

HELP YOUR FAMILY



To A
Healthy
House



The US Department of Housing and Urban Development (HUD) has launched a Healthy Homes Initiative (HHI) to protect children and their families from housing-related health and safety hazards.

The Alaska Healthy Homes Initiative is coordinated by Alaska Housing Finance Corporation and Cold Climate Housing Research Center. Other participants include RurAL CAP, Interior Weatherization, University of Alaska Institute of Northern Engineering, Institute of Circumpolar Health Services and Tanana Valley Clinic.

This booklet was compiled by Alaska Building Science Network for Cold Climate Housing Research Center, to provide additional education to families in villages in rural Alaska that participate in the HHI program. Funding was provided by HUD. Technical information was compiled from HUD, EPA and American Lung Association and ABSN materials. Illustrations are by Jen Jolliff.



COLD CLIMATE HOUSING RESEARCH CENTER

CCHRC



YOUR HEALTHY HOME

**A guide
to help you
and your family
understand
and improve
your home's
health.**



YOUR FAMILY'S HEALTH

If you are like most people, you want to take good care of your family. You try to eat healthy foods. You take your children to the doctor for their regular checkups. You try your best to protect your family from accidents and illness. You want to live in a safe neighborhood and home. But some of the most serious health problems for your children may start in your home.

If you take care of the materials installed and follow the suggestions recommended here, your family should enjoy a more comfortable and safe home for many years to come.



FOCUS ON THE CHILDREN

Of course, a healthy home is important for adults, too. Making your home safe and healthy for children protects everyone. And, there are special reasons to think about children:

- Children's bodies are still growing so their organs are more likely to be harmed. If children get sick, getting well may be harder. Their immune systems, which fight illness, are still developing.
- For their size, children eat more food, drink more water and breathe more air than adults. When they get lead in their bodies or breathe in harmful gases, they get a bigger dose than adults would.
- Children play and crawl on the ground. They are closer to things that might cause health problems, like dust and some chemicals. And babies and young children put most everything in their mouths—things that might have chemicals or lead dust on them.








Children depend on adults to make their homes safe!

It's easy, but it is up to you—Help Your Family to a Healthy Home!



YOUR HEALTHY HOME

Improvements made to your house can help you and your family maintain a healthy living environment:

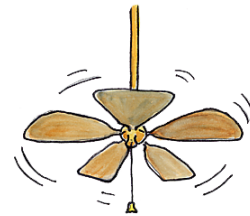
Improvement	Purpose	Health Benefit
Add insulation	To reduce heat loss, save energy and fuel costs, make home comfortable	
Reduce air leaks	To control heat loss, keep moisture out of the insulation, cut down on dust	
Add ventilation fan	To eliminate excess moisture and indoor pollutants	
Replace flooring	Smooth surface flooring is easy to keep dry and clean	
Replace furniture	To avoid furniture that collects dust and to make furniture easier to clean	
Replaced bedding	To eliminate dust mites	
Provide shelving/closets	To help keep floors clean and dry	

A HEALTHY HOME IS.....



Clean

Dry



Well Ventilated

Comfortable



**Free of Pests &
Toxic Chemicals**



**CO and
Smoke-Free**



How you live in your home affects its health. Water, clutter and dust provide the conditions and ingredients for mold, insects, mice, rats, roaches and dust mites to make their home in your home. Pests in your home can lead to allergic reactions; pests lead to the use of pesticides that are not good to breathe or ingest (eat). Food and water are an invitation for pests to live in your home. If you keep your home clean and dry you will have a home that is healthy and comfortable for you at the same time that it is not a friendly place for unwelcome pests.

YOUR HEALTHY HOME IS DRY

- Any time there has been standing water, there has been too much moisture in your home. Mold and mildew grow in damp places and can cause health problems. Moisture control is the key to mold control, so when water leaks or spills occur indoors - **ACT QUICKLY**. If wet or damp materials or areas are dried 24-48 hours after a leak or spill happens, in most cases mold will not grow.

