

### **III.4. HEALTH AND SAFETY**

New Hampshire's Weatherization Policies and Procedures Manual addresses Health and Safety in accordance with 10 CFR 440.16(h), 440.18(d)(15), 440.21(5), and the Department of Energy's (DOE) most recent Health and Safety Guidance Program Notices 11-6 and 11-6a.

Program notice 11-6 defines the activities allowed as Health & Safety (H&S). In accordance with 10 CFR 440 and WPN 11-6, allowable health and safety measures are those measures that are necessary to maintain the physical well being of both the occupants and/or weatherization workers where:

- Costs are reasonable per the definition below\*
- AND
- The actions **MUST** be taken in order to effectively perform weatherization work,
- OR
- The actions are necessary because of weatherization activities.
- \*Reasonable Costs: Costs not causing a Subgrantee to exceed their annual per-unit average allowance.

To ensure the program maintains the primary goal of energy efficiency, a limit has been imposed on health and safety expenditures calculated as a percentage of the actual Average Cost Per Unit (ACPU), as identified in the Health and Safety Budget section below.

WPN 11-6 also allows Grantees to redefine qualifying health and safety activities as "incidental repairs." An Incidental Repair Measure (IRM) is a repair that is necessary for the effective performance or preservation of weatherization materials. IRM(s) require cost justification through the electronic energy audit; however they are not to be included with the cost of an Energy Conservation Measure (ECM). Written justification for the necessity of the repair must be in the client file and the repair must be associated with an ECM identified on the audit report. An allowed H&S measure that has been redefined as "incidental repair" in this plan cannot be charged as health and safety.

See Section 15 for specifically defined incidental repairs.

#### **1. HEALTH AND SAFETY BUDGET**

The budget is based on an approximate \$5,000 actual average cost per unit.

H&S expenditures are limited to an average of 10% of the actual ACPU. This amount reflects a reduction in the budget from PY11 and PY12. The reduction is occurring as a result of the prior two program year's actual expenditures, resulting from increased participation in leveraged resources paying for some of the H&S expenses typically paid for with DOE funds. This limit should be sufficient to remedy most health and safety

concerns associated with the installation of weatherization measures in NH. NH has a significant number of clients with older housing stock that may have dirt floor basements and/or crawl spaces; asbestos, including vermiculite; lead-based paint; knob and tube wiring; old or poorly maintained combustion systems; and/or moisture issues; as well as numerous other H&S-related concerns. Health and Safety costs are charged to a separate H&S budget line item that does not include regular Program Operations and therefore, not included in the per -unit average. H&S costs should not be included in the audit SIR report.

Whenever possible, H&S measures should first be cost tested in the energy audit to determine an SIR. H&S measures with a qualifying SIR  $\geq 1$  must be charged as an ECM, not as H&S.

There are instances where necessary health and safety concerns cannot be adequately addressed due to lack of accessibility, client refusal, budgetary constraints, inappropriate use of DOE weatherization funds, and/or lack of other available funding. Such instances require deferral.

In all instances, the Subgrantee must evaluate on-site conditions to determine if any potential health and safety hazard should be remedied, referred to other resources, or cause weatherization services to be deferred. The weatherization program is not an abatement or remediation program and weatherization funds shall not be used for those purposes except on a case-by-case basis as indicated in this plan.

The New Hampshire Weatherization Assistance Program (WAP) participates in the One Touch Program; a program designed to facilitate referrals for and assist low-income families with education and/or services they may not otherwise be aware of. The NH Low-Income Weatherization Assistance Program has entered into a Memorandum of Understanding (MOU) with NH Housing Finance Authority, NH Lead Safety, and similar agencies to cross-refer clients to additional programs when a home visit is made. Availability of referrals and services varies throughout the state.

All Subgrantees received One-Touch Program training in August 2012 to introduce the philosophy and process and to begin statewide implementation through PY2012. It was intended that the One-Touch process would be fully incorporated into the program for PY2013. As a result of significantly reduced and available funding in PY12 and PY13, this process is not required to be fully implemented for PY13. However, OEP strongly encourages non-participating Subgrantees to receive additional One-Touch training in preparation for full implementation as funding permits.

The One-Touch Program training also included the process for implementing Integrated Pest Management (IPM) into the Program. IPM is the process of incorporating low-cost pest exclusion techniques during the weatherization process to prevent rodents and other pests from re-entering the dwelling. For allowed activity for IPM, see Section F: Pests, below.

## **2. GRANTEE HEALTH AND SAFETY**

The Office of Energy and Planning's (OEP) staff and its' representatives whose responsibilities include entering client homes on a regular basis are trained on health and safety topics that may affect them and/or the client. Training consists of, but is not limited to, OSHA training, EPA RRP Certification, Lead Safe Weatherization (LSW), asbestos awareness, mold awareness, radon awareness, etc.

## **3. SUBGRANTEE CREW/CONTRACTOR HEALTH AND SAFETY**

Subgrantee crews and contractors must comply with Occupational Safety and Health Administration (OSHA) requirements in all activities. This is a Subgrantee responsibility as OSHA standards apply to all Subgrantee personnel and the contractors they hire. As such, all personnel working in the field, including auditors, are required to attend, at a minimum, a 10-hour OSHA construction training. All crew/contractor leaders / supervisors are required to attend, at a minimum, a 30-hour OSHA construction training and must attend any future trainings to maintain currency as required by OSHA. Subgrantees will utilize their training and technical assistance (T&TA) funds to attend necessary trainings to comply with this and other requirements and to monitor their crews and/or contractors to ensure this requirement is met.

Subgrantees are encouraged to offer training to their contractors, though it is not required. Contractors that are currently under contract with Subgrantees to perform work in the WAP are eligible to receive training with T&TA funding; however, contractor retention agreements are required and further defined in the New Hampshire Weatherization Policies and Procedures Manual (NH PPM). Contractor training expenses may also include hourly costs of the contractors' pertinent staff to attend the training. OEP requires that Subgrantees notify OEP when T&TA funding will be used to train contractors. Eligible trainings include all trainings that provide a benefit to the overall weatherization goal. As of the beginning of PY12, all newly hired contractors must have the required OSHA training or receive it within 30 days of hiring.

