



Washington State
Department of
Commerce

We strengthen communities

Washington State Low- Income Weatherization Program

Client Education Guide

ENERGY

Local Weatherization Agency Contact Information

Agency Name: _____

Contact Person: _____

Phone Number: _____

Email Address: _____

Toxic Removal/Hazardous Waste Site: _____

Name and Location: _____

Website: _____

Phone Number: _____



WEATHERIZATION WORKS

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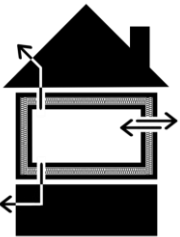
What is weatherization?

Weatherization Programs install improvements to save energy and to make your home a safer, healthier place to live. Many improvements work together as a **system** and it's helpful to understand how they work together so you can maintain and operate your home to maximize your comfort and safety.



The ceilings, walls and floors of your home separate your heated home from the unheated spaces outside; this is your building envelope. When you improve the envelope of your home, you are weatherizing.

Improving your home's building envelope through Weatherization may include adding insulation and sealing air leaks. Having the envelope of your home properly weatherized reduces heat loss and can improve indoor air quality.



Air leakage in or out of a building has a considerable impact on the energy demand and cost to heat or cool it. However, you still need outdoor air to maintain good indoor air quality. To balance these needs, the Weatherization Program works to eliminate uncontrolled air leaks by controlling where fresh air can enter the home with ventilation. For example, we prioritize sealing air leaks between the indoors and the crawlspace, garage, or attic. Then, when the bath fan is on, new fresh air is drawn in to make up for air exhausted.



House as a system

The building envelope, insulation, ventilation and heating systems all function together to make your home a complete system. Weatherization takes a holistic view of the home to optimize how these elements all work together.

The first step in the weatherization process is to conduct an energy audit. These audits are not intended to be complete home inspections, and it is not the objective of weatherization programs to identify or address every opportunity for improvement. Weatherization professionals are trained and certified to understand how the house works as a system. They are qualified to offer solutions to common home performance problems related to energy use and occupant health and safety. They can identify energy saving opportunities and typical household problems like pests and repair issues.



For more information about weatherization, please see U.S. Department of Energy's (DOE) Weatherize website:

www.energy.gov/public-services/homes/home-weatherization

Maintenance and warranties

Clients will receive all manuals, operation and maintenance directions, warranties and care instructions for all installed equipment. Keep these in a safe place for future reference.

If you have any questions, contact the local weatherization agency providing services.

- If you have energy-efficient equipment installed in your home, please follow the maintenance schedule and read your manuals.
- Keeping your equipment in good working order will reduce issues and provide longevity.
- For the warranty period on any equipment or appliances installed in your home, please reference the item's owner manuals.

There is a one-year warranty on workmanship. If you find defects or notice issues with the workmanship within one year from the date of completion of installation, report them. Please contact the contractor who performed the work or the local weatherization agency. Any defects found and reported within the warranty period shall be remedied without charge and within a reasonable period of time.

Deferral

Unfortunately, local weatherization agencies must defer some projects. If the condition of the home is beyond the scope of the weatherization program, funding is unavailable, or there are circumstances in the home that require repair, removal or remedy before a project to weatherize can begin, then the project must be deferred until identified issues are resolved.

If deferral is necessary, you will receive a deferral form that clearly states the conditions requiring deferral, steps that must be taken to remedy it and conditions that must be met in order for weatherization to begin. You will also be informed how to contact the local weatherization agency once all conditions have been met.



Energy efficiency

You can lower the cost of your energy bills by making informed decisions and improving the energy efficiency of lighting, electronics and appliances in your home. See [page 20-21](#) for how to improve the energy efficiency of your heating, ventilation and cooling systems.

Energy-efficient lighting

An average household dedicates about 5% of its energy budget to lighting. By replacing your home's five most frequently-used light bulbs with ENERGY STAR certified light bulbs, you could save an average of \$75 each year.

Currently, there are two types of energy-efficient bulbs that are widely available

- **CFLs (Compact Florescent Lights)**

CFLs are compact version of the long tube fluorescent lights you may already have in a kitchen or garage. An Energy Star-qualified CFL uses about one-quarter the energy and lasts 10 times longer than the same amount of light-producing incandescent bulb. See proper cleaning practices for breakage on [page 15](#).

- **LEDs (Light-Emitting Diodes)**

LEDs use less energy and can last up to 20 years. LEDs produce only light without heat like older inefficient bulbs. When shopping for LEDs, light output is measured in lumens rather than watts; the higher the lumens, the brighter the light. Color temperature (Kelvin) determines hue of your light. If you like bright white light or daylight, look for 3500 to 5000 Kelvin; if you prefer the soft glow of older incandescent bulbs, look for 2500 Kelvin. Since LEDs do not contain mercury, when they burn out they can go directly in the garbage can. Check with your local utility learn where to purchase new LEDs at a discount.

Energy-efficient electronics

A typical American home has up to 24 electrical devices plugged in at any time. Electronics account for about 12% of typical household use. Some of these devices constantly use electricity even when they are not in use. Unplug electronics when not in use to reduce "phantom loads," and to reduce your power bill.

Energy-efficient appliances

Every appliance comes with two price tags: The purchase price and the cost of operating the appliance. Before you purchase an appliance, visit the [Energy Star](#) certified products website to help you save energy.