Take these steps to reduce mold and moisture problems in your home:

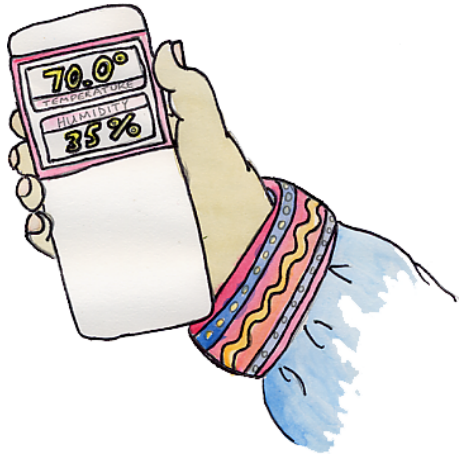
- If your house has been flooded recently, remove any wet or damp material right away.
- Wipe up spills and overflows right away
- Fix leaks right away.
- Make sure rainwater drains away from your house.
- Clean and repair roof gutters regularly.



- **VENTILATE!** Help keep mold and mildew from growing by using fans that vent air to the outside when bathing, showering, or cooking. Avoid the use of humidifiers if possible, but if you use them, clean them often to keep mold from growing.
 - Keep indoor humidity low - ideally 30-50% relative humidity (RH).
 - If you see condensation or moisture collecting on windows, walls or pipes **ACT QUICKLY** to dry the wet surface and reduce the moisture/water source. Add more ventilation.
- **TAKE EXTRA PRECAUTIONS**
 - Know how to shut off the water supply and electrical power
 - Know who to contact for plumbing leaks and flooding
 - Occasionally check for water leaks in the following places:
 - Under sinks
 - Around washing machines
 - Under the hot water heater



Use your humidistat to keep an eye on humidity levels.



Some rules of thumb to prevent window condensation during the heating season

Recommended indoor RH: 30-50%
When it is below 15°F outdoors,
recommended indoor RH: 30%

Humidity Hassles		
	Too much humidity (over 50% RH)	Too little humidity (Less than 25% RH)
Typical symptoms	Condensation on windows Wet stains on walls and ceilings Moldy bathroom Musty smells Allergic reactions	Chapped skin and lips Scratchy nose and throat Breathing problems Static and sparks Problems with electronic equipment
Long-term effects	Damage to the house Ongoing allergies Other health problems	Continuing discomfort Damage to furniture

MOLD CLEAN-UP PROCEDURES

FIRST Identify and eliminate sources of moisture

Clean up should begin as soon as possible *after* the moisture source is fixed and excess water has been removed.

- **Clean and dry moldy areas.** (Wear gloves when handling moldy materials.)
 - Porous Materials (sheetrock, carpeting, books, etc.)
 - Bag and discard moldy items; if properly enclosed, items can be disposed with household trash.
 - Dry affected areas for 2 or 3 days.
 - Less porous items (i.e., solid items such as floors, cabinets, solid furniture)

Remove as much mold as possible. A cleaning detergent is effective for this purpose. Wear gloves, mask and eye protection when doing this cleanup.

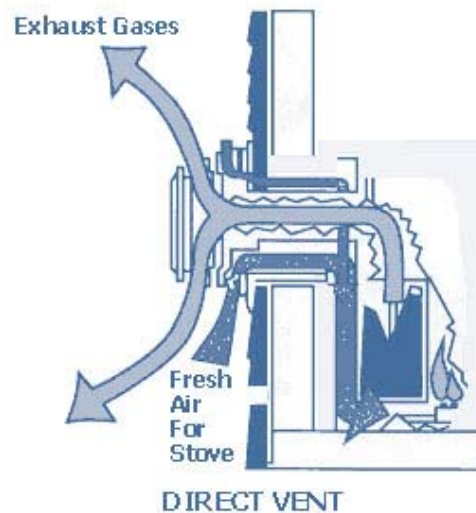
- Use non-ammonia soap or detergent, or a commercial cleaner, in hot water, and scrub the entire area that is affected by the mold.
- Use a stiff brush or cleaning pad on cement-block walls or other uneven surfaces.
- Rinse cleaned items with water and dry thoroughly. A wet/dry vacuum cleaner is helpful for removing water and cleaning items.