Subgrantees must have a minimum of one representative per Subgrantee trained to perform on-site "in-progress safety inspections" by April 1, 2012 and must perform a minimum of 5% of said inspections through the duration of the Program Year, based on actual completed units. These can be performed during scheduled "in progress" subcontractor inspections or as separate inspections. It is also recommended that Subgrantees have at least one in-house representative trained to perform testing for asbestos, lead paint, etc. to minimize testing costs and to provide more reliable testing results in preparation for producing a work order.

OEP will perform in-progress inspections of Subgrantees' in-house crews. Each crew-based Subgrantee will have at least one in-progress inspection performed specifically for health and safety purposes.

A Subgrantee Health and Safety Plan is required of each Subgrantee as part of their annual Management Plan and should include Subgrantee-specific information, including trainings, planned and target dates, emergency contact information, emergency exit procedures, etc. Agencies must have a written safety plan in effect and ensure their employees receive notice of, and training per, the plan.

Agencies must provide personal protective equipment (PPE) to weatherization workers during projects that have known or suspected hazards. PPE includes, but is not limited to, eye and face and respirator protection. The Subgrantee is responsible for requiring personnel to wear appropriate PPE in all operations where there is an exposure to hazardous conditions or as required by OSHA.

Material Safety Data Sheets (MSDS) for all products being used should be available on site in a 3-ring binder; additionally the MSDS must be posted for any materials being used that may contain hazardous products. Costs for local agencies to comply with on-site OSHA standards may be charged under health and safety, tools and equipment, or incidental repairs as appropriate and as approved in the Subgrantee's Management Plan. All costs associated with subcontractor compliance with these requirements are the responsibility of the subcontractor and cannot be charged separately as "additional" costs.

Because of the wide range of activities involved in weatherizing a house, ensuring crew health and safety requires a broad knowledge of the appropriate OSHA standards. These should be consulted for further details. Other useful information may be included on Material Safety Data Sheets that identify potential health risks and describe the proper use, handling, and storage of a wide variety of materials, including some common weatherization materials. They also suggest personal protective equipment and address first aid measures.

#### **4. CLIENT HEALTH AND SAFETY**

Subgrantee energy auditors and crews/subcontractors are required to take all reasonable precautions against performing work on homes that will subject workers or clients to health and safety risks. The home evaluation for energy efficiency includes a health and safety assessment of the dwelling. This assessment includes interviewing the client regarding known health concerns and inspecting the dwelling for existing or potential moisture concerns, indoor air quality concerns, and other environmental concerns or hazards that may or may not be covered by the WAP. In addition, clients will receive the following publications/documents, when applicable:

- Client Consent and Agreement to perform evaluation
- *Renovate Right* (occupants of all buildings built pre-1978)
- *A Brief Guide to Mold, Moisture and Your Home*
- Consent to Perform Work (after reviewing the prescribed work with the client)
- *Asbestos in the Home: A Homeowners Guide*
- *Renovation, Demolition & Asbestos* - (most current version from NH DES)

- Health & Safety Notification Form
- Deferral of Services Notice

Currently Under Development: OEP is considering various options for obtaining client health concerns. One consideration is, at the time an application is determined income-eligible, a program eligibility letter is printed and mailed to the client. A health survey form could be mailed at the same time. The client will be asked to complete the survey as part of the weatherization process and mail it back to the weatherization department for the file. However, the concern with this method is that the wait lists are still long and by the time a client is chosen for weatherization, their medical conditions may have changed. The energy auditor will then review the survey with the client at the time of the initial assessment and update it as appropriate.

A second option is to utilize the One-Touch inspection form. The inspection form may be able to be modified to capture relevant client health data. The One-Touch form currently being used already captures some relevant information. By modifying and utilizing the current form, data is collected only once and is up to date prior to starting services.

The information collected during this process will be used to aid in determining the best materials and course of action for the weatherization process. When a client's health is fragile and/or the work activities would constitute a health or safety hazard, the occupants at risk will be required to leave the home during these work activities and requested to return at least 1 hour (or a reasonable time as determined by the installers) after installers are scheduled to leave to allow for clean-up/ventilation of the home. Weatherization funds cannot be used to relocate clients or reimburse them for any such costs incurred as a result of the requirement to leave during the workday. Consideration should be given to possible client sensitivities to blown-in insulation or other allergens, like dust, that the client may be exposed to during the weatherization process. If two-part foam insulation might be used, clients should be made aware of possible off-gassing during the short curing period and the associated risks to chemically-sensitive people. If the client is unable to leave the home and the intended work may exacerbate an occupant's health condition, the home may need to be deferred.

Weatherization services must be provided in a manner that minimizes risk to workers and clients. Although the Weatherization Assistance Program does not provide all the solutions, awareness of potential hazards is essential to providing quality services. A list of the more common hazards and the preferred approach to them are discussed in Section F.

Combustion appliance testing occurs pre- and post-weatherization on every dwelling unit with functional combustion appliances. OEP will consider adopting all or part of the national Standard Weatherization Specifications (SWS) for combustion testing for the NH WAP.

Combustion appliance testing or diagnostics performed by other than a Subgrantee is a health and safety expense.

Clean, Tune and Evaluate (CTE) is not an allowable health and safety expense unless diagnostics identify conditions such as measured high CO or poor drafting, where further evaluation is necessary.

Combustion appliance testing includes, as applicable to the appliances present:

- CAZ depressurization test
- Carbon monoxide testing, both in-flue and ambient CAZ
- Spillage and draft test
- Steady state efficiency
- Heat rise (forced air systems)
- Vent connector sizing, configuration, and condition
- Gas leak detecting, at least at accessible locations
- Gas oven vent carbon monoxide testing, gas cook-top inspection for operability, flame quality, and cleanliness

Where only sealed combustion or non-combustion appliances exist (electric heat, etc.), CAZ depressurization and CAZ draft testing are not required.

Mold and moisture assessment. The following conditions are evidence that a moisture issue exists or had existed.