The highest energy-using appliances are:

- **Water heater:** Turn water heater temperature to 120°F to save on the energy cost of heating your water. For every 10°F reduction in temperature, you can save 3-5% on your water heating costs
- **Clothes washer and dryer:** Water heating consumes about 90% of the energy needed to operate a clothes washer. Switching your temperature setting from hot to warm can cut energy use in half. Using the cold cycle reduces energy use even more. Cleaning the dryer's lint filter after every load will improve safety, air circulation and increase efficiency. Please read more on [page 19](#) for dryer vent maintenance.
- **Refrigerator/freezer:** Set your refrigerator temperature to 37°F and your freezer temperature between 0-5°F. Remove any storage or items from the top of the appliance to ensure heat can escape. Check the gasket seal to ensure your appliance is closing properly. If your appliance has external coils, follow the manufacturer's instructions to clean the coils often.

Water heater temperature

Water heaters should not be set higher than 120°F, or the minimum setting if no specific temperature is available. While you are not required to adjust the temperature setting, extremely hot water (more than 120°F) can be dangerous, particularly to small children and elderly. Only sterilized bedding needs to be washed at 130°F or higher, which is not necessary in most households:

Temperature	Scalding Time	Used For
°150	2 seconds	-
°140	10 seconds	-
°130	30 seconds	Sterilizing Bedding
°120	10 minutes	Recommended

Water conservation

You can lower the cost of your water bills and conserve water = by making informed decisions when using water, maintaining plumbing and installing low-flow showerheads and aerators.

- **Bathing:** A full bathtub can use up to 70 gallons of water, while a five--minute shower uses only 10 to 25 gallons. Turn off the water tap while brushing your teeth, shaving and washing your hands to save up to eight gallons per day.
- **Washing dishes and clothes:** If you have a dishwasher, wash only full loads of dishes. If you wash dishes by hand, plug up the sink or use a wash basin. Wash only full loads of laundry or use the appropriate water level or load size selection on the clothes washing machine.
- **Gardening:** Use drip hose instead of a sprinkler. Sprinklers spray water on to top of plants where it evaporates, but drip hoses deliver to roots where it is needed. Water plants in early morning or late at night when temperatures are lower and natural humidity is higher. Install automatic shutoff devices, when possible.
- **Outdoor water conservation:** Wash your bike or car with a bucket and sponge. A hose can waste six gallons per minute if you leave it running while washing your car, but using a bucket and sponge only uses a few gallons. Also, consider sweeping driveways and sidewalks rather than spraying.
- **Fix Your Plumbing Leaks:** Plumbing leaks must be repaired immediately. Just one drip per minute can waste 51 gallons per year. Poorly functioning toilets can leak over 200 gallons of water each day. For more information on plumbing leak repairs, visit U.S. Environmental Protection Agency's WaterSense website: www.epa.gov/watersense



The “Keep it” principles

The “Keep it” principles provide a roadmap for maintaining a healthy home.

A growing number of studies show a connection between living conditions in the home and occupant health. Asthma, lead poisoning, fires, mold, slips and falls and other health and safety concerns can be traced to the condition of people’s homes. Many products and pollutants commonly found in homes have been shown to trigger asthma and allergies as well as conditions like cancer and delayed learning.



Keep it dry

Moisture in the home generally comes in the forms of liquid water and water vapor.

Liquid water is often introduced from “bulk sources.” These sources, including plumbing leaks, roof leaks or malfunctioning gutters/drainage systems, cause water to leak or flow into the building. Sources of water vapor (water droplets floating in the air) often come from obvious daily activities like cooking and showering. But other sources may be less obvious. For example, excess humidity can be caused by damp air moving into the living space from a musty crawlspace, water evaporating out of fish tanks, or even a kettle of water intentionally placed on a wood stove.

As water vapor moves through a building, it can cause problems when it hits a cool surface and condenses. Condensation happens when water vapor changes back to liquid water. This is commonly seen as water droplets on single pane windows and the outside of a cold soda can. It can also happen on surfaces within the home such as roofs, walls and floors. Sometimes this can lead to mold growth and/or damage to the building structure. Excess moisture in your home can contribute to structural damage and mold growth, and have adverse effects on your health. The movement of moisture within a building can be a very complicated.

Fortunately, there are simple measures that can be taken to limit moisture in your home:

- **Manage plumbing leaks:** Fix all plumbing leaks immediately. Inspect plumbing under your home and in cabinets for signs of water or sewage leaks on a regular basis. Inspect your water heater for signs of leaks. Hot water leaks amount to wasted energy and contribute to serious moisture problems.
- **Drainage systems:** Clean and maintain drainage systems such as gutters and down spouts to direct rain water away from your home’s foundation.
- **Roof and attic:** Maintain your roof by keeping it clean of moss and debris. Avoid using pressure washers as improper use may cause damage. Always work safely by taking proper precautions. Repair roof leaks immediately, as water damage can quickly spread and create bigger problems.



Watch for staining or discoloration on walls and ceilings. They might be signs of a more serious problem like a roof leak or a ventilation issue.

- **Crawl space:** If you have a crawl space, make sure it has a vapor barrier. Vapor barriers in crawl spaces help control moisture and can improve indoor air quality.

- **Landscape:** If possible, ensure ground slopes away from the home and does not allow rain water to run towards basements and crawl spaces. Keep plants and shrubs at six inches to one foot from the home and avoid over spraying when watering.
- **Manage Indoor Relative Humidity:** Maintain indoor Relative Humidity (RH) level between 30-70% RH to prevent mold growth and control dust mites. Keeping RH below 50% is effective at preventing dust mite growth.

