are not associated with any weatherization measures and cost; describe																																																																																																						
Total Package					\$ -		\$ -	\$ -	\$ -	\$ -																																																																																																								
Description of Other Repairs:																																																																																																																		

Priority List SIR Analysis - Site Built														INPUT	RESULTS												
Priority List SIR Analysis - Results																											
<table border="1"> <tr><td>Commerce Project #</td><td>0</td></tr> <tr><td>Building Type</td><td>0</td></tr> <tr><td>Climate Zone</td><td>0</td></tr> <tr><td>Heating Fuel</td><td>0</td></tr> <tr><td>Square Footage</td><td>0</td></tr> <tr><td>Energy Cost Factor</td><td>1</td></tr> </table>														Commerce Project #	0	Building Type	0	Climate Zone	0	Heating Fuel	0	Square Footage	0	Energy Cost Factor	1		
Commerce Project #	0																										
Building Type	0																										
Climate Zone	0																										
Heating Fuel	0																										
Square Footage	0																										
Energy Cost Factor	1																										
														Select All Measures													
														Unselect All Measures													
														Hide Uninstalled Measures													
														Show All Measures													
														Select Printer													
														PRINT													
														Sort Output Table													

Measures	Existing Value	Post Value	Units	Maximum Unit Cost	Threshold Cost	Units Installed	Installed Cost	Leveraged Cost	Installed WRR Cost	Allowable WRR Cost Pool	SIR	Install?
Ceiling Insulation to R-49	0	49	R-Value	\$ 21.58 per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Yes
Ceiling Insulation to R-38	0	38	R-Value	\$ 21.26 per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Yes
Ceiling Insulation Sloped	0	0	R-Value	NA per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Yes
Wall Insulation to R-13	0%	0%	Percent Gaps	\$ - per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Yes
Knee Wall Insulation	0	0	R-Value	\$ - per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Yes
Floor Insulation	0	30	R-Value	\$ 2.27 per sqft	\$ -	- sqft	\$ -	\$ -	\$ -	\$ -	NA	Yes
Air Sealing	0	0	Blower Door CFM50	\$ 4.63 per cfm50	\$ -	- cfm50	\$ -	\$ -	\$ -	\$ -	NA	Yes
Duct Insulation	0	0	R-Value	\$ - per lin ft	\$ -	- lin ft	\$ -	\$ -	\$ -	\$ -	NA	Yes
Duct Sealing	0	0		\$ 9.16 per lin ft	\$ -	- lin ft	\$ -	\$ -	\$ -	\$ -	NA	Yes
Ductless Heat Pump	0	0		NA each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Yes
90%+ Natural Gas Furnace	0	0		\$ 5,238.61 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Yes
Pipe Insulation	0	0		\$ 2.71 per lin ft	\$ -	- lin ft	\$ -	\$ -	\$ -	\$ -	NA	Yes
Water Heater Insulation	0	0		\$ 723.46 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Yes
Faucet Aerator	0	0		\$ 25.85 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Yes
Showerhead	0	0		\$ 87.24 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Yes
CFL Bulb	0	0		\$ 11.18 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Yes
LED Bulb	0	0		\$ 20.29 each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	NA	Yes
Other Repairs (describe below)	0	0		NA each	\$ -	- each	\$ -	\$ -	\$ -	\$ -	0.00	Yes
	0	0		\$ - 0	\$ -	- 0	\$ -	\$ -	\$ -	\$ -	0.00	Yes
	0	0		\$ - 0	\$ -	- 0	\$ -	\$ -	\$ -	\$ -	0.00	Yes
	0			\$ - 0	\$ -	- 0	\$ -	\$ -	\$ -	\$ -	0.00	Yes
Total Package					\$ -		\$ -	\$ -	\$ -	\$ -		
Description of Other Repairs:												

Link to Active Form: [Exhibit 5.1A\(2\), PL CALC-Mobile Home](#)

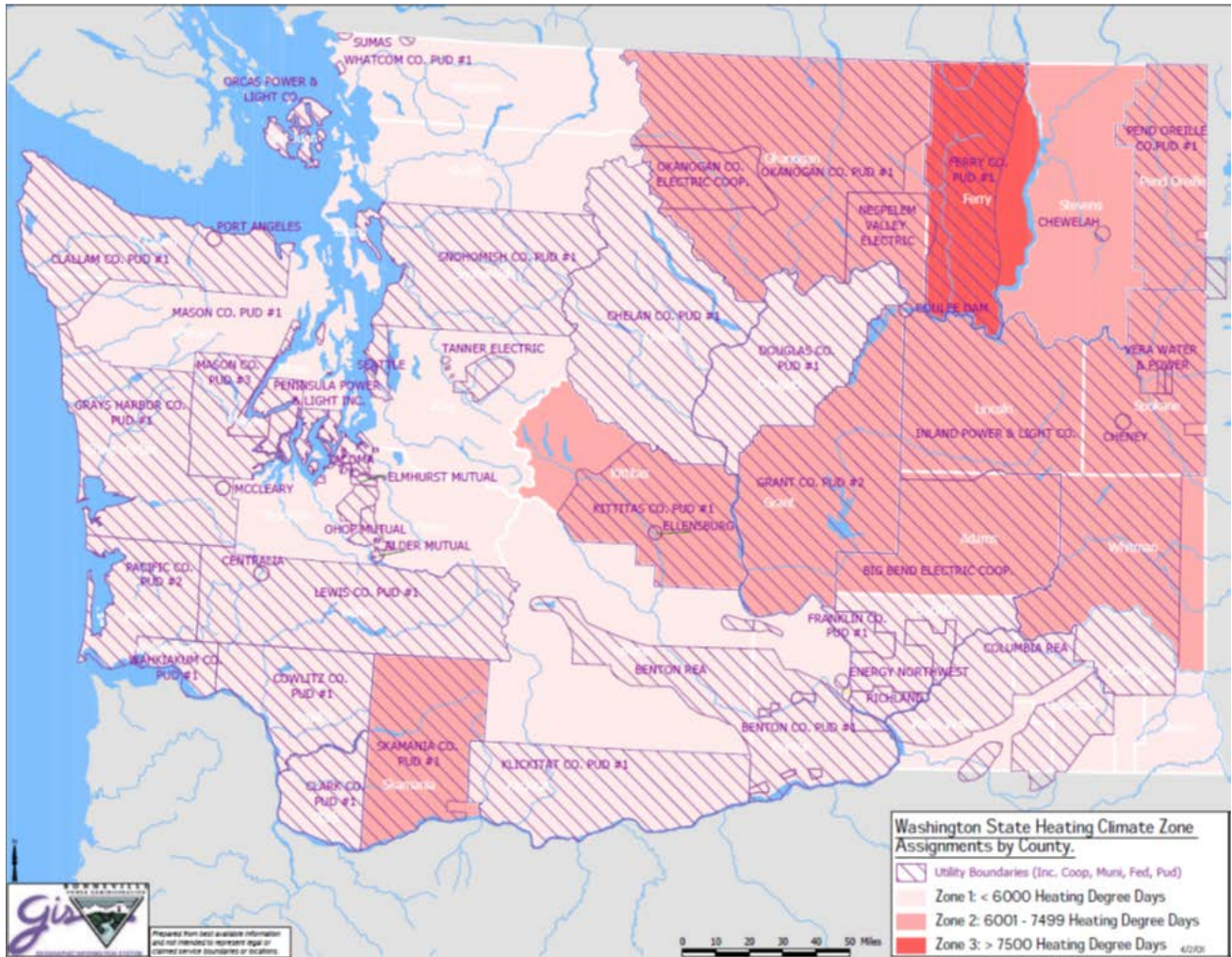
Priority List Calculation Sheet – Mobile Home (PL CALC – Mobile)

Priority List SIR Analysis - Mobile				Inputs	Drop Downs	Results														
Inputs																				
<table border="1"> <tr> <td>Site Data</td> <td></td> </tr> <tr> <td>Commerce Project #</td> <td>404-19555</td> </tr> <tr> <td>Building Type</td> <td>Single-wide</td> </tr> <tr> <td>Climate Zone</td> <td>1</td> </tr> <tr> <td>Heating Fuel</td> <td>Natural Gas</td> </tr> <tr> <td>Area of Home (sq. ft.)</td> <td>1,000</td> </tr> <tr> <td>Energy Cost Factor</td> <td>1.9</td> </tr> </table>							Site Data		Commerce Project #	404-19555	Building Type	Single-wide	Climate Zone	1	Heating Fuel	Natural Gas	Area of Home (sq. ft.)	1,000	Energy Cost Factor	1.9
Site Data																				
Commerce Project #	404-19555																			
Building Type	Single-wide																			
Climate Zone	1																			
Heating Fuel	Natural Gas																			
Area of Home (sq. ft.)	1,000																			
Energy Cost Factor	1.9																			
Go To Results Reset Inputs to Zero																				
Measures	Existing Value	Post Value	Units	Maximum Unit Cost	Threshold Cost	Units Installed	Installed Cost	Leveraged and MM Repair Cost	Installed WRR Cost	Allowable WRR Cost Pool	SIR	Instructions								
1 Ceiling Insulation to R-19 (SW)	3	19	R-Value	\$ 2.81 per sqft	\$ 2,812	1,000 sqft	\$ 2,800	\$ 500	\$ 500	\$ 812	1.41	Post insulation is R-19; enter existing insulation R-value, sqft installed and cost								
2 Ceiling Insulation to R-31 (SW)	0	31	R-Value	\$ 6.89 per sqft	\$ 6,887	1,000 sqft	\$ 3,500	\$ 200	\$ 1,000	\$ 3,387	1.97	Post insulation is R-31; fill cavity plus 2" rigid insulation; enter existing insulation R-value, sqft installed and cost								
3 Ceiling Insulation to R-26 (DW)	7	26	R-Value	N/A per sqft		500 sqft	\$ 5,000	\$ -	\$ -		NA	Post insulation is R-26; enter existing insulation R-value, sqft installed and cost								
4 Ceiling Insulation to R-38 (DW)	11	38	R-Value	N/A per sqft		1,000 sqft	\$ 3,000	\$ 400	\$ 500	\$ -	NA	Post insulation is R-38; enter existing insulation R-value, sqft installed and cost								
5 Wall Insulation 2x4 to R-13	80%	0%	Percent Gaps	\$ 4.63 per sqft	\$ 906	200 sqft	\$ 800	\$ -	\$ -	\$ 126	1.16	Enter the percent existing insulation gaps (100% for no insulation), sqft installed and cost								
6 Wall Insulation 2x3 to R-9	40%	0%	Percent Gaps	\$ 0.91 per sqft	\$ 908	1,000 sqft	\$ 2,000	\$ -	\$ -	\$ -	0.45	Enter the percent existing insulation gaps (100% for no insulation), sqft installed and cost								
7 Floor Insulation to R-19	9	19	R-Value	\$ 1.33 per sqft	\$ 1,333	1,000 sqft	\$ 2,000	\$ 500	\$ -	\$ -	0.67	Assumes up to R-19 is installed; enter existing insulation R-value, sqft installed and cost								
8 Floor Insulation to R-30	0	30	R-Value	\$ 4.13 per sqft	\$ 4,125	1,000 sqft	\$ 4,000	\$ 500	\$ 200	\$ 125	1.03	Assumes up to R-30 is installed; enter existing insulation R-value, sqft installed and cost								
9 Air Sealing	2600	1800	Blower Door CFM50	\$ 1.70 per cfm50	\$ 1,358	800 cfm50	\$ 800	\$ 300	\$ -	\$ 558	1.70	Enter pre and post blower door measurements (CFM50) and cost								
10 Duct Insulation	0	11	R-Value	\$ 11.05 per lin ft	\$ 553	50 lin ft	\$ 500	\$ -	\$ 500	\$ 53	1.11	Assumes no existing insulation; enter R-value of installed insulation, linear feet installed and cost; minimum is R-11								
11 Duct Sealing				\$ 7.08 per lin ft	\$ 354	50 lin ft	\$ 300	\$ 300	\$ -	\$ 54	1.18	Enter linear feet sealed and cost								
12 90% Natural Gas Furnace				\$ 1,651.89 each	\$ 1,652	1 each	\$ 1,500	\$ 3,000	\$ -	\$ 152	1.10	Enter units installed and cost								
13 Pipe Insulation				\$ 4.12 per lin ft	\$ 206	50 lin ft	\$ 250	\$ -	\$ -	\$ -	0.82	Enter linear feet installed and cost								
14 Water Heater Insulation				\$ 0.04 each	\$ 0	1 each	\$ 100	\$ -	\$ -	\$ -	0.00	Enter units installed and cost								
15 Faucet Aerator				\$ 11.58 each	\$ 12	1 each	\$ 30	\$ -	\$ -	\$ -	0.39	Enter units installed and cost								
16 Showerhead				\$ 125.14 each	\$ 250	2 each	\$ 80	\$ -	\$ -	\$ 80	3.13	Enter units installed and cost								
17 CFL Bulb				\$ 17.24 each	\$ 86	5 each	\$ 75	\$ -	\$ -	\$ 11	1.15	Enter units installed and cost								
18 LED Bulb				\$ 31.46 each	\$ 157	5 each	\$ 100	\$ -	\$ 400	\$ 57	1.57	Enter units installed and cost								
19 Other Repairs (describe below)						1 each	\$ -	\$ -	\$ 400	\$ -	0.00	Enter number of weatherization related repairs that are not associated with any weatherization measures and cost; describe								
Total Package							\$ 21,619	\$ 26,035	\$ 5,700	\$ 3,500	\$ 5,415	1.06								
Description of Other Repairs:																				
Door repair																				

Priority List SIR Analysis - Mobile				INPUT	RESULTS												
Priority List SIR Analysis - Results																	
<table border="1"> <tr> <td>Commerce Project #</td> <td>404-19555</td> </tr> <tr> <td>Building Type</td> <td>Single-wide</td> </tr> <tr> <td>Climate Zone</td> <td>1</td> </tr> <tr> <td>Heating Fuel</td> <td>Natural Gas</td> </tr> <tr> <td>Square Footage</td> <td>1000</td> </tr> <tr> <td>Energy Cost Factor</td> <td>1</td> </tr> </table>				Commerce Project #	404-19555	Building Type	Single-wide	Climate Zone	1	Heating Fuel	Natural Gas	Square Footage	1000	Energy Cost Factor	1	<div>Select All Measures</div> <div>Unselect All Measures</div> <div>Hide Uninstalled Measures</div> <div>Show All Measures</div> <div>Select Printer</div> <div>PRINT</div>	
Commerce Project #	404-19555																
Building Type	Single-wide																
Climate Zone	1																
Heating Fuel	Natural Gas																
Square Footage	1000																
Energy Cost Factor	1																
<div>Sort Output Table</div>																	