- Water stains or mold in the attic, especially on the roof sheathing (or “drop spots” on the attic floor) and on framing, insulation, and vertical support structures (moisture wicking) in basement/crawl spaces
- Stains or rusting on mechanical systems and appliances
- Standing water in basements or staining indicating periodic flooding
- Exterior grade for negative slope (run-off) toward the dwelling
- Evidence of condensation or visible mold growth on windows or walls
- Peeling paint in rooms where excess moisture is produced (bathrooms/kitchens)
- Water stains or mold on exterior surfaces
- Basements/crawl spaces with dirt floors
- Unvented dryers, dryers not discharging directly to the exterior
- Bathroom, kitchen or other mechanical ventilation systems not discharging directly to the exterior of the building
- Firewood stored in the basement
- Rack clothes drying anywhere in the house

## **5. OTHER SAFETY ASSESSMENTS**

Where Subgrantee sampling or testing requires outside services, those expenses are charged as health and safety. Examples of testing that may occur through outside services:

- Lead paint

- Friable asbestos
- Vermiculite
- Unsanitary conditions
- Electrical hazards
- Fire hazards
- Building structure to ensure a safe working environment
- Building ventilation ASHRAE 62.2 2010

Auditors will provide the client with a written list of found health and safety concerns upon completion of a WAP field-based energy audit, regardless of whether weatherization services are performed or the home is deferred. A copy of the health and safety notification form provided by OEP shall be inserted into the client file. The evaluation is in no way intended to be a code compliance inspection and should not be construed as such. The form will also indicate repairs the client/owner is responsible for correcting prior to weatherization, if applicable. The client will also be informed that corrective action of all items is recommended and that it is the client's responsibility to do so. The Subgrantee shall, through the One-Touch Program, provide a list of resources and make referrals for specific safety corrections whenever possible. Potential referral resources include but may not be limited to:

- Childhood Lead Poisoning Prevention Program
- Lead Hazard Control
- Head Start
- Maternal and Child Health Home Visiting programs
- Housing and Urban Development
- City or town welfare
- Rural economic development
- Landlords/homeowners
- Any other such sources known by community action programs to be available

Health and safety problems found during the health and safety assessment will result in a Subgrantee taking one of four actions:

- a. If the problem(s) will not prevent the dwelling from being weatherized because installing the weatherization measures will not exacerbate the problem, the Subgrantee can proceed with weatherization.
- b. If the problem(s) must be remedied before or during weatherization, the corrective action is allowable under this guidance, and the cost is reasonable as defined earlier in this document, weatherization can proceed; the health and safety issues must be corrected prior to job completion.
- c. If the problem(s) must be remedied before weatherization measures can be installed and the corrective action is not allowable under this guidance, or the cost is not reasonable, then correction of the health and safety issue becomes the client/owner's responsibility. The Subgrantee must defer weatherization until the issue can be corrected and cannot perform any health and safety repairs until weatherization is

able to continue. See Section 17, Deferral Standards, for further information. The Subgrantee must also refer the client/owner to any known resource(s) that may be able to assist in correcting the problem.

- d. Alternatively, in cases of deferral due to health and safety issues, agencies may consider performing partial weatherization where installed measures do not affect the building shell or air sealing. If partial weatherization is performed, it is also permissible to install allowable health and safety measures. Agencies should use this option with prudence. Once the unit has been weatherized, it may never be eligible for weatherization again.

**Regardless of which option is chosen, the Subgrantee must notify the client of all found health and safety issues on the Health and Safety Notification form. It is very important for the Subgrantee to document all found health and safety problems and/or conditions that could potentially result in health and safety problems. Documentation must include photos. Careful and complete documentation can protect the Subgrantee from future client claims regarding the results of weatherization.**

## **6. HAZARDOUS CONDITIONS**

In general, hazardous conditions will be dealt with in accordance with WPN 11-1, 11-6 and 11-6a.

### **Biologicals - Including Unsanitary Conditions**

Repair or correction of a condition that may lead to or promote biological concerns and unsanitary conditions are allowed as incidental repairs. Please see Section 15, "Incidental Repairs."

Use of weatherization funds to remove mold, odors, viruses, bacteria, etc. (including raw sewage or animal excrement) is not allowed.

### **Mold and Moisture**

In general, mold and moisture issues will be dealt with according to guidance provided in WPN 11-01, 5.15. To summarize, the use of DOE funds for the removal of mold and other related biological substances is not allowed. DOE funds cannot be used to test, abate, or remediate mold, nor can they be used to purchase mold-specific insurance.

Managing moisture is crucial to controlling mold. DOE funds may be used only to remediate conditions that may lead to or promote biological concerns and unsanitary conditions where these conditions must be remedied to allow effective weatherization work, and/or to assure the immediate or future health of workers and clients, and cumulative H&S costs are reasonable. Examples of allowed activities for moisture management include installing moisture/vapor barriers over dirt floors, minor repairs to plumbing or sanitary leaks, gutter repairs, splash blocks to direct gutter drainage, and

sump pumps. Additional details can be found in Section 5.15 of WPN 11-1 and Chapter 10 of the NH PPM.

## **Pests**

Integrated Pest Management (IPM) is allowed. Pest removal is allowed only where infestation would prevent weatherization and the cost is reasonable. Infestation of pests may be cause for deferral where it cannot be reasonably removed or poses a health and safety concern for workers. Costs to prevent infestation (adding screens over basement windows to prevent future entry) are allowable if costs are reasonable.

Pest removal and the materials used to target removal and verify exclusion are allowed with WAP health and safety funds where significant infestation is identified. The use of traps (especially for mice) to help target exclusion and verify effectiveness of pest exclusion measures is allowed where costs are reasonable. Exclusion methods such as copper mesh or screening materials are allowed to cover existing penetrations in order to protect the weatherization materials and alleviate potential air quality concerns. If combining work with air sealing or other efficiency measures, only those components (time and materials) related to pest exclusion can and must be charged to the health and safety budget category. Clients must be educated on continued exclusion techniques and pest prevention, and are responsible for the long-term success of any pest control strategy. The WAP cannot return to monitor exclusion “success” after the unit is reported as complete.

## **Combustion Appliances**

Chimney, vent and vent connector inspection: Inspection of chimney and venting should be performed.

### **a. Combustion Testing**

Testing all combustion appliances in every home for carbon monoxide and for gas leaks (propane and natural gas) is required. Testing of carbon monoxide levels occurs in the flue/vent of vented appliances and at the exterior exhaust for sealed combustion units and near the exhaust of un-vented appliances. Draft and draft-ability of flues is diagnosed by performing Combustion Appliance Zone (CAZ) depressurization testing; start-up spillage at flues and adequacy of combustion air; and testing for gas leaks at all exposed and accessible piping and joints. Auditors must also monitor ambient carbon monoxide in the vicinity of combustion appliances and should continue to monitor ambient air in all living spaces.

No blower door depressurization should occur while a fireplace or wood stove is in operation.