An assessment of your home by weatherization professionals includes a visual check of your home for mold. This is not a mold inspection and the person making this assessment is not a certified mold inspector.

For more information on your home, please see Health and Safety Observed Conditions form provided to you by your local weatherization agency. For general mold information, see the U. S Environmental Protection Agency (EPA) booklet, ["A Brief Guide to Mold, Moisture, and Your Home,"](http://www.epa.gov/sites/production/files/2016-10/documents/moldguide12.pdf)
www.epa.gov/sites/production/files/2016-10/documents/moldguide12.pdf



Keep it clean

You can improve your home's indoor air quality by controlling the sources of dust and contaminants, reducing clutter and cleaning with non-toxic cleaning supplies.

Dust often contains known contaminants in the form of heavy metals, pesticides, chemicals, viruses, fungal spores and pet waste. About two-thirds of dust is tracked in from outdoors. Dust mites are insect-like pests that commonly live in dust in carpets, bedding and stuffed toys. They feed mainly on the tiny flakes of human skin that people shed each day. Dust mites can release allergens, which might make people sick and trigger asthma attacks.

There are several ways to reduce dust, dust mites and contaminants in your home:

- **Damp dusting:** Use a damp cloth to dust surfaces and hard flooring once a week (twice a week if there are toddlers in the home).
- **Shoes off:** Don't wear outside shoes in the home, and install mats or a walk-off system at entryways. Wipe feet twice before taking off shoes and store shoes at entrances to the home.
- **Bedding:** Wash bedding in hot water once a week. If you have pets, provide them with their own bed outside of your bedroom and do not allow them to rest on upholstered furniture.
- **Furnace filter:** Install your furnace filter before the next heating season and monitor the cleanliness of your filter throughout the heating season. Most filters should be cleaned or replaced every three months. If you have pets or more than three people living in your home, you may need to clean or change your filter more often. Cleaning your filter will avoid clogging, which can damage the filter and cause heating system malfunctions.
- **Reusable furnace filters:** If you have a reusable furnace filter, hose off dust and debris outside, let it dry completely, then place the filter back in your forced air heating system.

- **Vacuuming:** Vacuum at least once a week (twice a week if there are toddlers in the home), including all upholstered furniture, mattresses, lampshades and curtains or drapes.



The following are recommended vacuuming practices:

- Work the carpet fiber in both directions and don't push down on the vacuum cleaner.
 - Inspect the vacuum belt and bag monthly. Change the bag when full and empty canisters outside. Follow manufacturer's instructions to use the vacuum attachments.
- **Managing clutter:** Clutter is a collection of belongings in a home that can create an untidy mess, and affect your health and quality of life. If clutter is undisturbed for periods of time, it can accumulate dust, dust mites, allergens, dander and pests. Mildew and mold can also develop if the area is damp. If you have a problem with household clutter, we recommend:
 - **Chore chart:** Create a chore chart and assign age-appropriate jobs to everyone in the house. It takes a minimum of two weeks for a new chore to become routine. If you or your household members are not physically able to complete household chores, consider contacting a local volunteer-based organization to request assistance.
 - **Cleanable surfaces:** Reduce storage and belongings on countertops, shelves and surfaces to reduce mildew and mold build-up. Ensure that surfaces have exposure to air flow and are easily accessible to clean and disinfect.
 - **Organization and storage:** Use storage bins with lids to organize and store belongings. Reduce your household's belongings as often as possible.

Cleaning vs. disinfecting

Many cleaning products contain harsh chemicals and **volatile organic compounds (VOCs)**. When cleaning products are stored in their plastic containers, harsh chemicals can off-gas and expose your household members to fumes and vapors, which can hurt their lungs.

Do not store commercial cleaning products under your kitchen sink or inside the living areas of your home. If possible, store commercial cleaning products outside of your home or in a well-ventilated area. Cleaning products may be expensive to purchase, compared to cleaning and disinfecting with common non-toxic household supplies.

By cleaning and disinfecting with green cleaning ingredients, your household can save money and improve your indoor air quality. For safer cleaning practices to reduce exposure to toxics see Department of Ecology's booklet, "[Healthier Living Starts at Home](https://apps.ecology.wa.gov/publications/documents/2104036.pdf),"

<https://apps.ecology.wa.gov/publications/documents/2104036.pdf>

- **Cleaning** refers to the removal of germs, dirt and impurities from surfaces. It does not kill germs, but by removing them it reduces their numbers and the risk of spreading infection. Cleaning is effective for most situations.
- **Disinfecting** refers to using chemicals — for example, EPA-registered disinfectants — to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection.

CAUTION

Disinfecting chemicals are harmful to all life and can harm pets and exacerbate respiratory symptoms. Use with caution. Always follow all product instructions.

Refer to the EPA's list of registered household disinfectants:

- [Selected EPA – Registered Disinfectants](#) (website)
- [Guidance for cleaning & disinfecting public spaces, workplaces, businesses, schools and homes](#) (PDF)

What are Volatile Organic Compounds (VOCs)?

VOCs are organic chemicals that easily evaporate at normal room temperature. They occur in both human-made and naturally occurring chemical compounds. Harmful VOCs typically are not acutely toxic, but have compounding long-term health effects. *Concentrations of harmful VOCs are consistently higher indoors (up to 10 times higher than outdoors).*



Keep it safe

All of the “Keep it” principles help keep us safe in one way or another. Here, keeping your home safe means actively addressing possible injury hazards. These may include slip or fall hazards, chemical poisoning, fires, fuel leaks, and exposure to combustion gases from fuel burning appliances or automobile exhaust.