Help Your Stove Keep You Warm

A little bit of attention throughout the year will provide long-term trouble free operation.

Direct Vent Sealed Combustion System

Your home may have a direct vent sealed combustion oil heating system. There are 3 vent components: exhaust pipe, outside air flexible intake hose, and flue pipe. The flue pipe is installed in the wall with a downward slope. It is a pipe within a pipe (concentric) design. The combustion exhaust gas is discharged through the inner pipe. The burner's fresh air is pulled in the outer pipe.



It is very important that the **flue pipe is never covered with snow or other obstacles**. If this occurs, the stove will pull exhaust gas into the burner, which will cause soot, stove failure, and in some cases **serious internal damage**.

Cold Weather Concerns

Burning oil creates water (steam) in the exhaust gas. During cold winters, water can freeze on the end of the flue pipe and cause stove failure. Remove ice.



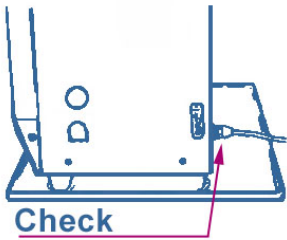
- **Clean Louvers (Once a week)**

Dust and stains should be wiped off louvers with a damp cloth.

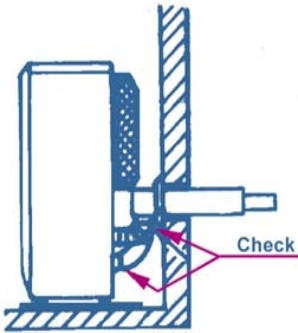


- **Clean Circulation Fan Cover (Once a week)**

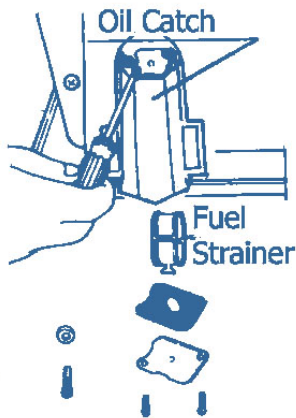
Remove any dust or pet hair from the fan cover on the back of heater.



- **Check for Oil Leaks (Regularly)**
Make it a habit to check for any sign of oil leaks along the fuel line and at all joints. Oil leaks may lead to risk of fire.



- **Check Flue Pipe Area (Once a week)**
Check the flue pipe joint to make sure connection is firm. Use a vacuum cleaner to remove any dust or pet hair.



- **Clean Fuel Strainer (Once a month)**
The strainer of the fuel sump should be cleaned once a month and at the end of each season.
 - a. Close the valve(s) of the separate fuel tank.
 - b. To catch the fuel which will drain out, set the oil catch below the strainer cover, with a small container under it.
 - c. Loosen the two screws from the strainer cover and remove.
 - d. Remove the strainer and wash with oil.
 - e. Return the strainer to its original position. Replace strainer cover and screw to secure.
 - f. Wipe away any spilled oil.
 - g. Open the valve(s) of separate fuel tank. Check for oil leakage.

HEALTHY HOUSEKEEPING

A clean home is a healthy home!