Measures	Existing Value	Post Value	Units	Maximum Unit Cost	Threshold Cost	Units Installed	Installed Cost	Leveraged and MM Repair Cost	Installed WRR Cost	Allowable WRR Cost Pool	SIR	Install?
Showerhead	0	0		\$ 125.14 each	\$ 250	2 each	\$ 80	\$ -	\$ -	\$ 80	3.13	Yes
Ceiling Insulation to R-31 (SW)	0	31	R-Value	\$ 6.89 per sqft	\$ 6,887	1,000 sqft	\$ 3,500	\$ 200	\$ 1,000	\$ 3,387	1.97	Yes
Air Sealing	2,600	1,800	Blower Door CFM50	\$ 1.70 per cfm50	\$ 1,358	800 cfm50	\$ 800	\$ 300	\$ -	\$ 558	1.70	Yes
LED Bulb	0	0		\$ 31.46 each	\$ 157	5 each	\$ 100	\$ -	\$ 400	\$ 57	1.57	Yes
Ceiling Insulation to R-19 (SW)	3	19	R-Value	\$ 2.81 per sqft	\$ 2,812	1,000 sqft	\$ 2,000	\$ 500	\$ 500	\$ 812	1.41	Yes
Duct Sealing	0	0		\$ 7.08 per lin ft	\$ 354	50 lin ft	\$ 300	\$ 300	\$ -	\$ 54	1.18	Yes
Wall Insulation 2x4 to R-13	80%	0%	Percent Gaps	\$ 4.63 per sqft	\$ 926	200 sqft	\$ 800	\$ -	\$ -	\$ 126	1.16	Yes
CFL Bulb	0	0		\$ 17.24 each	\$ 86	5 each	\$ 75	\$ -	\$ -	\$ 11	1.15	Yes
Duct Insulation	0	11	R-Value	\$ 11.05 per lin ft	\$ 553	50 lin ft	\$ 500	\$ -	\$ 500	\$ 53	1.11	Yes
90% Natural Gas Furnace	0	0		\$ 1,651.89 each	\$ 1,652	1 each	\$ 1,500	\$ 3,000	\$ -	\$ 152	1.10	Yes
Floor Insulation to R-30	0	30	R-Value	\$ 4.13 per sqft	\$ 4,125	1,000 sqft	\$ 4,000	\$ 500	\$ 200	\$ 125	1.03	Yes
Pipe Insulation	0	0		\$ 4.12 per lin ft	\$ 206	50 lin ft	\$ 250	\$ -	\$ -	\$ -	0.82	Yes
Floor Insulation to R-19	9	19	R-Value	\$ 1.33 per sqft	\$ 1,333	1,000 sqft	\$ 2,000	\$ 500	\$ -	\$ -	0.67	Yes
Wall Insulation 2x3 to R-9	40%	0%	Percent Gaps	\$ 0.91 per sqft	\$ 908	1,000 sqft	\$ 2,000	\$ -	\$ -	\$ -	0.45	Yes
Faucet Aerator	0	0		\$ 11.58 each	\$ 12	1 each	\$ 30	\$ -	\$ -	\$ -	0.39	Yes
Water Heater Insulation	0	0		\$ 0.04 each	\$ 0	1 each	\$ 100	\$ -	\$ -	\$ -	0.00	Yes
Other Repairs (describe below)	0	0		\$ - 0	\$ -	1 each	\$ -	\$ -	\$ 400	\$ -	0.00	Yes
Total Package							\$ 21,619	\$ 18,035	\$ 5,300	\$ 3,000	\$ 5,415	1.11
Description of Other Repairs: Door repair												

Climate Zone Map and Tables



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 Community Action 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

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

Priority Lists Climate Zone 1 - Mobile Homes

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Priority Lists Climate Zone 1 – Site Built Homes

	Electric	Gas																																																																																																																																				
Site Built - 1 Story	Z1E1 <table> <tr><td>1</td><td>Install Low-flow Showerhead</td><td>8.24</td></tr> <tr><td>2</td><td>Attic: Add R-38 (R-0 -> R-38)</td><td>8.22</td></tr> <tr><td>3</td><td>Attic: Add R-49 (R-0 -> R-49)</td><td>7.91</td></tr> <tr><td>4</td><td>Install Low-flow Faucet Aerator</td><td>4.55</td></tr> <tr><td>5</td><td>Duct: Add R-11 (R-0->R-11)</td><td>3.85</td></tr> <tr><td>6</td><td>Duct: Add R-19 (R-0 -> R-19)</td><td>3.60</td></tr> <tr><td>7</td><td>Wall: No insulation - fill w/R-13</td><td>3.19</td></tr> <tr><td>8</td><td>Attic: Add R-30 (R-8 -> R-38)</td><td>1.92</td></tr> <tr><td>9</td><td>Water Pipe Insulation (R-0->R-3)</td><td>1.72</td></tr> <tr><td>10</td><td>Water Heater Insulation (R-0->R-24)</td><td>1.63</td></tr> <tr><td>11</td><td>Floor: Add R-30 (R-0 -> R-30)</td><td>1.50</td></tr> <tr><td>12</td><td>Attic: Add R-38 (R-11 -> R-49)</td><td>1.39</td></tr> <tr><td>13</td><td>Install LED or CFL Bulbs</td><td>1.31</td></tr> <tr><td>14</td><td>Air Sealing</td><td>1.27</td></tr> <tr><td>15</td><td>Wall: 40% gaps and voids- fill w/R-13</td><td>1.12</td></tr> <tr><td>16</td><td>Attic: Add R-19 (R-19 -> R-38)</td><td>1.08</td></tr> <tr><td>17</td><td>Duct Sealing</td><td>1.02</td></tr> </table>	1	Install Low-flow Showerhead	8.24	2	Attic: Add R-38 (R-0 -> R-38)	8.22	3	Attic: Add R-49 (R-0 -> R-49)	7.91	4	Install Low-flow Faucet Aerator	4.55	5	Duct: Add R-11 (R-0->R-11)	3.85	6	Duct: Add R-19 (R-0 -> R-19)	3.60	7	Wall: No insulation - fill w/R-13	3.19	8	Attic: Add R-30 (R-8 -> R-38)	1.92	9	Water Pipe Insulation (R-0->R-3)	1.72	10	Water Heater Insulation (R-0->R-24)	1.63	11	Floor: Add R-30 (R-0 -> R-30)	1.50	12	Attic: Add R-38 (R-11 -> R-49)	1.39	13	Install LED or CFL Bulbs	1.31	14	Air Sealing	1.27	15	Wall: 40% gaps and voids- fill w/R-13	1.12	16	Attic: Add R-19 (R-19 -> R-38)	1.08	17	Duct Sealing	1.02	Z1G1 <table> <tr><td>1</td><td>Attic: Add R-38 (R-0 -> R-38)</td><td>6.74</td></tr> <tr><td>2</td><td>Attic: Add R-49 (R-0 -> R-49)</td><td>6.50</td></tr> <tr><td>3</td><td>Water Heater Insulation (R-0->R-24)</td><td>4.21</td></tr> <tr><td>4</td><td>Install Low-flow Showerhead</td><td>4.13</td></tr> <tr><td>5</td><td>Wall: No insulation - fill w/R-13</td><td>2.68</td></tr> <tr><td>6</td><td>Duct: Add R-11 (R-0->R-11)</td><td>2.50</td></tr> <tr><td>7</td><td>Duct: Add R-19 (R-0 -> R-19)</td><td>2.34</td></tr> <tr><td>8</td><td>Install Low-flow Faucet Aerator</td><td>2.28</td></tr> <tr><td>9</td><td>Install LED or CFL Bulbs</td><td>1.65</td></tr> <tr><td>10</td><td>Attic: Add R-30 (R-8 -> R-38)</td><td>1.64</td></tr> <tr><td>11</td><td>Floor: Add R-30 (R-0 -> R-30)</td><td>1.24</td></tr> <tr><td>12</td><td>Attic: Add R-38 (R-11 -> R-49)</td><td>1.19</td></tr> <tr><td>13</td><td>Wall: 40% gaps and voids- fill w/R-13</td><td>1.12</td></tr> <tr><td>14</td><td>Air Sealing</td><td>1.09</td></tr> </table>	1	Attic: Add R-38 (R-0 -> R-38)	6.74	2	Attic: Add R-49 (R-0 -> R-49)	6.50	3	Water Heater Insulation (R-0->R-24)	4.21	4	Install Low-flow Showerhead	4.13	5	Wall: No insulation - fill w/R-13	2.68	6	Duct: Add R-11 (R-0->R-11)	2.50	7	Duct: Add R-19 (R-0 -> R-19)	2.34	8	Install Low-flow Faucet Aerator	2.28	9	Install LED or CFL Bulbs	1.65	10	Attic: Add R-30 (R-8 -> R-38)	1.64	11	Floor: Add R-30 (R-0 -> R-30)	1.24	12	Attic: Add R-38 (R-11 -> R-49)	1.19	13	Wall: 40% gaps and voids- fill w/R-13	1.12	14	Air Sealing	1.09																																							
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Site Built - 2 Story	Z1E2 <table> <tr><td>1</td><td>Install Low-flow Showerhead</td><td>8.27</td></tr> <tr><td>2</td><td>Attic: Add R-38 (R-0 -> R-38)</td><td>7.08</td></tr> <tr><td>3</td><td>Attic: Add R-49 (R-0 -> R-49)</td><td>6.83</td></tr> <tr><td>4</td><td>Install Low-flow Faucet Aerator</td><td>4.57</td></tr> <tr><td>5</td><td>Duct: Add R-11 (R-0->R-11)</td><td>4.39</td></tr> <tr><td>6</td><td>Duct: Add R-19 (R-0 -> R-19)</td><td>4.10</td></tr> <tr><td>7</td><td>Wall: No insulation - fill w/R-13</td><td>3.51</td></tr> <tr><td>8</td><td>Duct Sealing</td><td>1.95</td></tr> <tr><td>9</td><td>Attic: Add R-30 (R-8 -> R-38)</td><td>1.88</td></tr> <tr><td>10</td><td>Water Pipe Insulation (R-0->R-3)</td><td>1.65</td></tr> <tr><td>11</td><td>Water Heater Insulation (R-0->R-24)</td><td>1.64</td></tr> <tr><td>12</td><td>Air Sealing</td><td>1.48</td></tr> <tr><td>13</td><td>Wall: 40% gaps and voids- fill w/R-13</td><td>1.37</td></tr> <tr><td>14</td><td>Attic: Add R-38 (R-11 -> R-49)</td><td>1.37</td></tr> <tr><td>15</td><td>Install LED or CFL Bulbs</td><td>1.03</td></tr> <tr><td>16</td><td>Floor: Add R-30 (R-0 -> R-30)</td><td>1.02</td></tr> </table>	1	Install Low-flow Showerhead	8.27	2	Attic: Add R-38 (R-0 -> R-38)	7.08	3	Attic: Add R-49 (R-0 -> R-49)	6.83	4	Install Low-flow Faucet Aerator	4.57	5	Duct: Add R-11 (R-0->R-11)	4.39	6	Duct: Add R-19 (R-0 -> R-19)	4.10	7	Wall: No insulation - fill w/R-13	3.51	8	Duct Sealing	1.95	9	Attic: Add R-30 (R-8 -> R-38)	1.88	10	Water Pipe Insulation (R-0->R-3)	1.65	11	Water Heater Insulation (R-0->R-24)	1.64	12	Air Sealing	1.48	13	Wall: 40% gaps and voids- fill w/R-13	1.37	14	Attic: Add R-38 (R-11 -> R-49)	1.37	15	Install LED or CFL Bulbs	1.03	16	Floor: Add R-30 (R-0 -> R-30)	1.02	Z1G2 <table> <tr><td>1</td><td>Attic: Add R-38 (R-0 -> R-38)</td><td>5.82</td></tr> <tr><td>2</td><td>Attic: Add R-49 (R-0 -> R-49)</td><td>5.62</td></tr> <tr><td>3</td><td>Water Heater Insulation (R-0->R-24)</td><td>4.26</td></tr> <tr><td>4</td><td>Install Low-flow Showerhead</td><td>4.13</td></tr> <tr><td>5</td><td>Wall: No insulation - fill w/R-13</td><td>2.85</td></tr> <tr><td>6</td><td>Duct: Add R-11 (R-0->R-11)</td><td>2.84</td></tr> <tr><td>7</td><td>Duct: Add R-19 (R-0 -> R-19)</td><td>2.66</td></tr> <tr><td>8</td><td>Install Low-flow Faucet Aerator</td><td>2.28</td></tr> <tr><td>9</td><td>Attic: Add R-30 (R-8 -> R-38)</td><td>1.58</td></tr> <tr><td>10</td><td>Duct Sealing</td><td>1.26</td></tr> <tr><td>11</td><td>Air Sealing</td><td>1.26</td></tr> <tr><td>12</td><td>Install LED or CFL Bulbs</td><td>1.25</td></tr> <tr><td>13</td><td>Attic: Add R-38 (R-11 -> R-49)</td><td>1.16</td></tr> <tr><td>14</td><td>Wall: 40% gaps and voids- fill w/R-13</td><td>1.13</td></tr> </table>	1	Attic: Add R-38 (R-0 -> R-38)	5.82	2	Attic: Add R-49 (R-0 -> R-49)	5.62	3	Water Heater Insulation (R-0->R-24)	4.26	4	Install Low-flow Showerhead	4.13	5	Wall: No insulation - fill w/R-13	2.85	6	Duct: Add R-11 (R-0->R-11)	2.84	7	Duct: Add R-19 (R-0 -> R-19)	2.66	8	Install Low-flow Faucet Aerator	2.28	9	Attic: Add R-30 (R-8 -> R-38)	1.58	10	Duct Sealing	1.26	11	Air Sealing	1.26	12	Install LED or CFL Bulbs	1.25	13	Attic: Add R-38 (R-11 -> R-49)	1.16	14	Wall: 40% gaps and voids- fill w/R-13	1.13																																										
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Priority Lists Climate Zone 2 - Mobile Homes

Electric

Gas

Z2ES

1	Install Low-flow Showerhead	11.93
2	Attic: Add R-19 (R-0 -> R-19)	11.17
3	Wall: 2x4 cavity no insulation-fill	7.33
4	Attic: Add R-16 (R-3 -> R-19)	5.03
5	Duct Sealing	4.49
6	Duct: Add R-11 (R-0->R-11)	4.04
7	Duct: Add R-19 (R-0 -> R-19)	3.83
8	Floor: Add R-30 (R-0 -> R-30)	3.74
9	Floor: Add R-19 (R-0 -> R-19)	3.55
10	Wall: 2x3[1] cavity no insulation-fill	3.24
11	Attic: Add R-12 (R-7 -> R-19)	2.96
12	Attic: Add R-31 (R-0 -> R-31)	2.29
13	Floor: Add R-23 (R-7 -> R-30)	2.17
14	Water Pipe Insulation (R-0->R-3)	2.09
15	Install Low-flow Faucet Aerator	2.06
16	Air Sealing	2.01
17	Floor: Add R-12 (R-7 -> R-19)	1.99
18	Floor: Add R-19 (R-11 -> R-30)	1.43
19	Wall: 2x4 cavity 40% gaps and voids-fill	1.32
20	Install LED or CFL Bulbs	1.28
21	Floor: Add R-8 (R-11 -> R-19)	1.22
22	Floor: Add R-8 (R-11 -> R-19)	1.06
23	Attic: Add R-28 (R-3 -> R-31)	1.06
24	Wall: 2x3 cavity 40% gaps and voids-fill	1.03