- **Slip or fall hazards:** Install handrails and grab bars in stairways and bathrooms. Inspect areas where children play inside and outside for safety hazards.
- **Chemical poisoning:** Keep medicine and household chemicals securely stored and away from children. Properly store paints, solvents and other chemical pollutants.

For more information see Keep it contaminant-free on [page 14](#) and Federal Emergency Management Agency's (FEMA) flyer, “[Keep your Family Safe from Household Chemicals](#),” https://www.usfa.fema.gov/downloads/pdf/publications/keep_family_safe_from_chemicals_flyer.pdf

- **Fires:** Never leave food cooking unattended.
- **Exposure to combustion gases:** Maintain and inspect woodstoves and heating systems regularly. Prevent air exchange between garages and the living space to maintain better indoor air quality.
- **Scalding risk:** If your water heater is set above 120°F for disinfecting bedding or other reasons, be aware of the potential risk of scalding.
- **Electrical outlets:** Electrical outlets should be covered to protect young children.

For more information on basic electrical safety and electrical risks, including overcurrent protection and avoiding overloading circuits, see the U.S. Consumer Product Safety Commission's “Guide to Home Wiring Hazards,” found at <https://www.cpsc.gov/s3fs-public/518.pdf>.

- **Bulk fuel tanks:** If your home was previously heated by a system connected to a bulk fuel tank (such as oil or propane), and that heating system was replaced as part of your weatherization project, then the tank and

related heating system were decommissioned. Decommissioning is completed in accordance with the requirements of the local authority, typically the local fire department, and you will receive copies of the decommissioning certificates. If the tank was underground, it was either removed or emptied of fuel and filled with an inert solid material. If the tank was above ground and you'd like to have it removed, it may be the homeowner's responsibility. For guidance, consult your local fire chief or fire marshal. You may also contact the [Washington State Pollution Liability Insurance Agency \(PLIA\)](#) for more information.

Combustion safety



Appliances that burn fuel as part of their normal operation are known as "combustion appliances" and require testing for safety. Weatherization auditors test combustion appliances in homes to ensure they are properly installed and functioning safely.

Some propane or natural gas space heaters are unvented. Because all combustion byproducts are exhausted into the living space, there is increased risk for carbon monoxide poisoning, exposure to other toxic byproducts, asphyxiation, fire safety issues and moisture issues. These appliances are dangerous even when used as intended. It is recommended that they only be used in well-ventilated areas and never inside your home.

If you cook with a gas or propane stove and/or oven, keep the burners and broilers clean to limit the production of carbon monoxide.

Smoke detector

A smoke detector is a safety device that can detect smoke, which might indicate a fire. Some battery-operated models "chirp" when batteries are low and need replacement. This helps to ensure the detector does not stop working. Refer to the owner's manual for proper maintenance and operation.



Carbon Monoxide (CO) monitor

A carbon monoxide detector is a safety device that detects the presence of CO gas to prevent poisoning. CO is a colorless, odorless and tasteless gas produced by incomplete combustion. Exposure is most common from car exhaust, faulty heaters, fires and industrial accidents.

Symptoms of CO poisoning are nonspecific. Acute mild exposure to CO leads to headache, muscle aches, dizziness, drowsiness and neurologic disturbance. Heavier exposure may lead to retinal hemorrhage, myocardial infarction, loss of consciousness, coma and death.



- If you suspect CO poisoning, evacuate the home.
- In an emergency situation, call 911 or call the Poison Help Hotline at 1-800-222-1222.
- Ventilate and air-out the home after an incident.



Keep it ventilated

Almost every activity we do in our homes, from cooking and bathing, exercising and even just breathing, produces moisture. As reviewed in the Keep it dry principle, removing excess moisture from your home is essential for building maintenance and indoor air quality.

Good ventilation increases air circulation and provides additional health benefits. Ventilation systems are designed to remove excess moisture, carbon monoxide, VOCs and other indoor air pollutants as they exhaust stale and stagnant air and draw in clean, fresh air.

Weatherization programs will evaluate your home to see if it meets recognized ventilation standards. Ventilation needs are often met through a designated whole-house fan. These fans are energy-efficient and effective at improving indoor air quality.

Whole-house fans can have several possible controls:

- **Manual on-off switches:** Fan is turned on and off with a light switch.
- **Humidity Sensor:** Fan will come on automatically when it senses moisture.
- **Automatic intermittent switch:** Fan is on a preset timer and the fan will come on and turn off throughout the day at calculated intervals.
- **Occupancy Sensor:** Fan will come on automatically and continue to run for a preset amount of time.



If a weatherization program installs a fan in your home, information on function, use and maintenance of the ventilation system and components will be provided.

It is important to not modify the settings of your fan. Settings are based on indoor air quality standards. The settings are specifically for your home, but may not account for high pollution sources such as cigarette smoke or aerosol sprays. They might not guarantee indoor air quality.



Keep it pest-free

Keep your home pest-free. Pests such as rodents and insects can damage your home and contribute to indoor air quality problems that may trigger asthma, allergies and other health problems. An ongoing, multilayered approach is likely to be the most successful to control pests.