- **Use Entrance Mats and Remove Shoes.** Stop dust and dirt at the door! Use door mats both outside and inside entryways. Mats should be cleaned and replaced periodically. Removing shoes at the door significantly reduces household dust.
- **Minimize Clutter.** Clutter collects dust and makes it harder to keep a clean home. Store your belongings in plastic or cardboard boxes instead of keeping them in piles or stacks. You can move the boxes to make cleaning easier.
- **Clean Your Home Often.** Dust weekly using a moist cloth. Carpets, upholstered furniture and draperies are major "reservoirs" for dust and biological pollutants. Vacuum once or twice a week with a high quality vacuum fitted with a double lined paper filter bag at the least (some filters are so porous that the captured dust is just blown back into the area). If there are infants who crawl around on floors who mouth their fingers (suck their thumbs), vacuum more often.
- **Eliminate Carpets & Rugs.** There is no place for dirt to hide on hardwood, tile, linoleum or vinyl flooring. If you do have rugs or carpet, vacuum often. You may be able to borrow or buy a vacuum with a special HEPA (High Efficiency Particle Air) filter to get rid of dust.

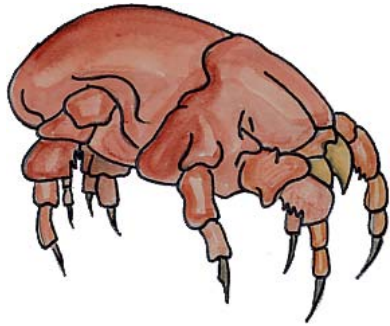


ASTHMA & ALLERGIES

Asthma and allergies may be caused or made worse by things in the air you breathe. Pets, tobacco smoke, cockroaches, and damp living areas can all pollute the air and make asthma worse. There are lots of steps you can take to improve the air in your home.

- First, if you smoke, do it outside and away from children.
- Regular housekeeping can reduce dust and protect your family's health:
- Wipe windowsills with a damp cloth often
- If you have carpets, clean them often. Use a vacuum cleaner with a special filter called a "HEPA" (High Efficiency Particulate Air) filter. These vacuums can reduce air quality problems.
- If you have hard floors, clean them often with a damp mop.
- Keep mildew and mold from growing in your home by:
- Getting rid of standing water anywhere in your house
- Fixing leaks right away.
- Making sure rainwater drains away from your house.
- Using your ventilating fan when bathing, showering, or cooking.

DUST MITES: ALLERGIES & ASTHMA



Dust mites are tiny animals you cannot see. Every home has dust mites. They feed on skin flakes and are found in mattresses, pillows, carpets, upholstered furniture, bedcovers, clothes, stuffed toys, and fabric or other fabric-covered items. Body parts and feces of dust mites can trigger asthma in people who have an allergic reaction to dust mites.

ACTIONS YOU CAN TAKE

- **Keep it clean:** Dust mites love dust! Avoid any items that tend to collect dust and replace them with easy-to-clean items. Clean your home on a regular basis. Vacuum frequently and dust with a damp or oiled mop. Pay special attention to bedrooms where mites congregate and people also spend a good deal of time!
- **Keep it dry:** Mites like warm, moist living conditions. They are happiest when the relative humidity is above 55% and grow poorly when it is below 45%. If your indoor temperature is close to 80° F, humidity should be below 40%.
- **Use your ventilating fan:** Your fan will remove excess moisture from the air!

DUST CONTROL BEGINS IN THE BEDROOM

Protect Your Family From Dust While They Sleep



- Wash bedding (sheets, bedcovers, and blankets) once a week in hot water.
- Choose washable stuffed toys, wash them often in hot water, and dry thoroughly. Keep stuffed toys off beds.
- Cover mattresses and pillows in dust-proof zippered covers.
- Maintain low indoor humidity ideally between 30-50% relative humidity.

CONTROLLED VENTILATION IS HEALTHY

Controlled ventilation provides **fresh air** that reduces pollutants from the home that can create an unhealthy environment. Some common pollutants include:



Moisture

Too much moisture can cause allergy problems and structural damage by encouraging the growth of mold, mildew, bacteria, dust mites, dry rot, and insects.



