



CONSUMER GUIDE TO HOME HEALTH

John Krigger and Chris Dorsi



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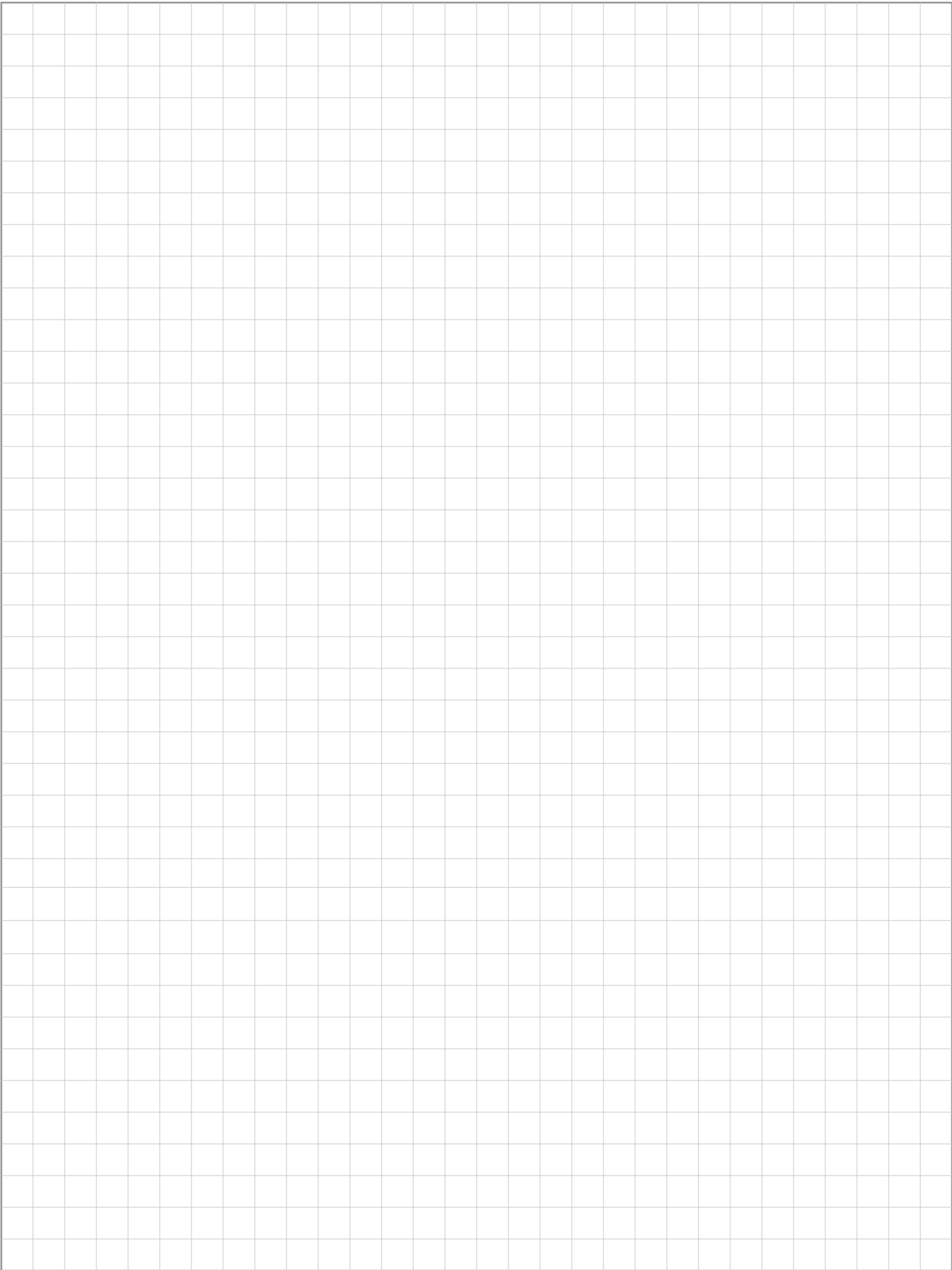
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CONSUMER GUIDE TO HOME HEALTH

**HOW TO AVOID HOME HAZARDS
INCLUDES A HEALTH AND SAFETY ACTION CHECKLIST**

John Krigger and Chris Dorsi



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Hazards in our homes cause tens of thousands of deaths every year. Common health-and-safety risks cause millions of injuries and illnesses. This booklet can help you recognize risks based on the type of home you live in, the condition of your home, and the age and health of your family members. If you follow the suggestions offered in this booklet, you'll reduce your family's risk of injury and illness.