- **Pests need three things to survive:** Food, water and a place to hide.
- **Integrated Pest Management (IPM)** involves eliminating these needs to help control the pest population.
- **IPM involves a common sense approach** relying on a combination of: Pest exclusion, sanitation and ongoing monitoring.
- **Seal areas where pests enter your home** with durable materials. Keep garbage and composting away from home to avoid pests.



- **Monitor for pest activity** by looking for droppings, chew marks and nesting locations.
- **Minimize use of pesticides.** They are harmful to you and your pets. If they must be used, choose products that are produced from natural sources and not synthetic chemicals.

IPM will reduce pest populations while reducing the need for pesticides and protecting your health.

- For more information on pesticide use, see the EPA's pesticides webpage: www.epa.gov/pesticides.
- For more information on Integrated Pest Management practices, see the EPA website "[Introduction to Integrated Pest Management](http://www.epa.gov/managing-pests-schools/introduction-integrated-pest-management)," www.epa.gov/managing-pests-schools/introduction-integrated-pest-management



Keep it contaminant-free

Keep your home free of harmful contaminants such as chemical fragrances and cleaners, lead-based paint, asbestos and tobacco smoke.

The U.S. Environmental Protection Agency (EPA) considers some leftover household products to be hazardous waste. **Products such as paints, cleaners, oils, batteries, fluorescent lightbulbs and pesticides can contain hazardous ingredients and require special care when you dispose of them.**



Keep chemical toxicants out of your home by choosing household cleaning products that are **VOC- and fragrance-free**.

- **Follow instructions** for use and storage on product labels carefully to prevent accidents at home.
- **Read product labels** for disposal directions to reduce the risk of products exploding, igniting, leaking, mixing with other chemicals or posing other hazards on the way to a disposal facility.
- **Never store hazardous products in food containers.** Keep them in their original containers and never remove labels. Corroding containers require special handling. Call your local hazardous materials official or fire department for instructions.
- **Never mix household hazardous waste with other products.** It might react, such as ignition or explosion. Contaminated or mixed waste might not be accepted by waste disposal sites.

To safely remove and dispose of household hazardous waste, take it to a designated disposal of toxins collection site:

- **Use original containers.** Keep products in its original container. If you must change containers, clearly label it.
- **Keep it away from your vehicle's passenger cabin.** Keep the product out of the passenger compartment of your vehicle and away from children and pets.
- **Secure the load.** Place containers in a plastic bin or box with a lid and keep them from tipping or leaking.
- **Do not tape fluorescent bulbs or let them get wet.** Transport in the original box to prevent breakage.

When using a Disposal of Toxins or a Household Hazardous Waste Facility:

- Make appointments if you have a large load.

- Call ahead for any special instructions and hours of operation.
- Confirm they will accept your items before transporting them to the site.
- Empty containers should be placed in your household garbage with the lid removed. Remember, even empty containers can be a hazard because of residual chemicals.



Weatherization work may require handling hazardous waste and building materials. These may include: Mercury, asbestos, lead and refrigerant. Any hazardous waste materials generated in the course of weatherization or home repairs will be disposed in accordance with all local laws, regulations and federal guidelines, as applicable.

For more information on how to dispose of household toxins, visit the Department of Ecology's website at www.ecology.wa.gov/Waste-Toxics

Common contaminants — extra caution required

Mercury

Fluorescent lighting contains a trace amount of mercury in the bulb's glass tubing.

When bulbs are broken or burn out, they must be handled with care and recycled or disposed of as household hazardous waste at an approved site. Thermostats, especially older thermostats, might also contain mercury.



Mercury poisoning can result from inhalation of mercury vapor or by ingesting any form of mercury.

Cleaning up broken fluorescent light bulbs

Before cleaning

- Always air out the room.
- Open a window and have everyone, including pets, leave the room for at least 15 minutes.
- Turn off the air conditioning or heating system, if it is on.

Cleaning hard surfaces

- Pick up glass fragments using either stiff paper or cardboard and place into a sealable plastic bag.
- Use tape to pick up all remaining small pieces and powder.
- Wipe area with wet paper towels, then place into plastic bag.
- **Don't** use vacuum or broom to clean up broken bulbs!

Cleaning carpet or rug

- Pick up glass fragments and place in a sealable plastic bag.
- Use tape to pick up remaining small fragments and powder.
- After all visible pieces are cleaned, vacuum if needed.
- Remove vacuum bag and place in a sealable plastic bag, or dump fragments from vacuum to sealable plastic bag and wipe debris canister with wet paper towels. Then place used paper towels into plastic bag.

Cleaning clothing, sheets, fabric, etc.

- Clothing or sheets that come in direct contact with broken bulbs or mercury-containing powder should be thrown away.
- If clothes do not come in direct contact with broken bulbs (such as the clothes worn while cleaning broken bulbs), it is safe to wash and reuse them.
- If shoes come in contact with broken bulbs, wipe with wet paper towels, then place the used paper towels in a sealable plastic bag to throw away.

Throwing away clean up materials

- Seal plastic bag with used cleaning materials to throw away.
- Place all materials in an outdoor trash container.
- Always wash hands thoroughly with soap after cleaning up broken bulbs.

Lead

Lead and lead compounds have been used in a variety of products in and around our homes. Even a small amount of lead can have serious health effects, especially in developing children.

○ Potential lead-containing products include:

- Paints
- Ceramics
- Pipes and plumbing materials
- Leaded gasoline
- Batteries
- Ammunition
- Cosmetics

○ Homes built before 1978 are more likely to contain lead-based paint. Lead-based paint is even more common in homes built before 1950.