Z2GS

1	Attic: Add R-19 (R-0 -> R-19)	6.33
2	Install Low-flow Showerhead	5.92
3	Wall: 2x4 cavity no insulation-fill	4.05
4	Attic: Add R-16 (R-3 -> R-19)	2.84
5	Duct Sealing	2.33
6	Duct: Add R-11 (R-0->R-11)	2.09
7	Floor: Add R-30 (R-0 -> R-30)	2.02
8	Duct: Add R-19 (R-0 -> R-19)	1.99
9	Floor: Add R-19 (R-0 -> R-19)	1.92
10	Install LED or CFL Bulbs	1.75
11	Attic: Add R-12 (R-7 -> R-19)	1.67
12	Wall: 2x3[1] cavity no insulation-fill	1.60
13	Attic: Add R-31 (R-0 -> R-31)	1.30
14	Floor: Add R-23 (R-7 -> R-30)	1.17
15	Air Sealing	1.08
16	Floor: Add R-12 (R-7 -> R-19)	1.07
17	Install Low-flow Faucet Aerator	1.02

Z2ED

1	Attic: Add R-26 (R-0 -> R-26)	9.98
2	Attic: Add R-38 (R-0 -> R-38)	8.47
3	Wall: 2x4 cavity no insulation-fill	7.88
4	Install Low-flow Showerhead	7.54
5	Attic: Add R-23 (R-3 -> R-26)	5.34
6	Attic: Add R-35 (R-3 -> R-38)	4.74
7	Duct: Add R-11 (R-0->R-11)	4.67
8	Duct: Add R-19 (R-0 -> R-19)	4.44
9	Floor: Add R-30 (R-0 -> R-30)	3.94
10	Duct Sealing	3.93
11	Floor: Add R-19 (R-0 -> R-19)	3.76
12	Attic: Add R-19 (R-7 -> R-26)	3.68
13	Wall: 2x3 cavity no insulation-fill	3.51
14	Attic: Add R-31 (R-7 -> R-38)	3.48
15	Air Sealing	2.33
16	Floor: Add R-23 (R-7 -> R-30)	2.18
17	Attic: Add R-27 (R-11 -> R-38)	2.03
18	Floor: Add R-12 (R-7 -> R-19)	1.99
19	Attic: Add R-15 (R-11 -> R-26)	1.88
20	Install Low-flow Faucet Aerator	1.73
21	Water Pipe Insulation (R-0->R-3)	1.59
22	Attic: Add R-22 (R-16 -> R-38)	1.48
23	Floor: Add R-19 (R-11 -> R-30)	1.47
24	Wall: 2x4 cavity 40% gaps and voids-fill	1.31
25	Install LED or CFL Bulbs	1.27
26	Floor: Add R-8 (R-11 -> R-19)	1.27
27	Attic: Add R-10 (R-16 -> R-26)	1.11
28	Wall: 2x3 cavity 40% gaps and voids-fill	1.03

Z2GD

1	Attic: Add R-26 (R-0 -> R-26)	5.74
2	Attic: Add R-38 (R-0 -> R-38)	4.87
3	Wall: 2x4 cavity no insulation-fill	4.43
4	Install Low-flow Showerhead	3.75
5	Attic: Add R-23 (R-3 -> R-26)	3.08
6	Attic: Add R-35 (R-3 -> R-38)	2.73
7	Duct: Add R-11 (R-0->R-11)	2.63
8	Duct: Add R-19 (R-0 -> R-19)	2.50
9	Duct Sealing	2.21
10	Floor: Add R-30 (R-0 -> R-30)	2.21
11	Attic: Add R-19 (R-7 -> R-26)	2.12
12	Floor: Add R-19 (R-0 -> R-19)	2.11
13	Attic: Add R-31 (R-7 -> R-38)	2.01
14	Wall: 2x3[1] cavity no insulation-fill	2.00
15	Install LED or CFL Bulbs	1.52
16	Air Sealing	1.29
17	Floor: Add R-23 (R-7 -> R-30)	1.21
18	Attic: Add R-27 (R-11 -> R-38)	1.17
19	Floor: Add R-12 (R-7 -> R-19)	1.11
20	Attic: Add R-15 (R-11 -> R-26)	1.08
21	90%+ Natural Gas Furnace	1.00

Single Wide

Double Wide

Priority Lists Climate Zone 2 – Site Built Homes

Site Built - 1 Story

Site Built - 1.5 Story

Site Built - 2 Story

Electric

Gas

Z2E1

1 Attic: Add R-38 (R-0 -> R-38)	12.68
2 Attic: Add R-49 (R-0 -> R-49)	12.21
3 Install Low-flow Showerhead	8.24
4 Duct: Add R-11 (R-0->R-11)	6.28
5 Duct: Add R-19 (R-0 -> R-19)	5.88
6 Install Low-flow Faucet Aerator	4.55
7 Wall: No insulation - fill w/R-13	4.52
8 Attic: Add R-30 (R-8 -> R-38)	3.00
9 Attic: Add R-38 (R-11 -> R-49)	2.18
10 Floor: Add R-30 (R-0 -> R-30)	1.99
11 Wall: 40% gaps and voids- fill w/R-13	1.88
12 Water Pipe Insulation (R-0->R-3)	1.87
13 Water Heater Insulation (R-0->R-24)	1.73
14 Duct Sealing	1.68
15 Air Sealing	1.67
16 Attic: Add R-19 (R-19 -> R-38)	1.46
17 Attic: Add R-30 (R-19 -> R-49)	1.45
18 Install LED or CFL Bulbs	1.13
19 Floor: Add R-19 (R-11 -> R-30)	1.03
20 Attic: Add R-19 (R-30 -> R-49)	1.00

Z2G1

1 Attic: Add R-38 (R-0 -> R-38)	9.97
2 Attic: Add R-49 (R-0 -> R-49)	9.61
3 Water Heater Insulation (R-0->R-24)	4.49
4 Install Low-flow Showerhead	4.12
5 Duct: Add R-11 (R-0->R-11)	4.04
6 Duct: Add R-19 (R-0 -> R-19)	3.78
7 Wall: No insulation - fill w/R-13	3.68
8 Attic: Add R-30 (R-8 -> R-38)	2.51
9 Install Low-flow Faucet Aerator	2.28
10 Attic: Add R-38 (R-11 -> R-49)	1.83
11 Wall: 40% gaps and voids- fill w/R-13	1.59
12 Floor: Add R-30 (R-0 -> R-30)	1.56
13 Install LED or CFL Bulbs	1.45
14 Air Sealing	1.40
15 Attic: Add R-19 (R-19 -> R-38)	1.22
16 Attic: Add R-30 (R-19 -> R-49)	1.22
17 Duct Sealing	1.11

Z2E1.5

1 Cathedral Ceiling: Add R-11 (R-0 ->R-11)	23.01
2 Cathedral Ceiling: Add R-17 (R-0 ->R-17)	18.62
3 Knee Wall: 2x4 cavity Add R-13 (R-0->R-13)	9.24
4 Knee Wall: 2x6 cavity Add R-21 (R-0->R-21)	8.96
5 Knee Wall: 2x4 cavity Add R-15 (R-0->R-15)	8.87
6 Install Low-flow Showerhead	8.27
7 Knee Wall: 2x6 cavity Add R-19 (R-0->R-19)	7.47
8 Knee Wall: 2x4 cavity Add R-11 (R-0->R-11)	7.39
9 Duct: Add R-11 (R-0->R-11)	7.32
10 Duct: Add R-19 (R-0 -> R-19)	6.85
11 Attic: Add R-38 (R-0 -> R-38)	6.69
12 Attic: Add R-49 (R-0 -> R-49)	6.46
13 Install Low-flow Faucet Aerator	4.57
14 Wall: No insulation - fill w/R-13	3.96
15 Duct Sealing	2.81
16 Attic: Add R-30 (R-8 -> R-38)	1.99
17 Water Pipe Insulation (R-0->R-3)	1.84
18 Water Heater Insulation (R-0->R-24)	1.75
19 Floor: Add R-30 (R-0 -> R-30)	1.73
20 Wall: 40% gaps and voids- fill w/R-13	1.73
21 Air Sealing	1.72
22 Attic: Add R-38 (R-11 -> R-49)	1.48
23 Install LED or CFL Bulbs	1.23
24 Attic: Add R-19 (R-19 -> R-38)	0.97
25 Attic: Add R-30 (R-19 -> R-49)	0.97
26 Floor: Add R-19 (R-11 -> R-30)	0.94

Z2G1.5

1 Cathedral Ceiling: Add R-11 (R-0 ->R-11)	18.34
2 Cathedral Ceiling: Add R-17 (R-0 ->R-17)	14.80
3 Knee Wall: 2x4 cavity Add R-13 (R-0->R-13)	6.61
4 Knee Wall: 2x6 cavity Add R-21 (R-0->R-21)	6.43
5 Knee Wall: 2x4 cavity Add R-15 (R-0->R-15)	6.36
6 Knee Wall: 2x6 cavity Add R-19 (R-0->R-19)	5.35
7 Knee Wall: 2x4 cavity Add R-11 (R-0->R-11)	5.28
8 Attic: Add R-38 (R-0 -> R-38)	4.92
9 Attic: Add R-49 (R-0 -> R-49)	4.76
10 Duct: Add R-11 (R-0->R-11)	4.68
11 Water Heater Insulation (R-0->R-24)	4.55
12 Duct: Add R-19 (R-0 -> R-19)	4.38
13 Install Low-flow Showerhead	4.12
14 Wall: No insulation - fill w/R-13	3.07
15 Install Low-flow Faucet Aerator	2.28
16 Duct Sealing	1.82
17 Install LED or CFL Bulbs	1.55
18 Attic: Add R-30 (R-8 -> R-38)	1.51
19 Air Sealing	1.38
20 Wall: 40% gaps and voids- fill w/R-13	1.33
21 Attic: Add R-38 (R-11 -> R-49)	1.26
22 Floor: Add R-30 (R-0 -> R-30)	1.23

Z2E2

1 Attic: Add R-38 (R-0 -> R-38)	10.81
2 Attic: Add R-49 (R-0 -> R-49)	10.43
3 Install Low-flow Showerhead	8.27
4 Duct: Add R-11 (R-0->R-11)	7.00
5 Duct: Add R-19 (R-0 -> R-19)	6.55
6 Wall: No insulation - fill w/R-13	4.98
7 Install Low-flow Faucet Aerator	4.56
8 Duct Sealing	3.14
9 Attic: Add R-30 (R-8 -> R-38)	2.89
10 Attic: Add R-38 (R-11 -> R-49)	2.13
11 Wall: 40% gaps and voids- fill w/R-13	1.95
12 Air Sealing	1.95
13 Water Pipe Insulation (R-0->R-3)	1.80
14 Water Heater Insulation (R-0->R-24)	1.75
15 Attic: Add R-19 (R-19 -> R-38)	1.42
16 Attic: Add R-30 (R-19 -> R-49)	1.42
17 Floor: Add R-30 (R-0 -> R-30)	1.40
18 Install LED or CFL Bulbs	1.00
19 Attic: Add R-19 (R-30 -> R-49)	0.99

Z2G2

1 Attic: Add R-38 (R-0 -> R-38)	8.60
2 Attic: Add R-49 (R-0 -> R-49)	8.30
3 Water Heater Insulation (R-0->R-24)	4.54
4 Duct: Add R-11 (R-0->R-11)	4.49
5 Duct: Add R-19 (R-0 -> R-19)	4.20
6 Install Low-flow Showerhead	4.12
7 Wall: No insulation - fill w/R-13	3.85
8 Attic: Add R-30 (R-8 -> R-38)	2.38
9 Install Low-flow Faucet Aerator	2.28
10 Duct Sealing	2.03
11 Attic: Add R-38 (R-11 -> R-49)	1.75
12 Air Sealing	1.60
13 Wall: 40% gaps and voids- fill w/R-13	1.54
14 Install LED or CFL Bulbs	1.28
15 Attic: Add R-19 (R-19 -> R-38)	1.17
16 Attic: Add R-30 (R-19 -> R-49)	1.17

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.			

Solid Fuel Burning Appliance Systems Supplemental Audit Form

Complete this form and place in client 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

Client Education Checklist is under development

When implemented via Policy Memo (scheduled for Fall of 2018), this active link will go to the standardized Client Education Checklist: [Exhibit-5.1.4A-Client-Education-Checklist](#)

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: **Tim Wilkins, 3362 Freezing Lane, Anchorage, AK**

Monthly Energy Cost of Existing Refrigerator, as read by Power Meter: **\$ 10.23 per month**

Annual Energy Use of Replacement Refrigerator from Energy Label: **430 kWh per year**

Cost of Refrigerator Replacement, including disposal of old fridge: **\$ 500**

Electric Rate for the Home with the Refrigerator:
(make sure this is entered into the Power Meter) **\$ 0.095 per kWh**

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**

CERTIFICATE OF INSULATION							
DWELLING INFORMATION				CONTRACTOR INFORMATION			
ADDRESS OF RESIDENCE:				NAME: ADDRESS:			
DATE INSULATION WAS INSTALLED:							
Area Insulated / Area Identifier <small>(Insert "area-specific" info in space provided)</small>	Square Footage	Existing R Value	Added R Value	Final R Value	Type of Insulation & Method of Installation (Standard or Dense Pack)	Depth	# of Bags
Attic – Area 1							
Attic – Area 2							
Attic – Area 3							
Floor – Area 1							
Floor – Area 2							
Floor – Area 3							
Wall – Area 1							
Wall – Area 2							
Wall – Area 3							
Other							

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.