How to Create a Healthy Home

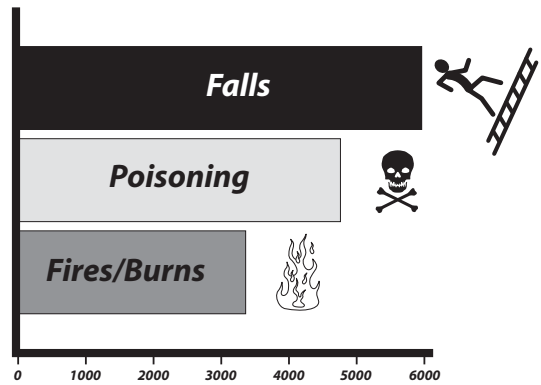
Injuries are the fifth leading cause of death in the United States. Among people under 15 years of age, injuries are the leading cause of death. Almost 20 million people need medical treatment annually for injuries sustained at home. These home injuries are almost all preventable through awareness and simple home improvements.

Toxins that people breathe in their homes contribute to illnesses such as asthma, lung cancer, and carbon-monoxide poisoning. Clean indoor air is the best prevention to these breathing-related illnesses. Asthma, for example, causes one in four emergency room visits. Radon causes more than 20,000 deaths per year from lung cancer. Approximately 15,000 people are poisoned each year by carbon monoxide and at least 400 die.

The cost of these home-related injuries and illnesses is a crushing burden on our health care system and to the people needing health care. The average emergency room visit costs more than \$1000 and an overnight stay at a hospital is almost always over \$2000. Health care costs are the most common reason for personal bankruptcies.

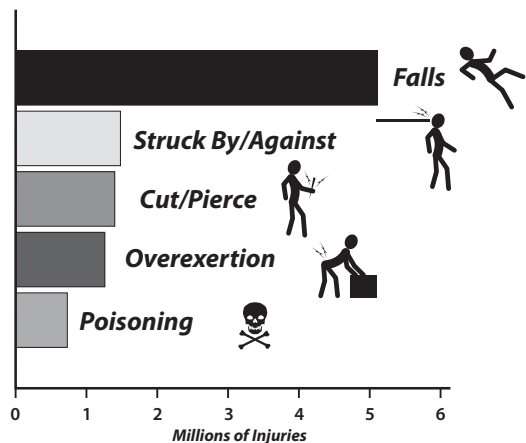
In this guide, we discuss only the most important health and safety hazards in homes. We've chosen to discuss these hazards based on statistics of people injured and sickened by home-based causes. Some other people will become next year's statistics of injury and illness. Don't let yourself or a family member become one of these statistics!

Fatal Injuries Per Year



Children, the elderly, and smokers are most vulnerable to these types of accidents. This chart shows number of deaths per year in the U.S. Many more people are injured by these home health hazards.

Non-Fatal Injuries Per Year



Millions of lives are changed from millions of annual injuries. Don't let yourself or your family be one of these statistics.

Types of Environmental Toxins

Toxins cause environmental illness. The more toxin a person breathes, consumes, or is otherwise exposed to, the greater the chance of the illness. Every person has a different tolerance for toxins. After you exceed your personal toxin threshold, you get sick. When the amount of toxins is below the threshold, you may feel no symptoms of the illness. Some people never get sick and others get sick after a small exposure to a toxin.

There are several types of toxins you can be exposed to in your home.