Solid fuel heating sources also create a Combustion Appliance Zone. This CAZ must also be tested for depressurization if it is located away from the other combustion appliances. If CAZ depressurization diagnostics are performed, auditors must be

aware of and alert to the potential for back drafting. Pressurization blower door testing may be performed at the auditor's discretion.

**b. Gas Leak Testing**

Testing can occur by auditors using equipment designed for this purpose or by hiring a qualified contractor to perform a pressure test of the piping and joints. If a contractor is used for testing, their cost is charged to health and safety.

**c. Heating System Repair and Replacement**

In accordance with WPN 11-6, climate justification is necessary to allow for heating system repair and replacement as a health and safety expense. New Hampshire has a high heating degree-day average, as discussed in the following paragraph, to justify the allowance for heating system repairs and replacements.

Climate conditions vary considerably from north to south across the state of New Hampshire. Heating Degree Days (HDD) can vary from 9,600+/- in Northern NH to 7,000 +/- in Southern NH. HDDs are measured using a base of 65 degrees F. Climate data representing all counties was obtained at <http://ggweather.com/normals/hdd.html> for the period 1981-2010, resulting in 7,881 average HDDs in NH.

New Hampshire does not track data regarding mortality due to no heat in a home, nor was the data readily available from another source.

Repair and replacement of combustion appliances should be cost tested prior to charging as H&S. When the repair or replacement produces an  $SIR \geq 1$ , the cost should be charged as an ECM. However, if it does not provide an adequate SIR and the repair or replacement is an allowed H&S expense as determined in the following section, it should be charged as H&S.

**i. Primary Source Systems**

Repair and replacement of a central, space, and solid fuel (wood, pellet, etc.) heating appliance (indoor units only) is charged as H&S under the following situations:

- Where no heating appliance existed prior.
- When the appliance is “red-tagged” or inoperable.\*

\* (Inoperable is defined as the appliance or the heating system, including distribution, etc., is not functioning as intended; this does not include adding additional radiators to rooms.)

**Except:** Where current efficiency data exists (current being within 12 months); then the replacement should be cost tested as an ECM. Efficiency test results must be available “pre-failure.” Efficiency information could be by a prior WAP audit or by an HVAC system evaluation performed within the

last 12 months. (Documentation of efficiency must be maintained in the client file.)

- When an unvented space heater is replaced with a vented space heater.  
Unvented space heaters (natural gas, propane, kerosene, etc) are required to be removed and properly disposed of prior to weatherization unless the appliance complies with ANSI Z21.11.2 (permitted in WPN 11-6). Delivery of weatherization services **MUST BE DEFERRED** until such appliance is removed.  
The cost for removing and disposing of the unvented combustion appliance is a Health and Safety expense.
- When a repair does not provide an acceptable SIR.  
Repairs should be favored over replacement whenever possible as a less expensive option. Replacement after repairs have been made is not allowed except on a case-by-case basis with approval by OEP.
- Providing fire extinguishers for Solid Fuel Heating only is an allowable cost under this section.

## ii. **Secondary Source Systems (including space)**

- Vented SECONDARY source systems:  
Replacement is not allowed. Maintenance and repair is allowed where testing determines action is required for H&S purposes (such as high CO, leaking gas, etc).
- Unvented SECONDARY systems:  
Removal required unless ANSI Z21.11.2 rated; removal and disposal costs allowed. Maintenance, repair and replacement are at the owner/client's expense.
- Electric space heaters: No allowable action, removal recommended.

## iii. **Hot Water Heaters**

- Repair or replacement is allowed where necessary due to high CO, poor drafting, water leaks, etc. and repair or replacement costs do not provide an adequate SIR.  
If diagnostic testing determines that a combustion appliance isn't properly drafting, the cause must be determined and remedied. Costs associated with correcting a drafting issue is an allowable H&S expense if the remedy for the vent/drafting issue is not corrected by an installed ECM or a direct component of the ECM being installed.  
If the expected cost for repairing the draft/venting issue is determined to be a H&S expense and causes the cumulative H&S costs for the project to become "unreasonable" (as determined by the Subgrantee's available per-unit H&S

average) the job may need to be deferred until those issues are remedied by the owner or another funding source.

**d. Carbon Monoxide Alarms**

When a dwelling has one (1) or more combustion appliances or an attached garage, at least one functioning carbon monoxide (CO) alarm must be present in the dwelling.\* Manufacturer's installation recommendations will be used to locate the appropriate mounting location when a new alarm is installed; typically this would be where clients spend most of their time, such as near bedrooms. If an entire multi-family building is to receive weatherization services, a functioning CO alarm should be present or installed in each unit of the complex, as necessary, unless the complex does not have any combustion appliances, including gas stoves.

\* Installing a new alarm when an existing operable alarm is present is not an acceptable Health and Safety expense per WPN 11-6, unless the age of the alarm exceeds the manufacturer's expected useful life.

**e. Smoke Alarms**

Installing smoke alarms where none exist or existing one(s) are inoperable is allowed.\* If smoke alarms are inoperable or non-existent, one battery-operated alarm may be installed on every floor of a weatherized dwelling. If existing hard-wired smoke alarms are inoperable or broken, they may be replaced with compatible units.

Testing smoke alarms with a smoke detector test aerosol ("smoke in a can") is an allowable H&S expense and the only way to verify if a smoke detector's sensor is working.

\* Installing a new alarm when an existing operable alarm is present is not an acceptable Health and Safety expense per WPN 11-6, unless the age of the alarm exceeds the manufacturer's expected useful life.

**f. Fire Hazards**

Combustion appliances and their associated venting systems can present potential fire hazards. Energy auditors must identify inadequate clearances between combustion appliances (including venting systems) and combustible materials. Chimney inspections should also be performed to identify excess creosote or other build-up. Auditors should also be aware of and note/move flammable materials stored in close proximity to combustion appliances. Correction of fire hazards is allowable when necessary to perform weatherization.

An additional fire hazard that auditors and crews/contractors need to be aware of is the existence of overloaded electrical circuits, especially when installing ECM's that use electricity. See Section 14 below.

Clients must be notified on the Client Health & Safety Notification form when fire hazards are identified.

**g. Indoor Air Quality**

**Asbestos**

All costs associated with asbestos are to be charged to H&S. Asbestos removal is allowed for pipes, heating systems and other small surfaces, though encapsulation is preferred. All auditors must attend a formal asbestos awareness training to learn about identifying asbestos-containing materials and when asbestos-containing materials may pose a hazard to clients or workers.