AUTHORIZED SIGNATURE

DATE

REVISED 4/03

Exhibit 5.3.1A

Link to Active Form: [Exhibit 5.3.1A, Combustion Safety](#) and [Exhibit 5.3.1A\(2\), Daily In-Progress](#)
Oct 20, 2016



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Combustion Safety Test Report

Client		Date				
Address		Auditor & Inspector name <i>initials do not suffice</i>				

Pre-test: *START CO measurement (Monoxer) outside*

Combustion Appliance Zone (CAZ)		PRE	POST	PRE	POST
1	CAZ Pressure with reference to (WRT) outside "B"				
2	Outside wind speed				
3	Outside temperature				
4	Designate appliance(s):	1:		2:	
	Appliance location	1:		2:	
	Appliance efficiency	1:		2:	
	Type of combustion open/closed	1:		2:	
	Type of draft natural/induced/forced	1:		2:	
	Shared venting yes/no	1:		2:	
	Vent Category Type I, II, III, IV	1:		2:	
5	Hazardous or unsafe conditions observed?	Y/N	Y/N	Y/N	Y/N
6	Visible signs of vent pipe leaks or damage observed?	Y/N	Y/N	Y/N	Y/N
7	Smell of gas or indication of fuel leak(s) observed?	Y/N	Y/N	Y/N	Y/N

Furnace on or off? Could be worst case either way, depending on duct leakage

on/off	on/off	on/off	on/off
--------	--------	--------	--------

Set up CAZ in Worst Case Depressurization (see Exhibit 5.3.1B Tech S)		PRE	POST	PRE	POST
8	pressure WRT outside. Door open/closed (circle)				
8a	Result of Line #8 minus Line #1 "baseline" = Worst C				
8b	Record CAZ Depressurization Limit: See Reference Tables				

Start up combustion appliance		PRE	POST	PRE	POST
9	Flame roll-out observed	Y/N	Y/N	Y/N	Y/N
10	If yes, STOP test. Let cool. Continue test in natural conditions. (circle)	Y/N	Y/N	Y/N	Y/N
11	Did the flame change when the air handler turned on?	Y/N/NA	Y/N/NA	Y/N/NA	Y/N/NA

After 5 minutes of combustion (steady state)		PRE	POST	PRE	POST
12	Measure ambient CO in the living space.				
13	Measure draft pressure in combustion appliance vent WRT				
13a	Record Minimum Acceptable Draft Pressures: See Reference Tab				
14	Measure CO in the exhaust gases of the vented appliance				
15	Measure draft pressure in the combustion appliance vent (From line #8, if door is closed-open it. If door is open-close it) Door is open / close (circle one)				
16	Measure heat rise temperature across heat exchanger				
16a	Record manufacturer's acceptable heat rise range from label				

Fireplace/Wood Stove Zone (FPWSZ)		PRE	POST	PRE	POST
17	Measure FPWSZ pressure WRT outside				
	Vent pipe, chimney, or clearance problems observed (note below)	Y/N	Y/N	Y/N	Y/N

Oven		PRE	POST	PRE	POST
18	Measure CO in the exhaust gases of the oven				
	Ambient 1				
	Ambient 2				

Return house to pretest conditions		PRE	POST	PRE	POST
19	Check box when done. Add any comments or notes below.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Notes:

COMBUSTION SAFETY TEST REPORT REFERENCE TABLES

Vent Categorization Per NFPA 54 (Line 4)			
Category I	NFGC	Category III	Airtight
Non-Condensing Negative Pressure (-) High Temperature Flue Gases Natural or Fan Assisted Drafts AFUE usually 65-83% Typical Materials: Single wall metal, B-Vent, Lined Masonry		Non-Condensing Positive Pressure (+) High Temperature Flue Gases Fan Assisted Draft AFUE usually 78-87% Typical Materials: Sealed metal or plastics per manufacturer	
Category II	Corrosion Resistant	Category IV	Airtight & Corrosion Resistant
Condensing Negative Pressure (-) Low Temperature Flue Gases <<very little equipment in this category>> Typical Materials: Special as designated by manufacturer		Condensing Positive Pressure (+) Low Temperature Flue Gases Sealed Combustion AFUE usually 90% + Typical Materials: Sealed plastics per manufacturer specification	

Table 4: CAZ Depressurization Limits (Line 8b)	
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

Min Acceptable Draft Pressures (Line 13a)

Temp (F)	Draft (Pa)
≤15	-2.4
20	-2.3
25	-2.1
30	-2.0
35	-1.9
40	-1.8
45	-1.6
50	-1.5
55	-1.4
60	-1.3
65	-1.1
70	-1.0
75	-0.9
80	-0.8
85	-0.6
≥ 90	-0.5

Table 3: Combustion Safety Test Action Level Table (Line 14)			
CO Test Result for undiluted flue gas at steady	And/Or	Spillage and Draft Test Results	Retrofit Action
0 - 25 ppm	And	Passes	Proceed with work
26 - 100 ppm	And	Passes	Recommend that CO problem be fixed
26 - 100 ppm	And	Fails under Worst case only	Recommend a service call for the appliance. Correct problems causing combustion appliance to fail under worst case test
>100 - 400 ppm	Or	Fails under natural conditions	Stop Work: Work may not proceed until the system is serviced and the problem is corrected.
> 400 ppm	And	Passes	Stop Work: Work may not proceed until the system is serviced and the problem is corrected.
>400 ppm	And	Fails under any condition	Emergency: Shut off fuel to the appliance. Owner/Agency call for service immediately.

Depressurization Result - ACTION
The 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 Table 4: CAZ Depressurization Limits (above).
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.

Table 3.1: CO Test Action Levels for Ovens at Steady State Operation (Line 18)	
CO Test Result for undiluted flue gas	Retrofit Action
0 - 99 ppm	Proceed with work.
100 - 300 ppm	Recommend service.
>300 ppm	Unit must be serviced prior to Wx work.

Notes:

Link to Active Form: [Exhibit 5.3.1A, Combustion Safety](#) and [Exhibit 5.3.1A\(2\), Daily In-Progress](#)



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Daily In-Progress Combustion Safety Test Report

Client		Date						
Address		Auditor Name <i>initials do not suffice</i>						
Local Agency Auditor: Complete Line 4 and 8b								
4	<i>FA = Forced Air, HWT = Hot Water Tank, WS = Wood Stove, FP = Fireplace, PS = Pellet Stove, R = Range</i>		<i>Place abbreviation for appliance in lines below</i>					
	Fuel Type: (LP, NG, Oil, Wood, Pellet)							
	Designate appliance(s): Appliance (App) Name		App 1:		App 2:			
	Appliance Location		App 1:		App 2:			
	Type of combustion (open/closed)		App 1:		App 2:			
	Type of draft (natural/induced/forced)		App 1:		App 2:			
	Shared venting (yes/no)		App 1:		App 2:			
	Vent Category (Type I, II, III, IV)		App 1:		App 2:			
8b	Record CAZ Depressurization Limit (See Reference Tables)							
			Date - Day One	Date - Day Two		Date - Day Three		
Contractor/Technician: Complete remainder of form								
			Day One	Day Two		Day Three		
Working CO Detector present or installed Day One?			yes / no					
Technician Name/Date (<i>initials do not suffice</i>)								
Set up CAZ in Worst Case Depressurization (see Exhibit 5.3.1B Technical Support Document)			Day One		Day Two		Day Three	
			App 1	App 2	App 1	App 2	App 1	App 2
1	"Baseline" CAZ Pressure with reference to (WRT) outside							
	Furnace on or off? Either could be Worst Case, depending on duct leakage.		on / off	on / off	on / off	on / off	on / off	on / off
	Indicate whether CAZ door is open or closed (circle one)		open/closed	open/closed	open/closed	open/closed	open/closed	open/closed
8	Record CAZ pressure WRT outside							
8a	Record result of Line #8 minus Line #1 ("baseline")							
	Record CAZ Depressurization Limit from 8b (above)							
<i>If worst case depressurization exceeds depressurization limit, ACTION is required. See back of form.</i>								
Start up Appliance			Day One		Day Two		Day Three	
			App 1	App 2	App 1	App 2	App 1	App 2
10	Did the equipment spill gasses for more than 1 minute?		yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
<i>If answer is "yes," ACTION is required. See back of form.</i>								
Return house to pretest conditions			Day One		Day Two		Day Three	
19	Check box when done. Add any comments or notes		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Notes:

COMBUSTION SAFETY TEST REPORT REFERENCE TABLES

Table 4: CAZ Depressurization Limits (Line 8b Combustion Safety Test Report)	
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

Depressurization/Spillage Result - ACTION

Local Agency (LA) 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 Table 4: CAZ Depressurization Limits (above). If spillage exceeds 1 minute ACTION is required.

Exception: If LA is unable to meet CAZ Depressurization Limits or standards, reasonable efforts attempted, actions taken, and education provided to the client shall be documented in the client file.

In-Progress Daily Test Out - ACTION Items

If worst case depressurization exceeds depressurization limit ACTION is required.

If spillage exceeds 1 minute ACTION is required.

Document ACTIONS Taken		√ Done	Levels	Initials	Date
1.	Document Daily Test Out levels that exceed limit:				
2.	Call Auditor for direction and document:				
3.	Do one or more of the following				
a.	Confirm CO Detector is in place and operational:				
b.	Take steps to mitigate issue for overnight:				
(1)	Reduce depressurization				
	Disable/Disengage fan that is creating problem:				
	Tape of switch:				
	Other: _____				
(2)	Ventilate				
	Provide makeup air for interim:				
	Open window:				
	Other: _____				
4.	Inform Client of ACTION(s) taken (temporary):				Client signature - received info
	Educate Client steps must take (or not) to remain safe:				
5.	Re-test and Document after taking mitigation actions:				

State of Washington, Weatherization Assistance Program

Technical Support Document

Combustion Safety

This document is intended to support in detail the Combustion Safety Test Report. The Combustion Safety Test Report is a tool to document the condition of two (2) appliances and their performance. Each combustion appliance in homes that are weatherized or repaired must be reported pre- and post- on a combustion safety test report. The added columns allow two (2) combustion appliances per form. Each row of the pre- and post- columns must be addressed.

The Combustion Safety Test Report must be filled out in detail for each completed project. You must document in the comments section of the Combustion Safety 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 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.

Pre-test:

Start CO measurement (Monoxer) outside.

Line #1 Measure existing Combustion Appliance Zone (CAZ) pressure (baseline), CAZ With Respect To (WRT)) outside.

Measure the existing CAZ pressure (baseline), house with reference to outside. You will need this measurement when measuring combustion appliance zone worst-case and other procedures that are normally low-pressure measurements (-15pa to 15pa).

Line #2 Outdoor wind speed

Using a Dwyer wind gauge, measure and record the outside wind speed if there is noticeable wind at the time of testing. If the wind speed is consistently in excess of 15 mph or gusting to the point of not being able to get an accurate test, document this condition and return at a later date to get accurate test results. If winds in excess of 15 mph do exist, this condition does not preclude performing Section I and Section II of the diagnostic test report. Under these conditions you will have to come back (when there is wind less than 15 mph) to confirm lines #8, 13, 15 and 17. You may find hazardous conditions before you get to line #8, or other problems not related to pressure and draft.

Line #3 Outdoor temperature

Record the outside ambient temperature. You will need this number to determine if there is adequate minimum draft (line #13 &15).

Line #4 Combustion Appliance Zone(CAZ)*, designate appliance

Record what kind of appliance (furnace, hot water heater, parlor stove, fireplace, woodstove, etc.) is in the CAZ. Write it in on the line provided. Also determine what type of appliance it is in terms of direct-vent, sealed-combustion, induced draft, etc. This will help determine how and where an appliance should be tested later in this procedure.

***Definition:** Combustion appliance zone (CAZ) is the physical area in which the combustion appliance is located or contained by door or access closure. Examples: A closet with a closing door, an attic with a closing access panel between the living space and attic, a living room that contains a fireplace or wood stove and has doors that isolate this area from bedrooms and other rooms. A combustion appliance zone is any area (zone) which can be physically closed off to another part of the home, and that contains a combustion appliance. If the only combustion source is a fireplace or wood stove go to line #17.

Line #5 Is there a hazardous or unsafe condition?

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, you must comment with name and date.

Line #6 Are there visible signs of vent pipe leaks or damage?

Are there any problems with the combustion appliance vent pipe, connecting chimney, chimney liner, or vent termination that need repairs or further inspection?

Line #7 Is there the smell of gas or indication of fuel leak

Do you or the client smell any gas? Did you check with a combustible gas detector or with detection fluid? If there is a leak, indicate by marking yes, and contact the local natural gas company or a contractor and document the location of the leak below in the comments section.

When leak is on client side of meter: Fuel leaks that are the responsibility of the client (vs. the utility) must be repaired before weatherizing a unit.

When a minor gas leak is found on the utility side of service: the utility service must 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.

Worst-case* set-up test for Combustion Appliance Zone.

*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.

Worst-Case Set-Up procedure

Prepare house:

1. Close all interior and exterior doors and windows. Is furnace air handler on or off? Could be worst-case either way, depending on duct leakage. Turn on all exhaust fans - bathroom, kitchen, clothes dryers (clean out lint filter).*
2. 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.
 - a. Position yourself in or towards the main body of the house.
 - b. 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.
3. 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.

* **EXCEPTION TO STEP (1.)** 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 must do line #13 a second time, going back and smoking the interior doors again to ensure you had 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, document the results, and go back through lines #8 through #13.

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.

Line #8 Measure the CAZ WRT outdoors. Is the CAZ door Open or closed?

Follow worst-case set -up procedure (above) to determine whether to leave open or shut the CAZ room door(s). Please circle whether you left the CAZ door OPEN or CLOSED. Then record what the pressure is in the CAZ WRT outside using line #1, CAZ baseline pressure to have a better understanding of the contribution the mechanical systems are having on the home versus natural pressures (i.e. stack wind etc.).

****Action Level**

Table 4: CAZ Depressurization Limits

Line #9 Was there flame roll-out of combustion equipment?

When the (furnace or hot water heater) combustion appliance starts up, does the flame come out of the appliance? When possible, this test should be done with a cold startup. Many times if the chimney or vent pipe is already heated, the appliance will draft, but it may not be able to start a draft in a cold chimney. Also, check cover panels and the area around the burner for burned or charred spots. If you see flame roll out or signs that it may be happening intermittently then circle **YES** and comment in file.

Line #10 Did the equipment spill gases for more than one minute?

Does the atmospheric draft or induced draft (hot water heater, parlor stove, furnace etc.) appliance spill combustion gases for more than a minute? If **YES**, STOP test. Let cool. Continue test in natural conditions. Check all around the draft hood with chemical smoke, as some appliances will spill combustion gases and draft at the same time.

Table 2: Maximum Acceptable Appliance Spillage Periods

Appliance Type	Spillage Test Period (minutes)
Water Heater, Gravity Furnace, Boiler	1.0
Space-Heater	1.0
Forced Air Furnace	1.0

**** Note:** Generally you will find that if an appliance spills combustion gases for more than one (1) minute, this is an indicator that there will be a draft, chimney configuration, or pressure problems detected at some point between lines 13 and 16.

Line #11 Did the flame change in the furnace when the air handler turned on?

Did the flame change when the fan in the furnace turned on? This can indicate a crack in the heat exchanger. If yes, comment in the file and have it checked by HVAC technician.