○ Moisture problems, regular use, rubbing and impact can cause lead paint to fail by chipping or turning paint to dust. It can then contaminate living spaces and can be inhaled or ingested into the body.

The most important step is to prevent lead exposure before it occurs.

Children are especially vulnerable to lead

Lead in paint chips, dust and soil can get on children's hands or toys, which they may put in their mouths. Lead poisoning can make children very sick, cause permanent brain and nerve damage, and can result in learning difficulties and behavior problems. Adults are also at risk. Lead-based paint can damage adult brains, nervous systems and reproductive systems. This damage is irreversible. Lead poisoning is a tragedy we can prevent.

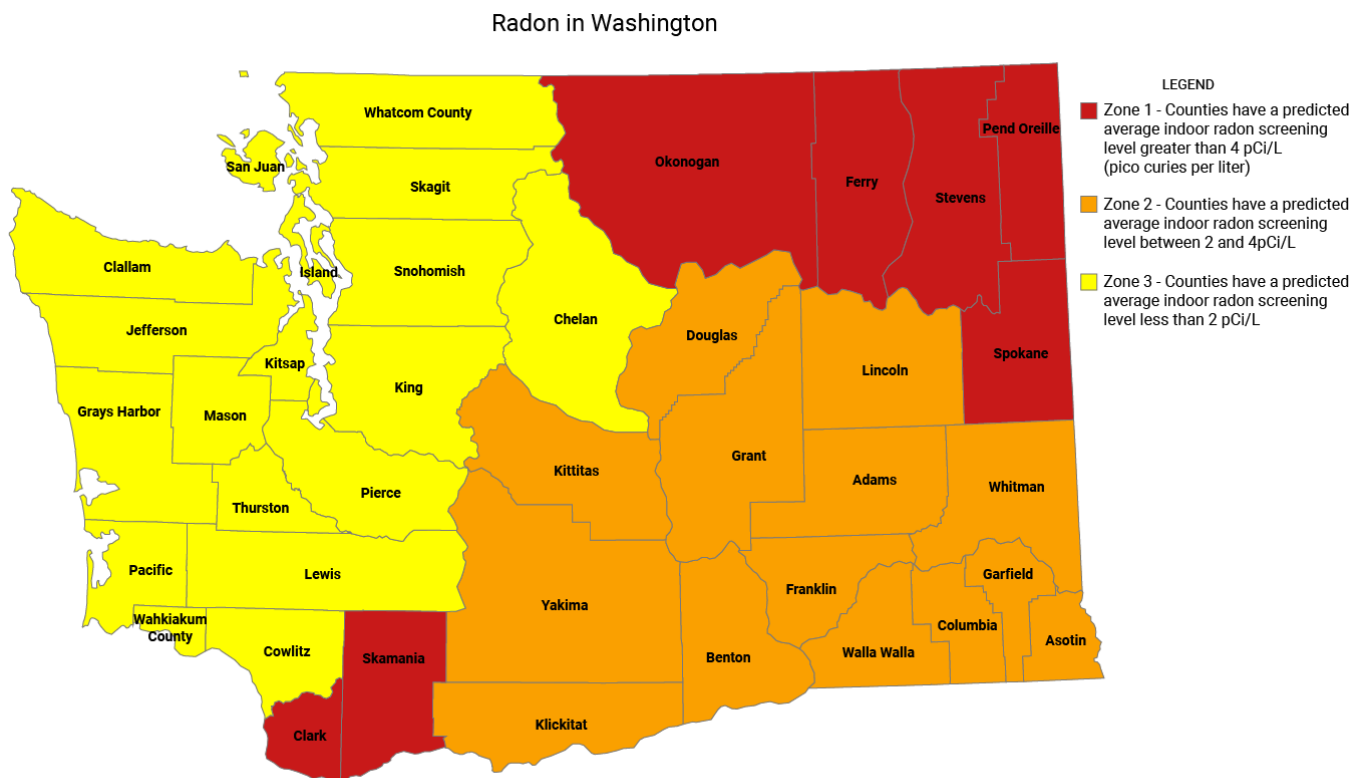
If a weatherization program or home repair contractor identifies or presumes lead-paint and plans to disturb those painted surfaces, then the workers will follow lead-containment protocols to minimize risk.



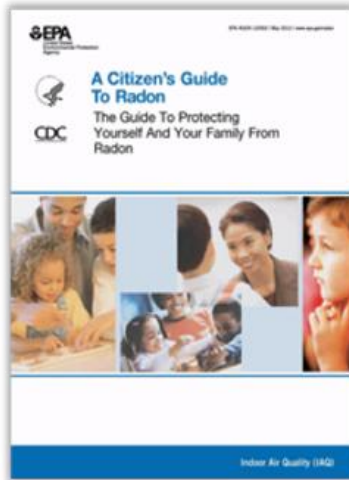
- **For more information for your home**, please see Health and Safety Observed Conditions form provided to you by your local weatherization agency.
- For general lead information, see EPA booklet, "[The Lead Safe Certified Guide to Renovate Right](http://www.epa.gov/sites/production/files/documents/rr_english_color_book.pdf)," www.epa.gov/sites/production/files/documents/rr_english_color_book.pdf

Radon

Radon is a naturally occurring radioactive gas that is undetectable by human senses. It comes from the natural breakdown of uranium in soil, rock and water and can get into the air you breathe. It can accumulate under the slabs and foundations of a home, where it can enter into the living space through construction cracks and openings.