- **Poisons** react chemically with bodily tissues and damage them. There is no safe amount of a poison. An example is the ammonia that is contained in some cleaning solution.
- **Allergens or Triggers** irritate a person's lungs causing allergies and asthma. An example is mold and mildew that grows on carpet that remains wet for a long period of time.
- **Carcinogens** cause cancer a long time after a person is exposed to them. An example is the asbestos that is contained in some pipe insulation.

Causes of Common Home-Related Injuries and Illness

Hazard or Illness	Group at risk	Cause
Falls	Children and elderly Adults and children	Stairs, slipping, tripping Climbing.
Poisoning from chemicals	Children	Children find chemicals and mistake them for food or drink.
Poisoning from drugs	Adults, elderly	People take the wrong medicine.
Poisoning from lead	Children	Children lick their dusty hands or eat paint chips.
Fires and burns	Cooks Smokers Children with matches	Stove ignites fire. Cigarette ignites couch or bed. Child starts fire with matches or lighter.
Asthma	Children	Humidity allows dust mites and mold to grow. Poor house cleaning allows cockroaches to breed. Smoke and pets also cause asthma attacks.
Lung Cancer	Adults, elderly	Smoking, radon, second-hand smoke, combustion byproducts.

Avoid Home Injuries

Awareness is the most important virtue for avoiding injuries. The most common causes of death in the home are falls, poisoning, and fires and burns.

Falls

Falls in the home cause about 6000 deaths and five million injuries each year. Falls are the greatest injury risk found in homes. Awareness and a few simple home improvements and good habits can cut your risk dramatically.

- Stairs are the most dangerous falling hazard in a building. Sturdy handrails and carpet on the stairs reduce the risk of falling.
- Climbing above the ground on a piece of furniture is also very dangerous. Use a step ladder or step stool instead of a chair or other object that isn't designed for climbing.
- Clutter on floors causes millions of tripping and slipping accidents. Keep walkways free of clutter.
- Falling in the bathtub is much too common. Install grab bars and non-slip surfaces to reduce the danger of falling.

Remember these common falling risks and use extra caution when you see a falling hazard.

Poisoning

Poisoning kills about 4500 Americans each year and injures around 200,000 others. The two most common causes of poisoning are children consuming household chemicals and adults taking the wrong prescription drugs.

- To prevent children from consuming household chemicals, install a cabinet lock on the cabinet holding all the household chemicals.
- To prevent family members from taking the wrong medicines, label medicines with large lettering or use a 7-day pill box. A responsible family member with good vision should load the 7-day pill box for people with poor vision.

Clutter Can Cause Injuries



Millions of people are injured each year by tripping or slipping over clutter on stairs and in walkways.

Labels Can Prevent Poisoning



When families have a lot of medication, the risk of taking the wrong one is high. Label pill bottles with large lettering and use a pill dispenser.

Fires and Burns

Residential fires kill 3600 people and injure 20,000 others annually. If you recognize the common causes of fire and burns, you can avoid these hazards.

- The most common cause of house fires is cooking. Remember to turn burners off when you're done cooking.
- Smoking inside buildings is still the most common cause of deaths from fire. Don't smoke indoors! You'll also reduce the risk of lung disease to your family members if you smoke outdoors.
- Children playing with matches and lighters is major cause of fires. Keep lighters, matches, and other incendiary materials away from children.
- Scalding is a very common home injury. Adjust your water heater thermostat to a water temperature of near 120°. Minimizing your hot-water temperature greatly reduces the risk of scalding.
- Formulate an evacuation plan for your family in case of a fire. Agree on a meeting place that you'll go to in the event of a fire. This will prevent a family member or fireman from having to search in a burning building for someone who has already escaped.

Children At Risk From Burns



If you have children in the home, cook on back burners as much as possible. Always point pot handles away from children's reach. Keep matches and other flammables away from children.