**** Note:** If you are working on a furnace without a manual fan switch, you may have to shut down the furnace and start it again to observe this condition because you will have a lot going on when the air handler comes on the first time. Checking for flame change may not detect an existing cracked heat exchanger. Other possible indications of a cracked heat exchanger may be soot in the home, the smell of un-burnt gas or oil, elevated CO levels in the appliance exhaust, and elevated CO levels in the living space when the furnace is running. If you encounter any of these conditions, there are other tests for cracked heat exchangers that you may want to identify and have performed by a qualified professional (check with your HVAC contractor or technician). Caution and a full understanding of the operating performance of all the combustion appliances in the home must be considered when attributing soot, un-burnt gas smells, and elevated CO levels to a cracked heat exchanger.

Line #12 After 5 minutes measure the CO in the ambient air in the living space

Zero the monoxer outside before proceeding. After the combustion appliance has been running for 5 minutes, test the ambient air of the living room or upstairs hallway (if it is a two story) for CO with your monoxer. Record any CO in the living space above zero (0) in parts per million (PPM).

****Action level:** If the ambient CO in the home is above 9 PPM (maximum allowable 9 PPM) and attributable to any combustion appliance in the home, then action must be taken to mitigate the source of the CO before weatherization or repair work starts, or the ambient CO level must be monitored and the problem(s) resolved as part of the work specified. **No home shall be left with ambient CO greater than 9 PPM (attributable to existing combustion appliances) after 5 minutes of run time for an appliance.**

Line #13 Measure the draft pressure in the vent of the combustion appliance Test the combustion appliance vent WRT CAZ

With your digital manometer, measure the draft pressure in the combustion appliance vent (preferably 18" up the vent pipe from the appliance) with reference to the room and record the number in pascals. Be sure to indicate whether negative or positive. Always check your draft pressure measurements with chemical smoke as a confirming test.

If the appliance does not have adequate draft under worst-case conditions, you can start evaluating the problem by turning off all fans and see if the appliance drafts under any or best case condition.

Refer back to line# 2 and check the wind speed, if the wind speed is consistently in excess of 15 mph or gusting to the point of not being able to get an accurate test, document this condition and return at a later date to get accurate test results. If there is marginal draft or a condition that may cause backdrafting or spillage, inform the occupants of this situation and make the appropriate recommendations for use of the appliance until additional testing or repairs can be made. Document the condition in the comments section.

Line #13a Minimum Acceptable Draft Pressure: Calculate the minimum acceptable draft pressure using the ranges in Table 1 and record limit in the box.

Table 1: Minimum Acceptable Draft Test Action Levels

Outside Temperature (degree F)	Draft Pressure Standard (Pa)
<10	-2.5
10-90	$(\text{Outside temp} / 40) - 2.75^*$
>90	-0.5

*Calculation is as follows: Divide the outside temp by 40, then subtract 2.75 from this value. The result is the minimum acceptable draft.

Line #14 Measure the CO in the exhaust gases of the vented appliance

With your monoxer, take a measurement in the undiluted flue gases of the combustion appliance. Where practical, this test should be measured in the flue ports of the appliance. If you cannot measure at the appliance, measure at its termination point realizing this is a diluted sample but better than not testing at all.

Table 3: Combustion Safety Test Action Level Table

Line #15 If the door of CAZ is closed - open it. If the door is open – close it. Open/closed. Combustion Appliance vent WRT CAZ.

If in the beginning of your worst-case set-up test, you left the CAZ door closed, then open it. If left open in the beginning, then close it. Then record the draft pressure combustion appliance vent WRT CAZ as in line #13. This is a verifying test. This test double checks your measurements and helps confirm the results. Always check your draft pressure measurements with chemical smoke as a confirming test.

****Action Level:** See action level [Table 4 - CAZ Depressurization Limits](#)

**Line #16 Heat Rises: Measure temperature across heat exchanger:
Heat rise = supply plenum temp - return plenum temp**

To get the “heat rise”, 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 must 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 #17 Fireplace/wood stove zone worst-case test: FPWSZ zone WRT outdoors

Record the pressure of the zone that the fireplace or wood stove occupies. See *Worst-Case Set-Up Procedure* between lines #7 and #8, this procedure is the same for fireplace/wood-stove zones. Also document any vent pipe, chimney, or clearance problems with the wood-burning appliance in the comments section.

****Action Level:** See action level [Table 4 - CAZ Depressurization Limits](#) on reverse side of *Combustion Safety Test Report (Exhibit 5.3.1A)*

Line #18 Measure the CO in exhaust gases of Ovens:

Interim Gas/Propane Oven Testing Procedure

Ovens produce moisture and oxides of nitrogen. Excess moisture is not good for the durability of the home (possibly contributing to mold problems) and NOX is not healthy. These combustion appliances are capable of producing CO, which is a health hazard. In all cases a carbon monoxide detector is recommended and homeowners should use exhaust ventilation when using these appliances. New appliances may require an extended warm up period to reach steady-state.

- a. Remove any items/foil in or on oven.
- b. Make sure self cleaning features are not activated, set oven to highest setting.
- c. Test oven for CO in the flue, before dilution air.
- d. After 5 minutes of operation, check for steady-state:

If the appliance is located in a confined space and mechanical ventilation is not readily available, mechanical ventilation shall be recommended.

Ventilation provided for unvented gas ovens must provide a minimum capacity of 25 cfm continuous airflow or 100 cfm intermittent.

Oven

Then take a reading in the undiluted flue gases of the oven (after 5 minutes of burn time) and record in PPM. Look in the oven for anything that may melt or catch fire before performing the test. Make sure the oven burner is actually on during the test.

Ambient CO Levels

Carbon monoxide levels in the ambient air around the technician must be monitored throughout all combustion safety tests. Diagnostic evaluations and inspections must be aborted if ambient CO concentrations **greater than 35 ppm** are recorded. CO producing appliances must be disabled and repaired before proceeding with additional diagnostics or inspections.

Ambient CO levels shall be monitored upon entering the combustion appliance zone and during the test period for all appliances. If ambient levels **exceed 35 ppm** at any time, turn off the appliance immediately and make appropriate repair recommendations according to the charts provided.

****Action Level:** *See action level*

Table 3.1 - Carbon Monoxide Test Action Levels for Ovens

Line #19 Return house to pre-test condition, circle DONE when complete

Comments: Provide comments in detail when you encounter unsafe conditions. Also document procedures or repairs that were undertaken to resolve or prevent any unsafe conditions. Use both sides of the form or additional paper as needed.

Abbreviations:

CO: Carbon monoxide

CA: Combustion appliance

CAZ: Combustion appliance zone

FPWSZ: Fireplace wood stove zone

HDL: House Depressurization Limit (a standard adopted by Commerce)

HVAC: Heating, ventilation, air conditioning

IAQ: Indoor Air Quality

PPM: Parts per million

Pa: Pascals

WRT: With reference to

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.

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.

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.

Floor Support Matrix

FLOOR SUPPORT MATRIX						
Floor Type	Support Material	Material requirements	Maximum Spacing	Acceptable patterns	Minimum fastener type	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 (must 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"	Shoelace up to 54" across. If over 54" need center support	Corrosion resistant 3/8" crown 18AWG	5/8"

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:

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

MOLD Assessment and Release Form

Client Label

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 program.

During the weatherization assessment of your dwelling on _____ date, our project coordinator visually inspected the following rooms in your home:

Living room	<input type="checkbox"/> mold not visibly present	<input type="checkbox"/> mold visibly present
Kitchen	<input type="checkbox"/> mold not visibly present	<input type="checkbox"/> mold visibly present
Bathroom(s)	<input type="checkbox"/> mold not visibly present	<input type="checkbox"/> mold visibly present
Bedroom(s)	<input type="checkbox"/> mold not visibly present	<input type="checkbox"/> mold visibly present
Water heater closet	<input type="checkbox"/> mold not visibly present	<input type="checkbox"/> mold visibly present
Attic	<input type="checkbox"/> mold not visibly present	<input type="checkbox"/> mold visibly present
Crawlspace/Basement	<input type="checkbox"/> mold not visibly present	<input type="checkbox"/> mold visibly present
Other location _____		

Estimate in total square feet of existing mold _____

The U.S. Department of Energy generally does not allow Weatherization agencies to mitigate mold problems, however, some actions associated with a cost-effective energy saving measure may be taken to reduce moisture problems. Local Agency plans to install the following measures that may help resolve existing moisture problems. The work proposed should not promote new mold growth.

1. _____
2. _____
3. _____

Mold/Moisture disclaimer: By signing below, I acknowledge I have received information concerning moisture and mold conditions in my home prior to Weatherization work being done and I will take steps to reduce excessive moisture.

Name of Applicant: _____

Signature of Applicant

Date

Name of Landlord: _____

Signature of Local Agency Staff

Date

White copy-agency file, yellow copy-applicant, pink copy-landlord



Exhibit 5.S2A

Exhibit-5.S2A-Pollution-Source-Survey

July 2018		Pollution Source Survey		Exhibit 5.S2A	
Date: _____		Assessor: _____		Project Number: _____	
Instructions:					
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.					
<i>Example:</i> 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				NOTES	
1	Seasonal water pooling in crawl space?				NOTES
<input type="checkbox"/>	0=N/A or totally dry				
<input type="checkbox"/>	1=limited moisture				
<input type="checkbox"/>	2=some moisture				
<input type="checkbox"/>	3=major pooling				
2	Is there a vapor barrier present in the crawl space?				NOTES
<input type="checkbox"/>	0=N/A or good cond.				
<input type="checkbox"/>	1=yes w/ some gaps				
<input type="checkbox"/>	2=yes but poor cond.				
<input type="checkbox"/>	3=none				
3	Plumbing leaks inside the home or in the crawl space?				NOTES
<input type="checkbox"/>	0=none/totally dry				
<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?				NOTES
<input type="checkbox"/>	0=no signs				
<input type="checkbox"/>	1=minor stain				
<input type="checkbox"/>	2=multiple stains				
<input type="checkbox"/>	3=major damage				
5	Is condensation/moisture noticeable on windows or other surfaces?				NOTES
<input type="checkbox"/>	1=some at times				
<input type="checkbox"/>	2=frequent moisture				
<input type="checkbox"/>	3=heavy/ problematic				
<input type="checkbox"/>	0=none observed				
6	Visible mold in the home?				NOTES
<input type="checkbox"/>	0=none visible				
<input type="checkbox"/>	1=localized/small area				
<input type="checkbox"/>	2=multiple locations				
<input type="checkbox"/>	3=major/extensive				

Exhibit 5.S2A

July 2018

Pollution Source Survey

Exhibit 5.S2A

Date: _____

Assessor: _____

Project Number: _____

7	Unusually high relative humidity (RH) levels?	NOTES
<input type="checkbox"/>	0=<50%RH	
<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)	NOTES
<input type="checkbox"/>	0=none	
<input type="checkbox"/>	1=some	
<input type="checkbox"/>	2=several	
<input type="checkbox"/>	3=excessive	
Keep it Clean		NOTES
9	Condition of carpet: dirty, worn, water soaked?	
<input type="checkbox"/>	0=no carpet/like new	
<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?	NOTES
<input type="checkbox"/>	0=no pets	
<input type="checkbox"/>	1=limited #/ location	
<input type="checkbox"/>	2=some throughout	
<input type="checkbox"/>	3=many throughout	
11	House keeping problems? Cluttered or unsanitary?	NOTES
<input type="checkbox"/>	0=clean/uncluttered	
<input type="checkbox"/>	1=normal/lived-in	
<input type="checkbox"/>	2=poor housekeeping	
<input type="checkbox"/>	3=major issues	
12	If filters used in the heating system, what is the condition of the filter(s)?	NOTES
<input type="checkbox"/>	0=N/A or perfect cond.	
<input type="checkbox"/>	1=decent condition	
<input type="checkbox"/>	2=change soon	
<input type="checkbox"/>	3=missing or clogged	

Exhibit 5.S2A

July 2018

Pollution Source Survey

Exhibit 5.S2A

Date: _____

Assessor: _____

Project Number: _____

Keep it Safe		NOTES
13	Do cars park in attached garage, with pollution pathways into home?	
<input type="checkbox"/>	0=N/A (no attached)	
<input type="checkbox"/>	1=limited pathways	
<input type="checkbox"/>	2=some pathways	
<input type="checkbox"/>	3=major pathways	
14	Paints, solvents, thinners, pesticides stored in home?	NOTES
<input type="checkbox"/>	0=none in home	
<input type="checkbox"/>	1=few	
<input type="checkbox"/>	2=several	
<input type="checkbox"/>	3=excessive	
15	Functioning carbon monoxide detectors and smoke alarms?	NOTES
<input type="checkbox"/>	0=all installed/function	
<input type="checkbox"/>	1=few but working	
<input type="checkbox"/>	2=inadequate/old	
<input type="checkbox"/>	3=none functioning	
Keep it Well-Ventilated		NOTES
16	Are combustion appliances properly vented?	
<input type="checkbox"/>	0=N/A or well vented	
<input type="checkbox"/>	1=minor problem	
<input type="checkbox"/>	2=significant problem	
<input type="checkbox"/>	3=not vented outside	
17	Are bath fans and kitchen fans functioning?	NOTES
<input type="checkbox"/>	0=excellent ventilation	
<input type="checkbox"/>	1=adequate	
<input type="checkbox"/>	2=inadequate	
<input type="checkbox"/>	3=no functioning fans	

Exhibit 5.S2A

July 2018

Pollution Source Survey

Exhibit 5.S2A

Date: _____

Assessor: _____

Project Number: _____

Keep it Pest-free		NOTES
18	Are there signs of rodents, cockroaches or other pests in the house, attic, or crawl?	
<input type="checkbox"/>	0=no signs	
<input type="checkbox"/>	1=few signs	
<input type="checkbox"/>	2=several signs	
<input type="checkbox"/>	3=active infestation	
19	Are insecticides or rodenticides used in home or ductwork?	NOTES
<input type="checkbox"/>	0=none used	
<input type="checkbox"/>	1=minimal use	
<input type="checkbox"/>	2=multiple locations	
<input type="checkbox"/>	3=used throughout	
Keep it Contaminant-free		NOTES
20	Paint peeling or flaking on floors, walls, ceilings (in pre-1978 home)?	
<input type="checkbox"/>	0=none	
<input type="checkbox"/>	1=localized	
<input checked="" type="checkbox"/>	2=multiple locations	
<input type="checkbox"/>	3=widespread	
21	Environmental tobacco smoke (ETS) in the home?	NOTES
<input type="checkbox"/>	0=N/A (no smoking)	
<input type="checkbox"/>	1=signs of ETS	
<input type="checkbox"/>	2=strong ETS odor	
<input type="checkbox"/>	3=excessive ETS	
22	Vermiculite or other PACM (presumed asbestos containing material) in the home?	NOTES
<input type="checkbox"/>	0=no PACM	
<input type="checkbox"/>	1=good condition	
<input type="checkbox"/>	2=no immediate risk	
<input type="checkbox"/>	3=friable/damaged	
23	Unusually strong odors - like chemical cleaners, air fresheners, mold/mildew, etc. - in the home?	NOTES
<input type="checkbox"/>	0=none	
<input type="checkbox"/>	1=moderate scents	
<input type="checkbox"/>	2=strong odors	
<input type="checkbox"/>	3=extreme odors	

Exhibit 5.S2A

July 2018

Pollution Source Survey

Exhibit 5.S2A

Date: _____

Assessor: _____

Project Number: _____

[illegible]

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 and fall hazards due to structure?**

- 0 = **None:** No slip, trip, or fall hazards
- 1 = **Small hazard:** Slip, trip, or fall 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.