Materials containing or suspected of containing asbestos identified during the evaluation will be brought to the attention of the owner/occupant. The condition of the asbestos will be assessed and occupants will be advised not to disturb the material. The client will receive the EPA pamphlet "*Asbestos in the Home, a Homeowners Guide*" and NH's "*Asbestos Restoration and Demolition.*" Asbestos testing, encapsulation and removal are allowable H&S expenses under the following conditions:

- i. It should be assumed that covering material on pipes, boilers and other small appliances in older homes contain asbestos and, if determined to be in poor/damaged condition, is to be encapsulated by a NH Certified Asbestos Contractor prior to conducting blower door testing. Coverings that are obviously not asbestos (foam, paper covered fiberglass, etc) do not require encapsulation.
- ii. Testing for asbestos by a NH Certified Asbestos Consultant at locations where the presence of asbestos is questionable and may be disturbed by weatherization activities is an allowed H&S expense.
- iii. The cost for asbestos encapsulation is an allowed H&S expense if the cost is reasonable.
- iv. The removal of asbestos on existing pipes for the purpose of replacing a heating system is allowed; removal must be performed by a NH Certified Asbestos Contractor. When asbestos is removed, only the amount necessary to make the final connections, plus 3 feet, is allowed. The remainder should be encapsulated if necessary.

Major asbestos problems unrelated to weatherization should be referred to other programs or the Environmental Protection Agency (EPA).

**Asbestos Siding**

Removal and replacement of asbestos siding is permissible for purposes of installing wall insulation. Cutting and drilling of siding containing asbestos is not allowed. Contractors working with asbestos siding must attend an OSHA-specific training regarding asbestos awareness. It is recommended and preferred to perform interior blows when access allows. All Subgrantees should have at least one contractor

qualified to work with this type of material to ensure eligible clients receive all the measures for which they are qualified. Any “excess” costs incurred as a result of asbestos health and safety “controls” must be charged to H&S.

### **Vermiculite**

Vermiculite should be considered as containing asbestos. The EPA does not recognize testing of vermiculite as a reliable method for determining the presence of asbestos. Homes that contain vermiculite are not to receive blower door testing. Personnel should utilize personal air monitoring devices when in attics. Removal of vermiculite is not allowed; however encapsulation by a NH Certified Asbestos Contractor is allowed if costs are reasonable. Auditors shall receive training on recognizing vermiculite insulation. Buildings that have vermiculite in the walls will not have insulation blown into the walls. Blowing insulation on top of vermiculite insulation is not allowed in NH unless the vermiculite has been encapsulated. Auditors will provide clients with the *Asbestos in the Home: A Homeowners Guide* brochure during the initial evaluation when vermiculite is found. The client file will contain documentation verifying the receipt of this brochure.

### **Radon**

Two subgrantees, Belknap-Merrimack and Southern New Hampshire Services, are submitting grant applications in partnership with Tohn Environmental for Radon studies regarding the effect weatherization may have on radon levels in homes in NH.

These two subgrantees are allowed to charge the cost for radon testing and associated travel and client education costs to health and safety if the grant application is approved, the study takes place in NH, and is funded by another resource.

### **Formaldehyde, Volatile Organic Compounds (VOCs) and other Air Pollutants**

Formaldehyde vapors may be slowly released by some new carpets, Oriented Strand Board (OSB), plywood, etc. VOCs are also emitted by some household cleaning agents. Removal of pollutants is allowed and is required if they pose a risk to workers. If pollutants pose a risk to workers and removal isn't possible or allowed by the client, the unit must be deferred.

## **7. LEAD PAINT**

All costs associated with Lead Safe Weatherization (LSW) and the Renovation, Repair, and Painting law (RRP) are to be charged to H&S. Lead is highly toxic, especially to young children. Even low levels of lead in infants, children, and pregnant women are associated with impaired cognitive function, behavior difficulties, fetal organ development and other problems. Low levels of lead in children can cause reduced intelligence and impaired hearing.

The most common source of lead exposure for children is lead paint in older homes and the contaminated dust and soil it generates. For this reason, it is very important weatherization work is completed in a lead-safe manner.

Local agencies are encouraged to obtain Pollution Occurrence Insurance (POI).

### **Training and Compliance**

This section does not cover all the requirements for either RRP or LSW but rather provides some highlights of specific requirements.

Training for RRP and LSW is readily available in NH by qualified instructors. All contractors are required to receive LSW and RRP training. OEP field monitors are required to be RRP Certified Renovators. All NH Subgrantees that utilize crews have their EPA Certified Firm certifications and will maintain a current status as required by the EPA. All contractors working in homes with lead-based paint are required to have a designated Certified Renovator responsible for the job as required by the RRP rule. All Subgrantees are to maintain copies of crew and contractor Certified Renovator certificates on file.

Subgrantees are reminded that LSW de minimis requirements are more stringent than RRP and must be followed. Containment is ALWAYS REQUIRED when lead-based painted surfaces are disturbed.

OEP has created and provided all agencies with a Lead Guide Sheet to aid in compliance with DOE's lead documentation and verification requirements. This form is required to be in all client files when the home is dated pre-1978.

Lead abatement under the weatherization assistance program is not an allowable expense. Agencies must defer weatherization and make referrals on homes that require lead paint abatement.

**LSW must be applied to all pre-1978 housing unless EPA approved testing methods determine no lead is present.**

One of the following methods must be used to determine that the paint to be disturbed is not lead-based paint:

- a. Written determination by a NH licensed lead inspector or risk assessor;

OR

- b. Proper use of the EPA-recognized test kit provided to agencies (documenting manufacturer and model of test kit used, description and location of components tested, and test kit results). Note: beginning in 2010, tests must be performed by a Certified Renovator, per EPA final rule.

OR

- c. A State-approved lead-based paint test protocol (e.g., XRF scans verifying absence of lead paint).

## **8. MOBILE HOMES (MANUFACTURED HOUSING)**

Often, interiors of mobile homes were not painted but rather, paneling was applied to the surfaces. Therefore, pre-1978 mobile homes that were not painted by the manufacturer, occupant, landlord, or past owner of the unit before 1978, may be exempt from LSW. However, Weatherization Programs must verify that the areas receiving weatherization services have never been painted or were painted for the first time after 1978. If this is not verifiable, then LSW protocols must be followed. Painted exterior surfaces on pre-1978 units should not be drilled, scraped, sanded, or receive any other work that disturbs the paint.