Common Household Chemicals

- Cleaning supplies
- Paints and solvents
- Formaldehyde from furniture, carpet, and building materials
- Pesticides
- Volatile organic compounds
- Odors



Particles

- Dust and dust mites
- Pet dander
- Lead
- Pollen
- Asbestos



Combustion Products

These are produced by fuel-burning equipment, gas water heaters, fireplaces, woodstoves, gas ranges, and candles, include:

- Carbon monoxide
- Carbon dioxide
- Soot
- Nitrous oxides
- Unburned fuel
- Moisture

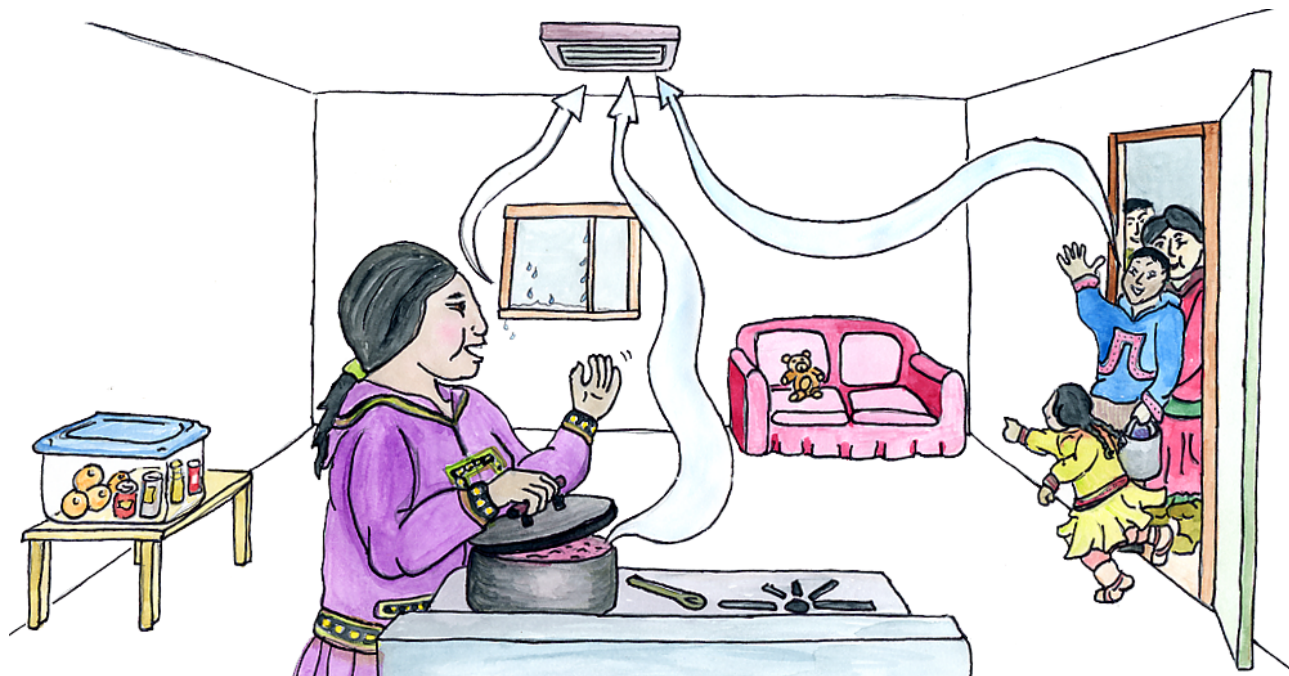


Tobacco Smoke

A health risk to smokers and nonsmokers alike –children are especially at risk.

Your Home Has a Ventilating Fan!

- To protect your family from unhealthy indoor pollutants
- To protect your house from excess moisture.
- Good ventilation also makes you feel comfortable.



Your fan is energy efficient and quiet, but it can only protect you when it is running and well maintained.

What can you do?