Link to Active Form: [Exhibit 5.S3A, Diagnostic Test Report](#)



Department of Commerce
Innovation is in our nature.

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						
10	ZONAL PRESSURES - Blower door			Pre	In-Progress	Post	
	ATTIC						
	CRAWLSPACE						
	GARAGE						
	OTHER:						
	OTHER:						
	OTHER:						
11	Location of existing ducts: A=inside B=outside C=inside/outside						
12	12. Duct Pressure Test - Blower Door						
13	13. Room Pressure - HVAC fan only						
	Location	S/ Supply R/Return	Room WRT main body		Pressure Pan: House WRT Duct		
			Pre	Post	Pre	In Progress	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:							

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.

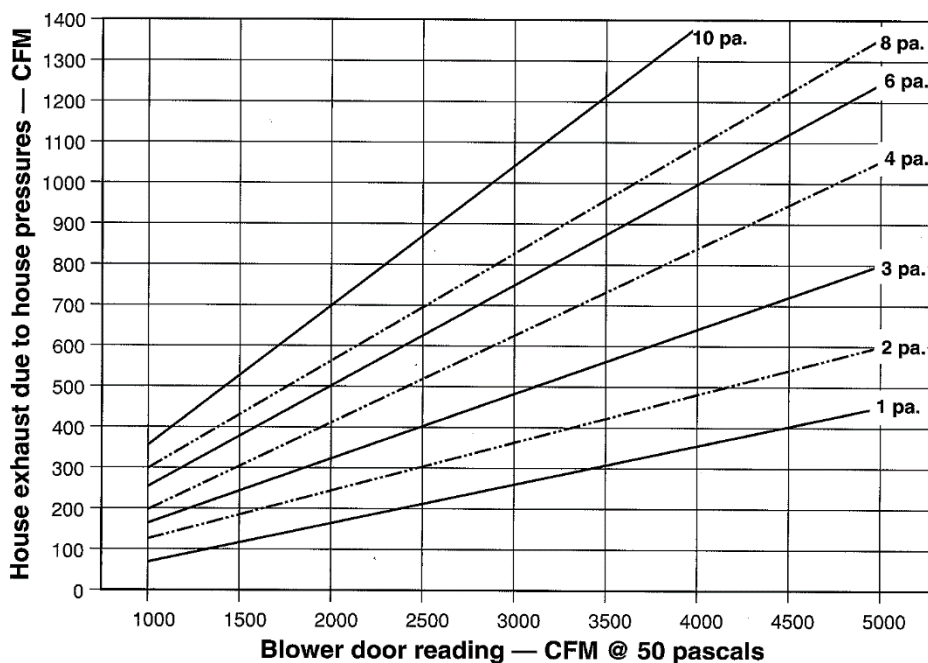
In site built homes with supply and return duct systems enclosed entirely within the thermal and pressure boundaries, pressure pan tests are not required.

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



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.

Revised **Variance #19:** DOE granted a variance from SWS Section 6.6201.2a and 6.6205.1c ± 3 pa Pressure Differential allowing: WA Standard only requires mitigation when pressure imbalance from the whole house ventilation system ± 5 pa with reference to the main body with all interior doors closed.

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 must be filled out in detail for each completed project. You must 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.

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.

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.

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).

***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.*

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.

***Variance #19:** DOE granted a variance from SWS Section 6.6201.2a Room Pressure Testing allowing: WA Standard which for existing systems requires mitigation of excess room pressures when they cause combustion appliances to exceed CAZ depressurization limits and when room pressure imbalance exceeds 5pa. For new systems installed, WA must conform to the stricter 3pa limit.*

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.

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 must 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."

Work Order for Cleaning and Tuning (Electric) Furnaces

Homeowner Name and Address

Agency Name and Address

Phone Number ()

Phone Number ()

Job Number

Auditor/Inspector Name

WORK ORDER _____

_____ is hereby authorized to complete a clean and tune as prescribed below

Work Order and Procedure for Cleaning and Tuning (Electric) Furnaces

I.CLEAN

A.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.

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 manufacturers 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 no higher than 240 degrees if limit is adjustable.
- ☐ 5. Balance supply distribution for individual homeowners comfort.

CONTRACTOR CERTIFICATION

Are all sequencers operating as designed? yes no

Temperature Rise _____

Signed _____

COMMENTS: _____

AUDITOR/INSPECTOR VERIFICATION

Temperature Rise _____

Signed _____

COMMENTS: _____

Work Order and Procedure for Cleaning and Tuning (Gas) Furnaces

Homeowner Name and Address

Agency Name and Address

Phone Number ()

Phone Number ()

Job Number

Auditor/Inspector Name

WORK ORDER _____

_____ is hereby authorized to complete a clean and tune as prescribed below.

Work Order and Procedure for Cleaning and Tuning (Gas) Furnaces

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 dust.
- ☐ 6. Clean pilot orifices and test thermocouple.

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.
- ☐ 4. Inspect filter. If permanent type, clean as per manufacturer's recommendations. If disposable type, replace with a new filter.

Filter size: _____ x _____ x _____

COMMENTS: _____

II. 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.
- ☐ 3. Adjust pilot flame just high enough to activate the thermocouple and ignite burner without delay.

Exhibit 5.S7B
Work Order and Procedure for Cleaning and Tuning (Gas) Furnaces
Page 2 of 2

- ☐ 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.

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 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 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 CERTIFICATION

Final Stack Temp _____	CO2 or O2 _____
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: _____

Work Order and Procedure for Cleaning and Tuning (Oil) Furnaces

Homeowner Name and Address

Agency Name and Address

Phone Number ()

Phone Number ()

Job Number

Auditor/Inspector Name

WORK ORDER _____
 _____ is hereby authorized to complete a clean and tune as prescribed below.

Work Order and Procedure for Cleaning and Tuning (Oil) Furnaces

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.

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 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: _____

Work Order for and Procedure for Oil Retrofit

Homeowner Name and Address

Agency Name and Address

Phone Number ()

Phone Number ()

Job Number

Auditor/Inspector Name

WORK ORDER _____

_____ is hereby authorized to complete a clean and tune as prescribed below.

Work Order and Procedure for 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: _____

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 CERTIFICATION

Final Stack Temp _____ (Before Barometer Damper)
CO₂ _____ or O₂ _____
SSE _____

Anticipator Setting _____
Smoke _____ Draft cy/c _____

Signed _____

COMMENTS: _____

AUDITOR/INSPECTOR VERIFICATION

Stack Temp _____ CO₂ _____ or O₂ Smoke _____

Signed _____

COMMENTS: _____

Safety Label of Domestic Water Heaters



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)	ASTM C592-04.
Block and board insulation.....	ASTM C612-04.
Spray applied mineral fiber thermal and sound absorbing insulation	ASTM C1014-03.
High-temperature fiber blanket 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).

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.

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.

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 conversion 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 ex-changers, 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**

[Standards for conformance]	
Install duct insulation	ASTM ¹ C612-04 (see insulation sections of this appendix).
Reduce Input of burner; derate gas-fueled equipment	Local utility company and procedures if applicable for gas-fueled furnaces and ANSI ² Z223.1-2003 (same as NFPA ³ 54-2002) including Appendix H.
Repair/replace oil-fired equipment	NFPA 31-2001.
Replace combustion chamber in oil-fired furnaces or boilers	NFPA 31-2001.
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.
Install vent dampers for gas-fueled heating systems.....	Applicable sections of ANSI Z223.1-20039 (same as NFPA 54-2002) including Appendix H, I, J, and K. ANSI Z21.66-1996 and Exhibits A&B for electrically operated dampers.
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.

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.

**HEATING AND COOLING SYSTEM REPAIRS AND
TUNE-UPS/EFFICIENCY IMPROVEMENTS—
Continued**

[Standards for conformance]	
Reduce excess combustion air: 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.
B: Adjust barometric draft regulator for oil fuels	NFPA 31-2001 and per furnace and boiler manufacturers' instructions.
Replace constant burning pilot with electronic ignition device on gas-fueled furnaces or boilers	ANSI Z21.71-2005.
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.
Replace burners	See install burners (oil/gas).
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 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.

Fund Matrix

Revised July 2018

Recommended Measure Funding Priorities			
This matrix provides guidance for recommended payment by Weatherization 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.			
Priority	WxM	H&S	WRR
1.	Utility	MM	MM
2.	DOE	HHS	HHS
3.	BPA	BPA	BPA
4.	HHS	Utility	Utility
5.	MM	DOE	DOE

2016 DOE Average Cost Per Unit (ACPU) = \$5000.

This average includes units computed in a multi-family building of 5 units or greater.

DOE programs are the only Wx funding sources with an Average Cost Per Unit (ACPU) limit.

Budget Categories

1 Included in Savings to Investment (SIR):

Weatherization Measures (WxM) and Weatherization-Related Repairs (WRR)

2 **NOT** included in SIR:

Health & Safety Measures, Program Support, Other Program Operations, Administration, and Training and Technical Assistance.

Splitting 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.

Examples:

- a Installing dense pack sidewall insulation in a pre-1978 house with lead 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.
- b 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 17-7 requirement to hire an asbestos control professional and take certain precautions during removal can be charged separately as H&S cost.
- c (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.

For PSE and PUD, see Special Terms and Conditions for each program.

Note: All allowable expenses are contingent on current policies. See Chapter 5, Providing Weatherization Services.

Fund Matrix				Page 2 of 5
Activities/ Measures	Fund Source	Allowable Expense?	Specifics/Limitations/Allowances	Include cost in SIR? (Individual measure & total package)
Air Sealing Policy 5.3.1	DOE	Yes		Yes
	HHS	Yes		Yes
	BPA	Yes	Electric heat and BPA service territory only	Yes
	MM	Yes		Yes
Appliances Refrigerator Replacement (see below)	DOE	No		
	HHS	No		
	BPA	Yes	Clothes Washer Replacement, and Microwave Ovens New or Replacement. May include non-electrically heated, low-income homes in BPA service territory.	No
	MM	Yes	For Tier 1, health and safety only. Allowed for Tier 2.	No
LEDs, CFLs & Fixtures Policy 5.7.4	DOE	Yes	Labor, hardware/bulb replacement a low-cost measure, does not require cost justification/Fixtures & torchiere lamps for energy efficiency allowable. No max limit on CFL bulbs.	Yes, if fixtures or torchiere lamps
	HHS	Yes	Same as DOE	Yes, if fixtures or torchiere lamps
	BPA	Yes	Same as DOE May include non-electrically heated, low-income homes in BPA service territory.	Yes, if fixtures or torchiere lamps
	MM	Yes	Same as DOE	Yes, if fixtures or torchiere lamps
Consumer Conservation Education Policy 5.1.4	DOE	Yes	Reimbursement limit: subject to average cost per unit (except LCNC)	No
			Allowable expenses: labor, materials, and program support (LCNC = materials only)	
			Budget categories to charge: Program Support (LCNC = Program Support only)	
			See Low-Cost/No-Cost notes for DOE specific information	
	HHS	Yes	Reimbursement limit: up to 5% of grant.	No
			Allowable expenses: labor, materials, program support, LCNC Budget categories to charge: Program Support	
	BPA	Yes	Reimbursement limit: up to 20% of grant	No
			Allowable expenses: labor, materials, program support, LCNC Budget category to charge: Program Support Visits can be done at non-electrically heated, low-income homes in BPA service territory.	
Wall Insulation Policy 5.4.3	DOE	Yes		Yes
	HHS	Yes		Yes
	BPA	Yes	Electric heat and BPA service territory only	Yes
	MM	Yes		Yes
CO Detector Installation Policy 9.5	DOE	Yes	Material and labor costs allowable as H&S expense	No
	HHS	Yes	Material and labor costs allowable as H&S expense	No
	BPA	Yes	Same as DOE. Electric heat and BPA service territory only	No
	MM	Yes	Material and labor costs allowable as H&S expense	No
CO Testing Policy 9.4	DOE	Yes	Testing devices and labor costs allowable as H&S expense	No
	HHS	Yes	Testing devices and labor costs allowable as H&S expense	No
	BPA	Yes	Testing devices and labor costs allowable as H&S expense Electric heat and BPA service territory only	No
	MM	Yes	Testing devices and labor costs allowable as H&S expense	No

Fund Matrix				Page 3 of 5
Activities/ Measures	Fund Source	Allowable Expense?	Specifics/Limitations/Allowances	Include cost in SIR? (Individual measure & total package)
Fuel Switching Policy 5.5.7	DOE	Yes	Commerce does <u>not</u> permit the general practice of fuel switching. Local agencies must notify Commerce. Switching fuels may occur, on a case-by case basis, under the following conditions only: SIR of 1 or greater and Health & Safety. See Section 5.5.7, Fuel Switching, for policy specifics.	Yes, unless H&S
	HHS	Yes		Yes, unless H&S
	BPA	No		NA
	MM	Yes		Yes, unless H&S
Health & Safety Measures ** Must be energy-related Policy Chapter 9	DOE	Yes	Up to 14.7 % of program budget allowed.	No
	HHS	Yes	Up to 25 % of program budget allowed.	No
	BPA	Yes	Up to 30 % of program budget allowed. Electric heat and BPA service territory only.	No
	MM	Yes	Up to \$10,000 Total IMC limit for each unit, for Tier 1. Up to \$25,000 for Tier 2. For rentals refer to Section 5.8.2	No
Air Conditioning and Heating Systems Policy 5.5.1	DOE	Yes	Repair or replacement of electrical heaters or furnaces, if they are no longer working, or fail to heat the dwelling properly, is an authorized expenditure. The repair or replacement of electric heaters or furnaces in Eligible Dwelling Unit must be accompanied by additional cost-effective major weatherization measures to assure maximum energy efficiency of the electricity used by the repaired or replaced heaters or furnaces. Local Service Providers must use all available matching funds for these repairs when such funds are available.	Yes, unless H&S
	HHS	Yes		Yes, unless H&S
	BPA	Yes		Yes, unless H&S
	MM	Yes	Electric heat and BPA service territory only.	Yes, unless H&S
Energy Audit Policy 5.2.1	DOE	Yes		No
	HHS	Yes		No
	BPA	Yes	Electric heat and BPA service territory only	No
	MM	Yes		No
Lead-Safe Weatherization Policy 9.8	DOE	Yes	LSW 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.	No
	HHS	Yes	LSW costs are an allowed Health and Safety expense. Allowed costs include labor, material, equipment purchases used specifically for testing for lead & related costs.	No
	BPA	Yes	LSW costs are an allowed Health and Safety expense. Allowed costs include labor, material, equipment purchases used specifically for testing for lead, & related costs. Electric heat and BPA service territory.	No
	MM	Yes	LSW costs are an allowed Health and Safety expense. Allowed costs include labor, material, equipment purchases used specifically for testing for lead, & related costs.	No
Low-Cost/ No-Cost Policy 5.1.5	DOE	Yes	Reimbursement limit: max of \$50 per dwelling unit Allowable expenses: materials only Budget category to charge to: Program Support LCNC Wx measures are excluded from the "one DOE weatherization activity per dwelling unit restriction".	No
	HHS	Yes		No
	BPA	Yes		No
	MM	Yes		No