### **Containment**

Containment is required in all cases when LSW must be performed. The level of containment is determined by the surface area being disturbed.

Containment is anything that stops dust and debris from spreading beyond the work area. The level of containment must be determined by the auditor or supervisor before work is assigned to a crew or contractor.

### **Level 1 Containment**

Level 1 Containment is required in pre-1978 homes when LESS than 6 square feet of interior painted surface per room or LESS than 20 square feet of exterior painted surface will be disturbed.

Level 1 Containment consists of methods and means for preventing dust generation and contains debris generated during the work process. The specific containment used should be of appropriate type and size for the work being performed.

Measures that *may* fall within this guideline include but are not limited to:

- Installing or replacing a thermostat;
- Drilling and patching test holes;
- Replacing HEPA filters and cleaning HEPA vacuums;
- Changing furnace filter;
- Removing caulk or window putty (interior or exterior);
- Removing weather-stripping.

### **Level 2 Containment**

Level 2 Containment is required when weatherization activities will disturb MORE than 6 square feet of interior surface per room or MORE than 20 square feet of exterior surfaces. Level 2 Containment consists of methods that define a work area that will not allow any dust or debris from the work area to spread. Level 2 containment requires the covering of all horizontal surfaces, constructing barrier walls, sealing doorways, covering

HVAC registers with approved materials, and closing windows to prevent the spread of dust and debris.

Measures requiring Level 2 Containment MAY include:

- Drilling holes in interior walls for installing insulation;
- Drilling holes and/or removing siding on exterior walls;
- Cutting attic access into ceiling or knee walls;
- Planning a door in place;
- Replacing door jambs and thresholds;
- Replacing windows or doors;
- Furnace replacements;
- Window replacements;
- Demolition of painted surfaces using any of the following methods:
  - open-flame burning or torching,
  - machines to remove paint through high-speed operation without HEPA exhaust control, or
  - operating a heat gun at temperatures at or above 1100 degrees Fahrenheit.

### **Disturbed Surface Area**

When removing painted components or portions of painted components, the entire surface area removed is the amount of painted surface disturbed.

**Additionally, Level 2 Containment must ALWAYS be used when any of the following is conducted (even if the activities will disturb less than the hazard de minimis levels within the level 1 category).**

All client files of pre-1978 homes receiving weatherization are required to have documentation indicating whether LSW is or is not required. OEP has created and distributed a Lead Guidance Sheet that all Subgrantee crews and contractors are required to complete and maintain in the client file for pre-1978 buildings as supporting evidence for complying with the LRRP rules. Pictures for containment are also required to be maintained in the client files. OEP will monitor compliance with LSW through regularly scheduled monitoring visits, in-process inspections whenever feasible, and during programmatic reviews when reviewing client files. Instances of non-compliance will be handled individually as they arise through the normal course of required corrective actions specified in the monitoring report.

If a local Subgrantee crew or contractor is found to be non-compliant with the LSW policies, procedures and minimum standards, OEP will notify the local Subgrantee in writing of the non-compliance. The local Subgrantee will be required to submit a written corrective action plan to OEP. Monitoring for compliance with the corrective action plan and LSW policies is likely to occur.

## 9. WEATHERIZATION WORKER PROTECTION

DOE requires Grantees to follow the specified EPA requirements; therefore, all agencies and their contractors must also follow these requirements. Subgrantees must also follow the specified EPA and OSHA standards for worker safety, as well as any state or local requirements.

## 10. CLIENT NOTIFICATION REQUIREMENTS

For occupied homes, the weatherization staff, crew, or contractor must have an adult tenant or homeowner sign an acknowledgement after receiving the EPA *Renovate Right* pamphlet. The *Renovate Right* pamphlet can also be sent by certified mail with a return receipt to be placed in the customer file.

In multi-unit housing, the Subgrantee must:

- Provide written notice to each affected unit (notice must describe the general nature and locations of the planned renovation activities, the expected start and end dates, and provide information on how an occupant can obtain a *Renovate Right* pamphlet at no charge); or
- Post informational signage (signs must describe the general nature and locations of the renovation and the anticipated completion date) and post the EPA *Renovate Right* pamphlet. (If the *Renovate Right* pamphlet is not posted, then agencies are required to provide information on how interested occupants can review a copy of the *Renovate Right* pamphlet or obtain a copy at no cost from the Weatherization Program).
- Deliver to owner/occupant the Acknowledgement of Lead Notice. If unable to hand-deliver, acknowledgement can be sent by certified mail, return-receipt requested. A copy of the receipt then goes into the client's file. The owner/occupant must acknowledge receipt of the EPA *Renovate Right* pamphlet indicating the address of the unit undergoing renovation, name and signature of owner or occupant, and the date of signature prior to the start of renovations. It must be in the same language as "contract for renovation" for an owner-occupied target housing (or the same language as the lease for an occupant of non-owner occupied).

If the Weatherization Program cannot obtain a signed acknowledgment (either the occupant is not home or refuses to sign the form), then a self-certification form must be signed to prove delivery. This can be found at the back of the *Renovate Right* brochure.

The acknowledgement form must be filed and remain with the client. In addition to providing a copy of the *Renovate Right* pamphlet to owners and occupants, designated local Subgrantee staff (e.g., auditor/inspector, crew chief) must discuss the hazards associated with lead-based paint and lead dust, and describe how they will conduct LSW in the home.

## 11. CLIENT HEALTH AND SAFETY

LSW requires that residents and pets remain clear of the work area while lead-safe work is being performed. Crews and contractors are to utilize appropriate containment when required to eliminate tracking dust or materials throughout the house.

If containment cannot be achieved and there is risk of traffic through the work area (e.g., work will take several days involving kitchens, bathrooms, or bedrooms), agencies are advised to defer the work until other resources can be secured.

### **Documentation of LSW**

As indicated above in Lead Paint, OEP has created and distributed a Lead Guidance Sheet that all Subgrantee crews and contractors are required to complete and maintain in the client file as documentation that LSW and LRRP rules have been followed.