Weatherization benefits include energy savings, energy cost savings, improved home comfort and increased safety. However, there is a small risk of increasing radon levels when building tightness is improved. Radon risk varies depending on location. Local weatherization agencies work with clients to assess and minimize risks.



For more information for your home, please see the “Client Health and Safety Observed Conditions” form provided to you by your local weatherization agency.

For general radon information, see the EPA booklet “[A Citizen’s Guide to Radon](https://www.epa.gov/sites/default/files/2016-12/documents/2016_a_citizens_guide_to_radon.pdf),” https://www.epa.gov/sites/default/files/2016-12/documents/2016_a_citizens_guide_to_radon.pdf

Asbestos

Asbestos is a mineral fiber that occurs naturally in rock and soil. Because of its fiber strength and heat resistance, asbestos has been used in a variety of building construction materials for insulation and as a fire retardant. These products are referred to as asbestos containing materials (ACMs).



Where asbestos and ACMs might be found:

- Attic and wall insulation can contain vermiculite
- Vinyl floor tiles and the backing on vinyl sheet flooring and adhesives
- Roofing and siding shingles
- Textured paint and patching compounds used on walls and ceilings
- Walls and floors around wood-burning stoves protected with asbestos paper, millboard or cement sheets
- Hot water and steam pipes coated with ACMs or covered with an asbestos blanket or tape
- Oil and coal furnaces and door gaskets with asbestos insulation
- Heat-resistant fabrics
- Automobile clutches and brakes

How can people be exposed to asbestos?

Asbestos fibers may be released into the air by disturbing ACMs during demolition work, building or home maintenance, repair, or remodeling.

In general, exposure may occur only when the ACM is disturbed or damaged in a way that releases particles and fibers into the air. Repeated exposure to asbestos increases your risk of developing lung cancer, mesothelioma and asbestosis. Generally, ACMs that aren’t damaged or disturbed are unlikely to pose a health risk. Do not touch asbestos or asbestos containing materials. Leave ACMs alone if it is in good condition and not visibly frayed or crumbling.

For general asbestos information, visit these EPA websites: <https://www.epa.gov/asbestos> and <https://www.epa.gov/asbestos/protect-your-family-exposures-asbestos>



Keep it maintained

Keep your home well maintained. Proper maintenance can prevent costly damage and minimize associated health and safety hazards.

- **Inspect, clean and maintain:** Follow a yearly maintenance calendar like the one included in this booklet to keep all of the systems of your home operating properly.
- **Roof:** This is your first line of defense in keeping your home dry and safe. Monitor the condition of your roof for moss and organic material buildup and potential leaks. Most roofs have a 10 to 20-year lifecycle, and removing moss and other growth will extend the life of your roof.
- **Gutters:** Help control rainwater and actively drain water away from your house and foundation. Remove debris from gutters. When gutters get clogged with leaves and debris, water can back up into the eaves of your roof, drain down the siding and cause costly damage.
- **Landscaping:** It's not just for aesthetics — it's important to manage the plant growth around your home. Plants growing near the walls and foundation of a home can protect siding from the elements. But plants can also trap moisture near the home, pile up in debris, create insect pathways into your home, grow onto and into the sides of your home, and cause damage to siding and framing structure.
- **Siding:** The siding of your home is its skin. It keeps the elements from getting to and attacking the interior of your home. Make sure to maintain the painted and stained surfaces to prevent wind, rain and sun damage. And make sure that caulking around windows, doors and other seams is in good condition.
- **Household appliances:** Just like any other machinery, the appliances in your home need periodic maintenance and servicing. Review the maintenance manual for each appliance and create a calendar to track maintenance and servicing.
- **Furnace Filter:** Inspect, clean and change furnace filters on a regular basis to extend the life of your furnace and improve indoor air quality.

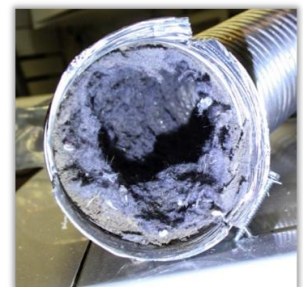


Furnace filters must be sized properly to work. Most of them should be changed every three months. Some homes with pets or high number of occupants may require more frequent change outs. Clogged filters reduce airflow and prevent your furnace from working as designed.



- **Dryer Vent:** Inspect and clean your clothes dryer vent to prevent fires resulting from lint build up.

- Clean your dryer lint trap after every load.
- Use a long stiff brush on a wire wand, compressed air, or a plumber's snake to gently rid the tubing of dryer lint.
Do not use these methods on white plastic or shiny Mylar dryer vent tubes. They are not rated for this use and are not safe in this application.
- If possible, your dryer vent should be replaced with rigid dryer ducting taped at the seams with UL 181 foil tape (not screws as they capture and gather lint) or flexible aluminum vent tubes.
- Ensure your dryer is properly vented to exhaust moisture to the outdoors, not to the crawl space, attic, or into the home. There is no safe way to re-capture heat from the dryer.





Keep it climate controlled

Keeping your home's temperatures controlled helps reduce energy use, control moisture and improve indoor air quality.

Know how to efficiently operate your home's heating and cooling systems.