Fund Matrix				Page 4 of 5
Activities/ Measures	Fund Source	Allowable Expense?	Specifics/Limitations/Allowances	Include cost in SIR? (Individual measure & total package)
Mechanical Ventilation Policy 9.3	DOE	Yes		Yes, unless H&S
	HHS	Yes		Yes, unless H&S
	BPA	Yes	Electric heat and BPA service territory only	Yes, unless H&S
	MM	Yes		Yes, unless H&S
Refrigerator Replacement Policy 5.7.3	DOE	Yes	CFC recovery is required. Appliance disposal and CFC recovery costs are allowable.	Yes
	HHS	Yes	CFC recovery is required. Appliance disposal and CFC recovery costs are allowable.	Yes
	BPA	Yes	CFC recovery is required. Appliance disposal and CFC recovery costs are allowable. May be installed in non-electrically heated, low-income homes in BPA service territory.	Yes
	MM	Yes	Needs clarification of old language.	Yes, for Wx. No, for Repair: repairing or replacing non-functioning refrigerator.
Renewable Energy Systems Policy 5.5.9	DOE	Yes	Funds for renewable energy systems are not in addition to current average cost per unit. Maximum amount is the cumulative total average expenditure allowed for labor,	Yes
	HHS	TBD		
	BPA	TBD		
	MM	Yes	Funds for renewable energy systems are not in addition to current average cost per unit. Maximum amount is the cumulative total per unit -- Wx measures & renewable energy systems combined.	
Re- Weatherization Policy 1.6	DOE	Yes	Can re-weatherize if the dwelling unit was weatherized prior to 9/30/1994. Additional restrictions apply. <i>See Section 1.6, Ineligible Residences and Exceptions.</i>	Depends on measure
	HHS	Yes	Taking into account any previous energy conservation improvements, funds may be used to provide additional cost- effective weatherization regardless of when a home was previously weatherized or other fund sources used.	Depends on measure
	BPA	Yes	Taking into account any previous energy conservation improvements, funds may be used to provide additional cost- effective weatherization regardless of when a home was previously weatherized or other fund sources used. Electric heat and BPA service territory only.	Depends on measure
	MM	Yes	Taking into account any previous energy conservation improvements, funds may be used to provide additional cost- effective weatherization regardless of when a home was previously weatherized or other fund sources used.	Depends on measure
Smoke Detector Policy 9.5	DOE	Yes	Detector material and labor costs allowed as H&S	No
	HHS	Yes	Detector material and labor costs allowed as H&S	No
	BPA	Yes	Detector material and labor costs allowed as H&S Electric heat and BPA service territory only	No
	MM	Yes	Detector material and labor costs allowed as H&S	No
Solid Fuel Burning Appliance Systems Policy 5.5.4	DOE	Yes	Allowed as a H&S expense	No
	HHS	Yes	Allowed as a H&S expense	No
	BPA	No		
	MM	Yes	Allowed as a H&S expense	No

Fund Matrix					Page 5 of 5
Activities/ Measures	Fund Source	Allowable Expense?	Specifics/Limitations/Allowances	Include cost in SIR? (Individual measure & total package)	
Space Heaters Policy 5.5.5	DOE	Yes	Smoke detectors material & labor costs allowable Securing mechanical building permits allowable Incidental repairs allowed on electric space heaters only (i.e. electric baseboard, wall, and radiant panel heaters)	Yes, unless H&S	
	HHS	Yes	Same as DOE	Yes, unless H&S	
	BPA	Yes	Same as DOE/Electric heat and BPA service territory only	Yes, unless H&S	
	MM	Yes	Same as DOE	Yes, unless H&S	
Water Heater Repair & Replacement Section 5.7.1	DOE	Yes		Yes, unless H&S	
	HHS	Yes		Yes, unless H&S	
	BPA	Yes	Electric heat and BPA service territory only	Yes, unless H&S	
	MM	Yes		Yes, unless H&S	
Weatherization- Related Repair Policy 5.8.1	DOE	Yes	Up to 15% of program budget allowed.	Yes	
				No	
				WRR exceeding \$5,000 must receive prior written approval from Commerce.	
	HHS	Yes	Up to 15% of program budget allowed.		
	BPA	Yes	Up to 30% of program budget allowed. Electric heat and BPA service territory only	Yes	
	MM	Yes	Up to \$10,000 Total IMC limit for each unit, for Tier 1. Up to \$25,000 for Tier 2. For rentals refer to Policy 5.8.	No	
Windows & Doors Policy 5.4.5	DOE	Yes	See Policy 5.4.5, <i>Windows & Doors</i> , for repair and replacement justification.	Yes H&S is prohibited	
	HHS	Yes	See Policy 5.4.5 for repair & replacement justification	Yes, unless H&S	
	BPA	Yes	See Policy 5.4.5/Electric heat and BPA service territory only	Yes, unless H&S	
	MM	Yes	See Policy 5.4.5 for repair & replacement justification	Yes, unless exempt under Section 5.4.5	

Definitions

ACPU:	Average Cost Per Unit
SIR:	Savings to Investment Ratio
WxM:	Weatherization Measures (Energy Conservation Measures)
H&S:	Health and Safety Measures
WRR:	Weatherization-Related Repair Measures (Incidental Repair Measures)
IMC:	Installed Measure Cost
Total IMC =	
IMC:	Wx Measures Costs + H&S Measures Costs + WRR Measures Costs
DOE:	Department of Energy funding
HHS:	Health and Human Services LIHEAP funding
BPA:	Bonneville Power Administration funding
MM:	Matchmaker Program funding (Wx or Repair)
TBD:	To be determined

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, Consumer Conservation Education costs, and the cost to carry out Low-Cost/No-Cost Weatherization activities.
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.
SPECIAL PROJECT COSTS		Costs for special projects as defined in individual local agencies' grant agreements.

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		Costs included in Program Support to carry out low-cost/no-cost weatherization activities providing relatively inexpensive conservation devices that can be easily installed by the Wx client, (i.e., compact fluorescent 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>

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

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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:	_____	_____

			<u>Trainer</u>	<u>Trainee</u>
Travel:	_____	_____		
Lodging:	_____	_____	# of Nights? _____	_____
Per Diem:	_____	_____		
Other:	_____	_____	Describe: _____	
Total:	_____	_____		

Documentation

Is a written, signed agreement attached? ☐ Yes ☐ No

If not, when will it be available? _____

.....

Commerce ONLY

Training Coordinator:

Will the proposal meet a local agency need?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is the letter of agreement complete?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is cost share required?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Recommendation	<input type="checkbox"/> Yes	<input type="checkbox"/> No

_____ Signature	_____ Date
--------------------	---------------

Approval by HIP Unit Manager:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
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_____ Signature	_____ Date
--------------------	---------------

Equipment/Vehicle Purchase Request/Approval Form

USE A SEPARATE FORM FOR EACH CONTRACT

Contract: _____ Commerce Representative: _____
 (If request is for a vehicle, allow 90 days for DOE approval)

Local Agency: _____

Address: _____

Contact Person: _____ Phone Number: _____

Email: _____

Equipment/Vehicle Requested

Provide 3 quotes/bids from different vendors for this purchase (include shipping & taxes):

Description (List each item)	Quantity (Number)	Max Price \$ each (Include sales tax)	Budget Category	Total Cost
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

If equipment/vehicle, will it be used full-time or part-time? _____

Reason & Purpose for purchase (Attach additional sheets if necessary):

Will other programs use capital asset/equipment/vehicle? ☐ Yes ☐ No

If yes, shared purchase, use, maintenance, or rental fee? List other programs and percent of time used. *(A rental fee or proportionate time use is required if a program does not share in the purchase.)*

Briefly describe how procurement will be done and confirm that all Agency, State, and Federal procurement guidelines will be met. (WPN 09-1B, 3/12/09).

Is this a request for a replacement, or an expansion for ramp-up? (WPN 09-1B, 3/12/09).

Provide statement that lowest bid will be selected or sufficient justification of “best value selection” if low bid not recommended for awarding agency approval: (WPN 09-1B, 3/12/09)

Was a lease alternative explored? ☐ Yes ☐ No

If yes provide: Terms, Condition, & Purchase Option: (WPN 09-1B, 3/12/09)

List all funding sources used for this purchase: _____

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 with all applicable rules, procedures, and guidelines per contract referenced above.

**** Authorized person must sign request****

Local Agency

Authorized Signature

Date

Title

Commerce Approvals (DOE approval attached for vehicles/DOE contract)

Commerce Representative

Date

Managing Director

Date

Equipment Reserve Fund Application

Agency: _____

Address: _____

Contact Person: _____

Phone Number: _____ Email: _____

Equipment Requested

<u>Equipment Description:</u> Justification – Use criteria in Policies, Section 6.6. Criteria include need, condition of equipment, availability of other funds, and existence of recent similar purchases.	Quantity	Estimated Price (\$ each, include sales tax)	Total Funds Requested Per Item
1. <i>Justification:</i>			
2. <i>Justification:</i>			
3. <i>Justification:</i>			
Total funds requested:			

Attach additional sheets for further items or explanation if necessary.

Will non-weatherization programs use this equipment? ☐ Yes ☐ No

If yes, indicate shared purchase, use, maintenance, or rental fee. List other programs and percent of time used. *Note: A rental fee for proportionate time use is required if a program does not share in the purchase.*

Submit this form to your agency's field representative.

Link to Active Form: [Exhibit 6.7, Budget Revision Request Form](#)

Budget Revision Request Form					
Check Fund Source that Applies	<input type="checkbox"/> DOE	<input type="checkbox"/> LIHEAP	<input type="checkbox"/> MatchMaker	<input type="checkbox"/> SPA	
Grant Number:		Date:			
Agency Name:					
Agency Contact:					
	Phone:				
	Email:				
Budget Category	Current Budget	(+ or -) Budget Change	Revised Budget	% Change	% Total Budget
Administration					
Program Operations:					
Weatherization Measures					
Wx Plus Health Measures					
Health & Safety Measures					
Wx Related Repairs Measures					
Program Support					
Vehicles and Equipment					
Other Program Operations					
Training & Technical Assistance					
Special Project Cost(s) (if applicable)					
	\$0.00	\$0.00	\$0.00		0%
Explanation of revision request:					

Quality Control Inspection (QCI) Form

Link to Active Form: [Exhibit 7.1A, Quality Control Inspection QCI Form](#)

Exhibit 7.1A		Department of Commerce		1-Jul 2017												
<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"/>		Initial Date: _____												
		Inspector: _____ Auditor: _____		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+		Primary <input type="radio"/> Natural Gas <input type="radio"/> Propane <input type="radio"/> Electric <input type="radio"/> Oil <input type="radio"/> Solid Fuel <input type="radio"/> Other	Secondary <input type="radio"/> Natural Gas <input type="radio"/> Propane <input type="radio"/> Electric <input type="radio"/> Oil <input type="radio"/> Solid Fuel <input type="radio"/> Other	List of Contractors <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 5%;">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	
1																
2																
3																
4																
5																
6																
Inspections:																
1st Quality Control Inspection																
QCI Name: _____ QCI #: _____ Signature: _____		Exp Date: _____ Date: _____														
Unit Pass QCI: <input type="radio"/> Yes <input type="radio"/> No																
2nd Quality Control Inspection																
QCI Name: _____ QCI #: _____ Signature: _____		Exp Date: _____ Date: _____														
Unit Pass QCI: <input type="radio"/> Yes <input type="radio"/> No																
3rd Quality Control Inspection																
QCI Name: _____ QCI #: _____ Signature: _____		Exp Date: _____ Date: _____														
Unit Pass QCI: <input type="radio"/> Yes <input type="radio"/> No																
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:

Contract Amount: \$53,963

U.S. Department of Energy (Federal Catalog No. 81.042)

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 **Field Guide, *Retrofitting Washington***, 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:**

Service Area By County:

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

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

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						
2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signature						
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						
2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signature						

*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.

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 CHECKLIST

Link for Current Contract Closeout Checklist:

<https://extranet.commerce.wa.gov/teams/teamsa/HIP-Weatherization/SitePages/Forms.aspx>

2016-17 DOE WEATHERIZATION GRANT CLOSEOUT CHECKLIST

INSTRUCTIONS:

Prepare and submit one copy of each of the 2016-17 DOE Closeout forms on the accompanying EXCEL sheets by **August 14, 2017**. Please see Closeout Memo for submission instructions.

BUDGET & ACTUAL COSTS STATEMENT	Sheet #1
FINAL DOE EXPENDITURE REPORT AND REQUEST FOR REIMBURSEMENT	Sheet #2
GRANT GENERATED PROGRAM INCOME AND EXPENDITURE REPORT	Sheet #3
2015-16 EQUIPMENT INVENTORY	Sheet #3-1
EQUIPMENT INVENTORY-VEHICLE RECORD	Sheet #3-2
INVENTORY TRANSFER	Sheet #4
REPORTED UNITS	Sheet #5

The forms submitted will be reviewed by COMMERCE. Please identify the name, position, phone number, and e-mail of a contact person who will be available to answer any questions.

Name

Position

Telephone

E-mail

CERTIFICATION: I certify that the information provided is accurate and complete and that there are no outstanding requests for reimbursement under the 2016-17 DOE Weatherization Grant.

Signature

Typed Name and Position

Date of Certification

Agency Name

Grant Number

Equipment / Vehicle Disposition Form

(Transfer or Sale process may begin upon confirmation by Commerce)

For items with purchase value of \$5,000 or more

Date: _____

Agency name: _____

Address: _____

Contact person: _____

Phone number: _____

Description of Equipment/Vehicle no longer needed by agency's weatherization program:

Year: _____ Make: _____ Model _____

VIN #/Serial #: _____

Condition of Equipment/Vehicle: _____

Contract : _____ Funding Source: _____

Reason Equipment/Vehicle is no longer needed, or wanted by agency: _____

Estimated Current Market Value of Equipment/Vehicle: \$ _____

How was the value determined? _____

Verification Required: Documentation (copy of e-mail) that this equipment or vehicle has been offered to all other Washington State funded Weatherization Programs in the Weatherization Network.