The following information is required with the LSW Guide Sheet or as separate information in the client file:

- Client sign-off indicating they received the *Renovate Right* brochure (Consent and Agreement form);
- Name of certified renovator responsible for the job (insert at top of LSW guide sheet);
- Lead paint test results or lead-free report produced from a NH Licensed Lead Paint Inspector or assessor (certified renovator lead test results or lead report must be attached to LSW guide sheet);
- Photos of the site;
- Photos of the containment areas;
- Cleaning verification results.

WPN 09-6 augments, but does not replace, WPN 08-6 which builds on the foundation provided by WPN 02-6, and in particular, all weatherization staff are required to continue to perform LSW accordingly.

In accordance with WPN 11-6, testing for lead-based paint is an allowed health and safety expense. Job site set up and cleaning verification is required by a certified renovator.

Subgrantees must ask if a resident of a pre-1978 home has been identified as being lead poisoned while living in the home. If the answer is yes, proceed with the inspection but coordinate with the local health department before disturbing any paint. If a child has lead poisoning, deferral is required until the child has been treated and is no longer determined to be lead poisoned. Deferral is required when the extent and condition of lead-based paint in the house would potentially create further health and safety hazards.

## **12. INJURY PREVENTION**

Workers must take all reasonable precautions against performing work on homes that will subject workers or occupants to health and safety risks. Minor repairs and installations may be conducted only when necessary to effectively weatherize the home; otherwise these measures are not allowed.

## **13. VENTILATION**

The WAP has adopted ASHRAE 62.2-2010 for existing buildings.

## **14. ELECTRICAL ISSUES**

The two primary energy-related health and safety electrical concerns are insulating homes that contain knob-and-tube (K&T) wiring and identifying overloaded electrical circuits. Older electric wiring, primarily knob-and-tube wiring, located in a wall cavity or exposed on an attic floor, was intended by code to have free air movement that would cool the wire when it is carrying an electric current. Laboratory tests have shown that retrofitting thermal insulation around damaged knob-and-tube electric wiring can cause it to overheat, resulting in a fire hazard.

When K&T wiring is present in a home, it should be determined if the walls and attic have active K&T present. Walls that have live K&T present are not to be insulated by the weatherization program. Attics that have live K&T present can have insulation installed up to just below the wire but must be dammed to the sides and above to provide a minimum of 2" clear space between the wire and the dam; damming activities are included in the cost of installing the insulation. The K&T "run" should be "marked" using surveyor-type tape or other marking devices such as lawn flags. Open junction boxes located in the attic where insulation will be installed must be appropriately covered with metal covers and should also be marked with tape or other signage indicating their location for future service. K&T inspections and voltage drop detection are allowable health and safety expenses if they are necessary and the costs are reasonable. All electrical work and testing must be performed by a NH licensed electrician.

Repairs to K&T wiring are not a direct component to insulating and should not be included in the cost of any ECM. Repairs to K&T should be charged to H&S.

Serious electrical hazards exist when overloaded circuits are present. Should an auditor or crew find such existing problems, they should notify the owner. Weatherization measures that involve the installation of new equipment such as heating appliances or electric water heaters can exacerbate previously marginal overload problems to hazardous levels. The problem should also be noted in the client file. Installing or repairing circuits to allow for new ECM appliances or "systems" is allowed and should be included in the cost of the ECM. Other minor electrical repairs that are necessary for the effective installation of, or because of, the installation of weatherization measures, are allowed and should be charged to health and safety. The client/owner must be notified if any unsafe

conditions are found during the assessment or by crew/contractors that cannot be addressed through weatherization.

### **Refrigerant Issues**

WPN 00-05 and WPN 11-06 require that as part of any refrigerator replacement program, agencies reclaim refrigerant per the Clean Air Act of 1990, section 608, as amended by 40 CFR 82, 5/14/93. The appliance vendor, de-manufacturing center, or other entity recovering the refrigerant must possess EPA-approved section 608 type I or universal certification. Subgrantees should ensure they have appropriate protocols in place that comply with all standards relating to the disposal of the existing appliances.

### **Code Compliance Issues**

All field personnel (including auditors) are strongly encouraged to attend “building/construction code” instructional classes. The intent of the training is not to learn all codes for all trades, but to be aware of codes in the areas that weatherization auditors and crews/contractors commonly encounter.

Correcting existing code violations in a dwelling is not allowed unless the code requires corrective action because of the installation of a weatherization measure. State and local (or authority having jurisdiction) codes must be followed when installing weatherization measures. Condemned properties and properties where “red tagged” health and safety conditions cannot be corrected under these health and safety standards should be deferred.

Code corrections that are required because of weatherization but are not a direct component of an ECM are to be charged as H&S.

It is the Subgrantees’ responsibility to ensure that all weatherization-related work conform with applicable codes in jurisdictions where the work is being performed.

### **Structural and Roof Repairs**

Program policies strictly prohibit roof replacements, structural repairs, or other non-energy related rehabilitation work. Subgrantees are reminded that the WAP program is not a home rehabilitation or general repair program.

While repair to a roof to protect the insulation to be installed is allowable, expanding this definition to include roof replacement or for other non-energy related repairs is not a permissible use of DOE funds. If the roof needs replacing, the unit should either be referred to a rehabilitation program or the Subgrantee must use other funds to cover the cost for this type of work.

Dwellings where structural integrity is in question should be deferred and referred to other programs. Buildings that have been determined to have structural problems that are

beyond the scope of weatherization services should be deferred until the dwelling can be made safe for crews and occupants and weatherization activities do not adversely affect the structure.

## **15. INCIDENTAL REPAIR MEASURE (IRM)**

Repairs are limited to Incidental Repair (IRM) as indicated in the NH PPM. 10 CFR Section 440.3 defines IRM's as follows: "*Incidental Repairs means those repairs necessary for the effective performance or preservation of weatherization materials. Such repairs include, but are not limited to, framing or repairing windows and doors which could not otherwise be caulked or weather-stripped, and providing protective materials, such as paint, used to seal materials installed under this program.*"

*Examples of these limited repairs include sealing minor roof leaks to preserve new attic insulation and repairing water-damaged flooring as part of replacing a water heater in a manufactured home."*

Further clarification of allowed IRM activities has been issued through WPN 12-09.

### **Defined Incidental Repair**

This section identifies activities that are defined in this Plan as IRM(s) and are always charged as "incidental repairs." They are to be included in the total SIR of the project and identified on the project close-out report; they are not to be charged to Health and Safety.