Always use your ventilating fan:

- when you are cooking or boiling water
- when you have many people in your house
- when you notice signs of condensation

CARBON MONOXIDE (CO) Is DANGEROUS!



Carbon Monoxide is a colorless, odorless gas that robs the body of oxygen needed to survive. Burning any fuel without proper combustion can produce carbon monoxide. Fuels such as coal, gasoline, kerosene, oil, wood, propane and natural gas are all sources.

To protect yourself and your family from the dangers of CO:

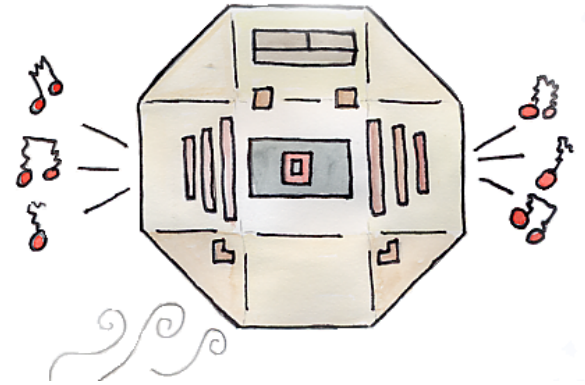
Do:

- Make sure fuel appliances are properly installed, vented and maintained.
- Check yearly to make sure flues, vents and chimneys are connected, in good condition and clear of debris.
- Keep the area around your stove unblocked, to allow proper airflow
- Keep your CO detector on a wall or ceiling near sleeping areas

Don't:

- Use a cook stove or oven to heat your home.
- Operate a vehicle, lawn mower or grill inside your home.
- Operate a generator inside your home.
- Sleep in a room with an unvented gas or kerosene space heater.

YOUR HOME IS EQUIPPED WITH A CO ALARM



Every home should have a carbon monoxide detector.

What do I do if I hear the CO alarm?

Never ignore the alarm! A rapid response may save lives. It is very important that all household members know what to do if the CO alarm sounds.

If the alarm goes off and anyone is experiencing flu-like symptoms:

- Immediately evacuate everyone from the home and
- Call 911 from outside the home.

If the alarm goes off, but no one has flu-like symptoms:

- Air out the home by opening doors and windows;
- Turn off all fuel-burning appliances;
- Reset your CO alarm—if elevated levels remain, UL listed alarms will sound again after 6 minutes; and
- Call a qualified Heating Contractor to inspect for sources of CO. Do not operate fuel-burning appliances until they have been inspected.

TOBACCO SMOKE ISN'T HEALTHY!

If you smoke, you breathe in carbon monoxide and many other chemicals. If you smoke indoors, people around you also breathe the smoke (called Secondhand smoke). Smoking can make minor health problems worse and cause major diseases like cancer and heart disease.

Secondhand Tobacco Smoke. Tobacco smoke can cause many health problems for smokers and for other people who breathe secondhand smoke. Secondhand smoke can cause eye, nose and throat irritation. It can also cause respiratory infections and asthma attacks. There are over 4,000 chemicals in secondhand smoke, and at least 43 of them are known to cause cancer. Over 3,000 non-smokers die from lung cancer each year as a result of exposure to secondhand smoke. Young children are especially at risk.

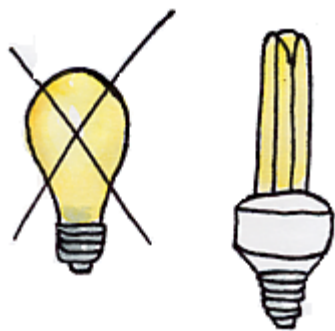
Smoke Outdoors. Not only is smoking bad for your health and the health of those close to you, but smoking is also very dirty and contributes to the problem of keeping a home clean.

Kick the Habit! The American Lung Association of Alaska. has programs to help you quit smoking. Call 1-800-LUNGUSA.

Don't Smoke Near Children.