- If equipment/vehicle is requested and accepted (first come, first served basis), provide copy of this acceptance, with agency name, contact, and phone number.
- If equipment/vehicle was not requested by a member of the WX Network, please state so "_____."

*Washington State Department of Commerce**Commerce Representative's name:* _____*Title:* _____*Phone:* _____ *E-mail:* _____

Agency may begin: Equipment Transfer Process____Equipment Sales Process____

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

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 - N/A	Yes - No - N/A	Yes - No - N/A
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 (if applicable)	Yes - No - N/A	Yes - No - N/A	Yes - No - N/A
	Oxygen (minimum of 19.5% to maximum of 23.5%)			
	Methane (maximum of 10%)			
	Hydrogen Sulfide (maximum of 10%)			
	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:				

Local Plus Health Agency Work Plan - 2018-2019

Plan Period: Click or tap here to enter text. **To** Click or tap here to enter text.

Applicant Information

Agency Name: Click or tap here to enter text.	Lead Staff Contact
Mailing Address: Click or tap here to enter text.	Name: Click or tap here to enter text.
City: Click or tap here to enter text.	Position: Click or tap here to enter text.
State: Click or tap here to enter text.	Phone: Click or tap here to enter text.
Zip: Click or tap here to enter text.	Email: Click or tap here to enter text.

Plus Health Strategy

What does your agency want to accomplish with your Plus Health Work? (300 words maximum)

Click or tap here to enter text.

How will your agency accomplish this Plus Health Work? (500 words maximum)

Click or tap here to enter text.

Targeting

Who are your clients?						Where do they live?		
Age(s) Targeted (check all that apply)			Medical Condition(s): (Check all that apply)			Housing Type(s) Targeted		
Children	Adults	Senior	Asthma	COPD	Respiratory (General)	Single Family	Multi-Family	Manufactured
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Production, Spending, Staffing, Training

Production Plan			
Single Family (SF) (# of units to be served)	Click or tap here to enter text.	Comprehensive Units	Click or tap here to enter text.
Multi-Family (MF) (# of units to be served)	Click or tap here to enter text.	Low Cost Only Units	Click or tap here to enter text.
Total Plus Health Units (SF, MF)	Click or tap here to enter text.	Stand-Alone Units (No Wx)	Click or tap here to enter text.
Current Annual Wx SF Targets	Click or tap here to enter text.	Adjusted Annual Wx SF Targets	Click or tap here to enter text.
Current Annual Wx MF Targets	Click or tap here to enter text.	Adjusted Annual Wx MF Targets	Click or tap here to enter text.
Spending Plan			
Estimated Matchmaker funds	Click or tap here to enter text.	Estimated Average Spending/Unit \$ /Unit	
Estimated LIHEAP funds	Click or tap here to enter text.		
Total Plus Health Estimated Spending	Click or tap here to enter text.		
Staffing Plan			
Staff Positions		Key Tasks	
Click or tap here to enter text.		Click or tap here to enter text.	
Click or tap here to enter text.		Click or tap here to enter text.	

Training Plan		
Staff needing training	Positions	Training Completion Date
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.

Optional elements

Partnership and Leveraging Plan: (200 words maximum) Click or tap here to enter text.
Client Follow-Up Plan: (200 words maximum) Click or tap here to enter text.

Self-Declaration of Medical Condition for Plus Health Weatherization Project

I, _____, do hereby declare that I suffer from one or more
of the following medical conditions:

Asthma ☐

COPD ☐

Other Respiratory Disease ☐

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 medical conditions.

Client Signature/Date

Agency Auditor with Healthy Homes
Training/Date

Request for Spending Approval in Excess of \$8,000/Project

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.
Plus Health Project Number	Click or tap here to enter text.

Project Measures & Costs	
Weatherization Estimated IMC*	Click or tap here to enter text.
Major Wx Measures (List)	<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. 4. Click or tap here to enter text. 5. Click or tap here to enter text.
Plus Health Estimated IMC*	Click or tap here to enter text.
Major Plus Health Measures (List)	<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. 4. Click or tap here to enter text.

For Flooring ONLY:	
Installed flooring Square Footage	Click or tap here to enter text.

Justification for cost exceeding \$8,000
Click or tap here to enter text.

Plus Health Client Data Records

[illegible]

Link to Active Form: [Exhibit-9.3 -Mechanical-Ventilation-Worksheet](#)



Department of Commerce
Innovation is in our nature.

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.

Project Identification		(CFM50)						
Audit Date		People (not less than one)						
Auditor		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	Window ?	Intermittent Required	Intermittent Measured Fan (cfm)	us Required	Measured Kitchen = ach	Deficits (cfm)
Kitchen	0	0	0	100 cfm	0	5 ach	ach	None
Bath 1	0	0	0	50 cfm	0	20 cfm	cfm	None
Bath 2	0	0	0	50 cfm		20 cfm	cfm	None
Bath 3	0	0	0	50 cfm		20 cfm	cfm	None
				Total Deficit				0.0
				Deficit /4				0.0
Needed Ventilation Estimate (prior to infiltration credit)				cfm				7.5

Input location below:

Calculating A_{eq} for attached dwelling units:

Total square footage of dwelling unit envelope:

Total square footage of walls shared with garage or attached dwelling unit:

Dwelling unit is stacked: ☐

For most accurate estimate: Enter a blower door reading following air sealing and any other measures significantly affecting building tightness. If no other reading is entered, CFM50 from line 1 (above) will transfer here.

Blower Door CFM50	Dwelling Unit Height (ft)	Actual Infiltration Estimate (Q _{iw})
0		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 1-9. Include any continuous kitchen ventilation in CFM.

Required mechanical ventilation (CFM), Q_{fan}: None

Pre-Weatherization Notes:

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.

Project Identification		People (not less than one)		0				
Audit Date		Bedrooms (not less than one)		0				
Auditor		Conditioned Square Footage		0.0				
		Q _{tot} (per ASHRAE calculation 4.1a)		7.5				
Room	Room Exists? (y/n)	Window cfm	Window ?	Intermittent Required	Intermittent Measured Fan (cfm)	us Required	Measured Kitchen = ach	Deficits (cfm)
Kitchen	0	0	0	100 cfm	0	5 ach	ach	None
Bath 1	0	0	0	50 cfm	0	20 cfm	cfm	None
Bath 2	0	0	0	50 cfm		20 cfm	cfm	None
Bath 3	0	0	0	50 cfm		20 cfm	cfm	None
				Total Deficit				0.0
				Deficit /4				0.0
Needed Ventilation (prior to infiltration credit)				cfm				7.5
This is the final blower door number for this project. A final measured CFM50 must be entered to calculate infiltration credit.				Blower Door CFM50		Dwelling Unit Height (ft)		Actual Infiltration Estimate (Q _{iw})
								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 _{fan}								8

Number must be less than or equal to fifteen (15) at final OR documentation of intermittent strategy for remaining amount must be added to project file. Numbers less than fifteen (15) reflect amount of ventilation over 62.2 minimum requirements.

Post-Weatherization (Final) Project Notes:

Mechanical Ventilation Worksheet – Intermittent Fan Flow Calculator



Department of Commerce
Innovation is in our nature.

Mechanical Ventilation Worksheet
Revised December 4, 2017

ASHRAE 62.2 Intermittent fan flow calculator

Project Identifier	
Inspection Date	
Auditor	
Inspector	

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 55 the additional amount must be dealt with by 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	95	not allowed	not allowed
	12	38	45	67	not allowed
	18	25	28	35	not allowed
	24	19	20	23	94
	30	15	16	17	29
	36	13	13	14	17
	42	11	11	11	12
	48	9	9	10	10
Fan must be set to run for at least this many minutes of each hour in desired cycle	54	8	8	8	8
	60	8	8	8	8
Example: If your cycle time is fan on once per hour the run time is as shown. If your cycle time is two hours multiply the times shown by two and that is the number of minutes required.		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).			
		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 30 minutes per hour, your fan flow must equal exactly twice the amount of continuous ventilation you entered in the green box above.			

Notes

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.

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 must 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.

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. $\text{Volume} = 10 \times 12 \times 8 = 960$ cubic feet, Hourly fan flow = $22 \times 60 = 1320$ 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) must 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 range hood).

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.

**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 Assumed Infiltration (hidden columns)

ASHRAE 62.2-2016 assumes an infiltration rate of 2CFM per square foot of the building. The first box on this line reflects the square footage entered on line 4. The second box is a function of the square footage multiplied by .02.

Line #15 Infiltration actual minus assumed (hidden columns)

This line is merely a function of the actual measured infiltration from line 13 less the ASHRAE assumed value on line 14. If the value is zero or less there will be no infiltration credit and the assumed value is automatically included in the required ventilation calculation.

Line #15 Calculating A_{ext} for attached dwelling units

This line is also 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

$$Q_{\text{fan}} = Q_{\text{tot}} - (Q_{\text{inf}} \times A_{\text{ext}})$$

where

$$A_{\text{ext}} = \frac{(\text{Exterior envelope surface area that is not attached to garages or other dwelling units})}{(\text{Total envelope surface area})}$$

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 ($Q_{\text{inf}} = 0$).

Line #16 Infiltration Credit (hidden columns)

The infiltration credit allowed is ½ of the difference between the actual and assumed ventilation. No increase is required if the measured infiltration is lower than the assumed rate.

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 must be manually entered as part of this line total.

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 must 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

No entry required. All instructions and explanations for these lines are the same as lines #14-16 above.

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.

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 **must 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 must 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

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.

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.

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.

Weatherization Program Pre-Renovation Form

This form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

- ☐ I have received a copy of the 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 pamphlet before the work began.

Owner-occupant Opt-out Acknowledgment

- ☐ (A) I confirm that I own and live in this property, that no child under the age of 6 resides here, that no pregnant woman resides here, and that this property is not a child-occupied facility.

Note: A child resides in the primary residence of his or her custodial parents, legal guardians, foster parents, or informal caretaker if the child lives and sleeps most of the time at the caretaker's residence.

Note: A child-occupied facility is a pre-1978 building visited regularly by the same child, under 6 years of age, on at least two different days within any week, for at least 3 hours each day, provided that the visits total at least 60 hours annually.

If Box A is checked, check either Box B or Box C, but not both.

- ☐ (B) I request that the renovation firm use the lead-safe work practices required by EPA's Renovation, Repair, and Painting Rule; or
- ☐ (C) I understand that the firm performing the renovation will not be required to use the lead-safe work practices required by EPA's Renovation, Repair, and Painting Rule.

Printed Name of Owner-occupant

Signature of Owner-occupant

Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

- ☐ **Declined** - I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.
- ☐ **Unavailable for signature** - I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left)

Printed Name of Person Certifying Delivery

Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

July 2018

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: _____

7/15/17 04:27

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

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: _____	
<input type="checkbox"/> Copies of renovator and dust sampling technician qualifications (training certificates, certifications) on file.	
<input type="checkbox"/> Certified renovator provided training to workers on (check all that apply):	
<input type="checkbox"/> Posting warning signs	<input type="checkbox"/> Setting up plastic containment barriers
<input type="checkbox"/> Maintaining containment	<input type="checkbox"/> Avoiding spread of dust to adjacent areas
<input type="checkbox"/> Waste handling	<input type="checkbox"/> Post-renovation cleaning
<input type="checkbox"/> 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):	
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>	
<input type="checkbox"/> Warning signs posted at entrance to work area.	
<input type="checkbox"/> Work area contained to prevent spread of dust and debris	
<input type="checkbox"/> All objects in the work area removed or covered (interiors)	
<input type="checkbox"/> HVAC ducts in the work area closed and covered (interiors)	
<input type="checkbox"/> Windows in the work area closed (interiors)	
<input type="checkbox"/> Windows in and within 20 feet of the work area closed (exteriors)	
<input type="checkbox"/> Doors in the work area closed and sealed (interiors)	
<input type="checkbox"/> Doors in and within 20 feet of the work area closed and sealed (exteriors)	
<input type="checkbox"/> Doors that must be used in the work area covered to allow passage but prevent spread of dust	
<input type="checkbox"/> Floors in the work area covered with taped-down plastic (interiors)	
<input type="checkbox"/> Ground covered by plastic extending 10 feet from work area—	
<div style="border: 1px solid black; width: 100px; height: 15px; display: inline-block;"></div> plastic anchored to building and weighed down by heavy objects (exteriors)	
<input type="checkbox"/> If necessary, vertical containment installed to prevent migration of dust and debris to adjacent property (exteriors)	
<input type="checkbox"/> Waste contained on-site and while being transported off-site.	
<input type="checkbox"/> Work site properly cleaned after renovation	
<input type="checkbox"/> All chips and debris picked up, protective sheeting misted, folded dirty side inward, and taped for removal	
<input type="checkbox"/> Work area surfaces and objects cleaned using HEPA vacuum and/or wet cloths or mops (interiors)	
<input type="checkbox"/> Certified renovator performed post-renovation cleaning verification (describe results, including the number of wet and dry cloths used):	
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>	
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>	
<input type="checkbox"/> If dust clearance testing was performed instead, attach a copy of report	
<input type="checkbox"/> I certify under penalty of law that the above information is true and complete.	

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.

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.

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.

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.

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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 must 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'.

Managing the Low-Income Weatherization Program

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)
<http://www.gpoaccess.gov/cfr/retrieve.html>
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/technical-assistance-centerwaptac/>
3. **OMB #** – Office of Management and Budget Circulars, Number of Circular
For example, OMB A- 87 (Cost Principals for State, Local, and Indian Tribal Governments)
<http://www.whitehouse.gov/omb/circulars/>
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. **Commerce General Terms & Conditions** – Department of Commerce General Terms & Conditions
7. [**WAP Health and Safety Plan**](#) – Weatherization Assistance Program Health and Safety Plan
8. [**Field Guide, Retrofitting Washington**](#) – Department of Commerce
9. [**Commerce Monitoring Protocol**](#) –Department of Commerce
10. **EOW Field Guide** – Energy OutWest Field Guide
11. **DOE Special Terms & Conditions** – Department of Energy Special Terms & Conditions

12. **HHS Special Terms & Conditions** – Department of Health & Human Services Special Terms & Conditions
13. **BPA Special Terms & Conditions** – Bonneville Power Administration Services Special Terms & Conditions
14. **MM Special Terms & Conditions** – Matchmaker Services Special Terms & Conditions
15. **Commerce Energy Assistance Program Policies**
<http://www.liheapwa.org/policy/>