All estimated IRM costs, including labor and material, must be included on the initial SIR report generated for the project work order. Cumulative IRM costs must not cause the overall job to fall below an SIR of 1.

#### **a. Biologicals and Unsanitary Conditions, Odors, Mustiness, Bacteria, Viruses, Raw Sewage, Rotting Wood, etc.**

Repair of biological-creating conditions as indicated but not limited to the following:

- Repair of plumbing and sewer leaks inside the home or plumbing leaks outside the home such as hose bibs (garden hose faucets) that may be leaking and draining against the foundation.
- Repair of water-damaged materials that must be repaired to allow for installation of energy saving materials. Repair of water-damaged material that will dry after the repair of the offending cause is complete, and is not required to perform weatherization, IS NOT allowed.

#### **b. Building Structure and Roofing**

- Minor roofing repairs (limited to \$350).
- Minor structural repairs that are necessary to allow for effective weatherization (limited to \$350).

- Other such moisture control measures necessary to prevent moisture infiltration into the building structure.

**c. Code Compliance**

- The costs associated with code compliance that is directly related to the installed ECM being installed when the combined cost (ECM and associated code compliance costs) causes the ECM to drop below an SIR of 1.
- See Section L, Code Compliance Issues, for code requirements that are not a direct component of the measure.

**d. Drainage, Gutters, Down Spouts, Extensions, Flashing, Sump Pumps, Landscape, etc.**

- Installation or repair of gutters, downspouts, downspout splash blocks or extensions when basements/crawl spaces have evidence of moisture infiltration.
- Installation of flashings to direct water away from the building and or foundation where evidence of moisture damage due to long-term water exposure is evident.
- Installation of sump pumps and associated plumbing and electrical to prevent bulk moisture build-up in basements/crawl spaces.
- Minor drainage or landscape modifications necessary to divert roof or natural water run-off from infiltrating into the foundation that does not require motorized earth-moving equipment.
- Other repairs (minor) necessary to control moisture infiltration into the building.

**e. Electrical (other than knob and tube)**

- Where the installation of an electrical ECM requires the repair of an existing hazardous or undersized circuit or installation of a new circuit and the combined cost causes the ECM to drop below an SIR of 1.
- Minor electrical repairs (except knob and tube) necessary to perform weatherization (install insulation).

**f. Mold and Moisture**

- Repairing conditions that cause or create mold or moist conditions in a home as indicated above in Biologicals and Drainage.
- Installing a sealed moisture/vapor barrier over dirt spaces. Installing moisture barriers over dirt spaces also aids in reducing Radon infiltration into homes.

**g. Ventilation**

- All costs associated with installation, repair or replacement of mechanical ventilation systems or their associated components.
- Repair or replacement of venting material for dryers that do not currently vent directly to the exterior. All mechanical venting must exhaust to the exterior of the building.

#### **h. Window and Door Replacement, Window Guards**

- Window assemblies cannot be replaced as an IRM.
- Windows that leak water and have visible evidence of moisture damage (beyond water staining) and deterioration of the window assembly or building material around the window can be repaired under this section.
- Repair of trim and/or flashings around windows or doors to prevent water infiltration.
- Repair or replacement of window sashes that allow water infiltration into a building structure.
- Repair or replacement of a door panel that allows water infiltration into a building structure. Only replacement of the panel should occur unless the door jambs or threshold also allow moisture into the building, or a door panel of the same size is not available.

#### **16. HEALTH AND SAFETY CALL-BACKS**

Call-back work is work that is performed on a unit after it has been reported to DOE as complete. Call-backs for health and safety reasons are not allowed except where serious safety concerns for the occupants of the home exist; for example, in a situation where a potential for carbon monoxide poisoning exists. These instances will be judged on a case-by-case basis, and approved by OEP. When a call-back is necessary, agencies must submit and receive approval for a waiver prior to performing the work. Call-back work performed prior to receiving an approved waiver may not be reimbursed.

#### **17. DEFERRAL STANDARDS**

Deferral may be necessary if health and safety issues cannot be adequately addressed. The decision to defer work in a dwelling is difficult, but necessary in some cases. This does not mean that assistance will never be available, but that work must be postponed until the problems can be resolved and/or alternative sources of help are found. In the judgment of the auditor, any existing conditions that may endanger the health and/or safety of the workers or occupants may cause weatherization to be deferred until the conditions are corrected. Deferral may also be necessary where occupants are uncooperative, abusive, or threatening. Subgrantee staff, including crew and contractors, is expected to pursue reasonable options, including referrals on behalf of the client, and to use good judgment in dealing with difficult situations.

Subgrantees should use the Deferral of Weatherization Services form for such situations. The form must be filled out completely, including the client's name and address, dates of the audit/assessment and date the client was informed, a clear description of the problem, conditions under which weatherization could continue, the responsibilities of all parties involved, and the client's signature indicating that they understand and have been informed of their rights and options.

Deferral conditions may include:

- The client has known health conditions that prohibit the installation of insulation and other weatherization materials.
- The building structure or its mechanical systems, including electrical and plumbing, are in such a state of disrepair that the conditions cannot be resolved within these guidelines and at reasonable costs; i.e., repairs are beyond incidental.
- The house has sewage or other sanitary problems including pet/animal excrement that cannot be corrected through weatherization and would further endanger the client and weatherization installers if weatherization work were performed.
- The house has been condemned or electrical, plumbing, or other equipment has been “red tagged” by local or state building officials or utility companies and weatherization funds are not sufficient or corrective measures are not allowable costs.
- Moisture or potential moisture problems, as discussed in Section F that cannot be resolved under existing health and safety guidelines and with minor repairs.
- Dangerous conditions in the home due to high carbon monoxide levels in combustion appliances or their venting which cannot be resolved under existing health and safety guidance. Subgrantees should take immediate action to ensure the appliance is not used, including instructing the client to contact a combustion appliance repair/replacement specialist.
- The client is uncooperative, abusive, or threatening to the crew, subcontractors, auditors, inspectors, or others who must work on or visit the house.
- The extent and condition of lead-based paint or any other identified hazardous condition in the house that could potentially create further health and safety hazards and cannot be addressed through weatherization.
- Pest infestation that cannot be reasonably removed or poses health concerns for workers.
- In the judgment of the energy auditor, any condition that exists which may endanger the health and/or safety of the work crew or subcontractor.
- Homes with conditions that have the potential to create a health concern requiring more than incidental repair should be deferred.