Help Stop Kids from Smoking. Contact the Campaign for Tobacco Free Kids at 800/284-KIDS.





SAVE ENERGY, SAVE CASH

- **Compact fluorescent lights (CFLs)**, last up to 10 times longer than regular light bulbs and only use a quarter of the electricity. In many Alaska villages where electricity is expensive, just ONE CFL could save you over \$20 per year. The more light bulbs you have, the more total yearly savings you'll get by switching to CFLs!
- **Clean refrigerator and freezer coils twice each year.** You'll be amazed at how much better your appliance operates. Use a coil-cleaning brush, and then vacuum with an extension tube.
- **Keep freezers and refrigerators full, even with containers of water.** Once things are cold or frozen, the appliance will not have to turn on so often. Also, keep these appliances in cool places.
- **Some appliances use electricity even when turned off!** This is called *Phantom Power*. Plug appliances such as TVs, VCRs, satellite dishes, computers etc. into a power strip and then switch the power strip off whenever the appliances are not in use.
- **Save money by using less than 500 kWh per month!** Electricity in rural Alaska is subsidized through Power Cost Equalization (PCE). In many villages PCE only applies for the first 500 kWh per month. Beyond this level electricity may cost 50% more! How many kWh did you use last month? Turn off lights, computers and other appliances when not in use. Wash only full loads of laundry with cold or warm water.



CAUTION: Don't try to save money by turning off HRVs or ventilation fans except in summer. They are working for your health.

HEALTHY USE OF TOXIC CHEMICALS

- **Select Cleaning Products Carefully.**

- Cleaning products themselves can contribute to an unhealthy and unsafe home. Many household cleaners are poisonous--even in small quantities if consumed by a child. These products can be replaced with non-toxic detergent-based cleaners.
- Try the healthy household cleaners recommended in this booklet.

- **Use Toxic Chemicals Safely.**

- **Read a product's label.** Look for signal words like CAUTION, WARNING, FLAMMABLE, HARMFUL, DANGER, POISON. If you see these words on a label, be extra careful. Look for special instructions such as: "work in well ventilated area." This means work outside or with the windows open. The fumes can make you sick if you do not have enough fresh air.
- **Never mix products** unless the label says it is safe to do it.
- **Keep children away** from the area while you use hazardous household products.
- **Always replace the cap** and put the product away immediately after use.
- **Never** use an empty hazardous product container to store something else.

- **Be ready in case there's an accident**

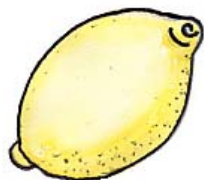
- Put the Poison Control Center telephone number, 1-800-222-1222, where you can find it quickly in case of an emergency. Tape it to the wall by your kitchen phone, for example.



HEALTHY RECIPES FOR A CLEAN HOUSE



Baking soda



Lemon juice



Soap



White vinegar



Salt



Borax

Here are some simple and inexpensive cleaning recipes using these natural products:

Glass windows - 1 tablespoon vinegar to 2 cups water. Use a spray bottle.

Basin, tub, tile cleaner - A sprinkle of baking soda followed with hot water rinse gets rid of germs. Or use a non-chlorinated scouring powder such as one of the BonAmi products.

Lime in toilet basin - For encrustation of lime and other minerals, cover with vinegar and then brush it off.

Mold and mildew cleaner - Mix Borax, water, and vinegar in a spray bottle. Borax inhibits the growth of mold so wash down the walls with the Borax solution as well. The most important thing to remember is to keep things dry. Bacteria, mildew and mold cannot live without dampness.

All-purpose cleaners - 1 quart warm or hot water liquid soap or borax. Add a squeeze of lemon juice or a splash of vinegar for heavy dirt.

Disinfectants - To reduce germs on large surfaces, use 1/2 cup Borax dissolved in one-gallon hot water. There is also an effective product available at drugstores named Zephirin, which produces far less fumes than other commercial disinfectants.