- **Thermostat:** If you have a thermostat, set it. During the heating season, set your thermostat to 65°-68°F during daytime and 60°-63°F when you go to sleep at night. Each degree saves about 2% on the heating bill. Five degrees would save about \$100 on a \$1,000 annual heating bill. Turning your thermostat up high does not heat your home quicker. It is energy-efficient to lower your thermostat setting when you're away from the home, even though it takes extra energy to get your home back to a comfortable temperature when you return.
- **Programmable Thermostat:** Using a programmable thermostat can save energy and lower your bills.
- **Ductless heat pumps** are highly efficient and operate differently than most traditional heating systems. To maximize their efficiency and save money on your heating bill, it is recommended that you follow manufacturer operation and maintenance instructions closely. They typically advise that once you find a comfortable temperature setting, avoid changing the setting or turning the unit on and off. Depending on the location of your ductless heat pump, it might also be helpful to think of the temperature setting as a comfort setting, rather than an exact temperature setting for the area you are heating.
- **Zone heating and cooling.** Use space heaters and fans to heat or cool the space you are in. For safety, keep space heaters three feet away from furniture and objects, and unplug them when you go to sleep. Never use the oven to heat your home.
- **Prevent Thermal Loss** (air leakage) by working to eliminate uncontrolled air leaks while still allowing some clean fresh air into the home. Weatherization professionals know how to achieve this balance.
- **Seal your ductwork.** According to U.S. Department of Energy research, up to 30% of the conditioned air in a home can escape to the outdoors through leaky ductwork located outside the conditioned area of the home, usually in the crawlspace, garage or attic. Ductwork sealing is a cost-effective, one-time-fix in the life of the duct system.
- **Reduce leakage** of air into and out of your home by installing air sealing tools such as rope caulk, door draft stoppers, door sweeps, foam tape, window stripping, window kits, heavy curtains, and other physical blocks.
- **Insulate your home.** Ensure your home has adequate insulation to maintain comfortable temperatures. This is one of the primary services provided by weatherization agencies. The location of the insulation forms the thermal boundary of your home's envelope. Well-defined and properly aligned pressure and thermal boundaries are critical for ensuring an efficient, comfortable and healthy home.
- **Avoid "closing off" rooms** that are seldom used as a way to heat less space, and avoid blocking off any supply vents on your heating system. Both actions can create pressure imbalances for forced air systems and cause musty conditions that promote mold growth. Make sure heat can enter the room. Keep furniture, curtains and drapes from blocking your heating system. All rooms need air circulation and a consistent temperature maintained.

Home maintenance calendar



Spring is a good time to assess how your home held up through the winter.

- Focus on the home's exterior and look for signs of potential winter weather damage.
- Clean gutters and downspouts of collected leaves.
- Check the exterior of your home for any maintenance issues.
- Clear plants and shrubs that may have piled up over the winter.
- Inspect your roof for moss, leaks or other damage, like missing shingles.
- Inspect for plumbing leaks in crawl spaces, under sinks and at your water heater.

Summer is a good time for outdoor projects.

- Monitor for pests and insects — this is a busy time of year for them.
- Clear exterior steps and walkways of debris and check for structural integrity.
- Clean dryer vent of lint by vacuuming or using a snake brush.
- Prune trees and bushes to keep them away from your home.
- Drain and flush your water heater to remove sediment.



Fall is a good time to prepare your home for the winter months and colder temperatures.

- Turn off outdoor faucets and disconnect garden hoses. Wrap insulation around outdoor faucets to prevent from freezing.
- Clean up leaves to prevent blocked drains and manage potential pest habitat.
- Have a professional inspect your woodstove or fireplace for damage or hazards and clean your chimney.
- Check your furnace filter and have your heating system serviced.
- Test smoke alarms and carbon monoxide detectors and change the batteries.
- Inspect electrical cords and test ground-fault circuit interrupters, if you have them.

Winter is a good time focus on interior maintenance.

- With increased use, your furnace filters will need regular cleaning or replacement.
- Consider changing your filter every month during the heating season.
- Cover your air conditioning unit to protect it and prevent drafts.
- Clean your bathroom fan's exhaust grill and make sure your fan is operating properly.
- After winter storms, inspect the perimeter of your home and gutters for damage.



Helpful Resources

- What is Weatherization and Do-it-Yourself tips
<https://www.energy.gov/energysaver/weatherize>
- Ways to Save Energy
<https://www.energy.gov/energysaver/articles/energy-saver-guide>
- Water Conservation
<https://www.epa.gov/watersense>
- Plumbing Leak Repair
<https://www.epa.gov/watersense/fix-leak-week>
- A Brief Guide to Mold and Moisture, and your Home
<https://www.epa.gov/sites/production/files/2016-10/documents/moldguide12.pdf>
- Healthier Living Starts at Home
<https://apps.ecology.wa.gov/publications/documents/2104036.pdf>
- The Lead Safe Certified Guide to Renovate Right
https://www.epa.gov/sites/production/files/documents/rr_english_color_book.pdf
- A Citizens Guide to Radon
https://www.epa.gov/sites/default/files/2016-12/documents/2016_a_citizens_guide_to_radon.pdf
- General Asbestos Information
<https://www.epa.gov/asbestos>
- Pesticide use and Pest Control
<https://www.epa.gov/pesticides>
- Integrated Pest Management
<https://www.epa.gov/managing-pests-schools/introduction-integrated-pest-management>
- Disposal of Household Toxins
<https://ecology.wa.gov/Waste-Toxics>
- Guide to Home Wiring Hazards
<https://www.cpsc.gov/s3fs-public/518.pdf>

Washington state Weatherization Program

Client Education Guide

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