REGULAR MAINTENANCE IS THE KEY

Inspecting your home on a regular basis and following good maintenance practices is the best way to protect your home. Whether you take care of a few tasks at a time or several all at once, it is important to get into the habit of doing them. Establish a routine for yourself and you will find the work is easy to accomplish and not very time consuming.

While most maintenance is seasonal, there are some things you should do on a frequent basis **year round**:

- ✓ Make sure air vents indoors and outside (intake, exhaust and forced air) are not blocked by snow or debris.
- ✓ Check and clean or replace furnace air filters each month during the heating season.
- ✓ HRV filters should be checked every two months during the heating system.
- ✓ Regularly check the house for safety hazards such as a loose handrail, lifting or buckling carpet, bare wiring, etc.

Spring and summer are the times to look for winter damage, make repairs and do outdoor maintenance, such as painting.

- ✓ Check smoke, carbon monoxide and security alarms and replace batteries.
- ✓ Examine the foundation walls or floors for cracks, leaks or signs of moisture, and repair as needed.
- ✓ Re-level any exterior steps or decks which moved due to frost or settling.
- ✓ Check eaves troughs and downspouts for loose joints and secure attachment to your home, clear any obstructions, and ensure water flows away from your foundation.
- ✓ Check and replace damaged caulking and weatherstripping around windows and doorways.
- ✓ Inspect electrical service lines for secure attachment where they enter your house, and make sure there is no water leakage into the house along the electrical conduit.

Fall is the time to pick berries and get your home ready for the coming winter:

- ✓ Make sure your wood stove or heating system is cleaned and in proper working order.
- ✓ If the HRV has been shut off for the summer, clean the filters and the core, and pour water down the condensate drain to test it.
- ✓ Ensure all windows and doors to the outside shut tightly, and that weatherstripping is in good shape.
- ✓ Clean leaves from eaves troughs and roofs, and test downspouts to ensure proper drainage from the roof.
- ✓ Check chimneys for obstructions such as nests.

In **winter**, check your home carefully for any problems and fix them as soon as possible.

- ✓ Check gauge on all fire extinguishers; recharge or replace if necessary.
- ✓ Monitor your home for excessive moisture levels—for example, condensation on your windows, which can cause significant damage over time and pose serious health problems—and take corrective action.
- ✓ Check all faucets for signs of dripping and change washers as needed.
- ✓ Clean drains in sinks, bathtubs and shower stalls.
- ✓ Test plumbing shut-off valves to ensure they are working and to prevent them from seizing.
- ✓ Examine windows and doors for ice accumulation or cold air leaks. If found, make a note to repair or replace in the spring.
- ✓ Examine attic for frost accumulation. Check roof for ice dams or icicles. If there is excessive frost or staining of the underside of the roof, or ice dams on the roof surface, consult ABSN for advice.

A HEALTHY HOME IS....

Dry. Reducing moisture minimizes mold growth and makes it difficult for pests to thrive.

Clean. Dust can cause allergic reactions that trigger asthma attacks. Clutter and debris make it difficult to remove dust and can be breeding grounds for pests.

Well ventilated. Ventilation moves air to help reduce excess humidity and airborne contaminants. Spot ventilation exhausts humidity and contaminants from specific sources (bathroom showers, kitchen cooking), minimizing mold. Dilution ventilation deals with low-level contamination throughout the home.

Combustion product-free. Combustion products such as CO are a health hazard.

Pest-free. Pests can cause allergic reactions that trigger asthma. Pesticides themselves can also be injurious to a person's health.

Toxic-chemical-free. Cleaning compounds, pesticides, oil- or alkyd-based paints, and solvents can release toxics to the indoor air and exacerbate asthma, even when they are stored in containers.

Comfortable. A healthy home should be comfortable and not subject to uncontrolled extremes in temperature, air change, or humidity.



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