Control Combustion Byproducts

Combustion byproducts in the home come from heating appliances, automobiles, and tobacco smoke. This indoor pollution includes poisonous gases such as carbon monoxide (CO), and tiny airborne particles such as soot. Carbon monoxide poisoning is the most common and serious combustion-safety hazard. But tobacco smoke is a leading cause of chronic respiratory diseases and lung cancer.

Carbon Monoxide

Carbon monoxide (CO) is a gaseous poison that comes from faulty combustion. CO is an odorless, poisonous gas that can cause sickness or death with little warning. CO causes an estimated 400 deaths and 15,000 hospital visits each year in the U.S.

At low concentrations, CO poisoning causes dizziness and exhaustion similar to flu symptoms. At higher concentrations, CO poisoning causes impaired vision, headaches, confusion, and nausea. Continuous exposure to high CO levels causes fainting or death. Even doctors sometimes don't recognize the symptoms of CO poisoning. Now you know these symptoms so don't let CO poison you!

Unvented space heaters, gas ovens, car exhaust, and tobacco smoke are the largest sources of CO. Many people suffer slight poisoning from CO every day from cigarettes, car exhaust, and faulty combustion devices. Remember, CO can kill you so assume that you are breathing CO if you smell combustion gases, and go outdoors immediately. CO poisoning reverses itself after the victim breathes enough fresh air. However, severe CO poisoning may require treatment in a barometric chamber at the hospital.

Smoke

Smoke particles are the second most dangerous hazard from combustion byproducts. Smoke particles settle deep in your lungs because they are very small. Inside the lungs, these particles interfere with oxygen processing, irritate the lungs, and can eventually destroy the lungs.

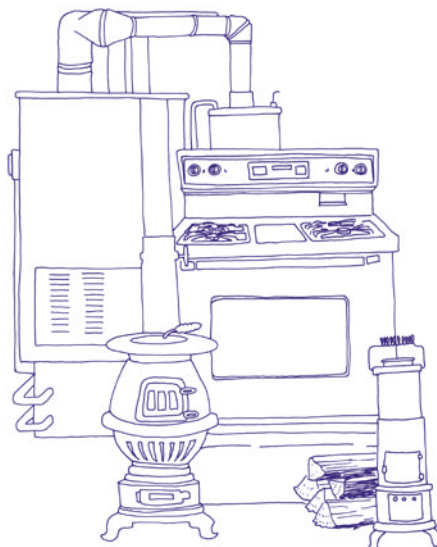
Smoke is a major cause of these diseases.

1. Asthma
2. Chronic bronchitis
3. Emphysema
4. Lung cancer

Sources of Carbon Monoxide and Smoke

You risk CO poisoning or chronic respiratory disease caused by smoke if you have combustion appliances in your home or if a family member smokes. Here are the leading sources of these indoor pollutants.

Sources of Combustion Byproducts



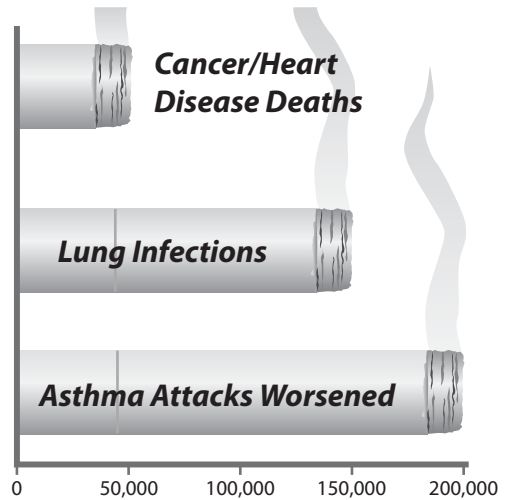
Combustion byproducts include carbon monoxide (CO), volatile organic compounds (VOCs), and fine smoke particles that lodge deep in the lungs.

- Spillage from vented appliances such as wood stoves, wood fireplaces, gas furnaces, and gas space heaters. Visible soot on the exterior of a combustion appliance or on the horizontal surfaces of a home should alert you to the presence of smoke and CO.
- Spillage from unvented space heaters, unvented gas fireplaces, and gas ovens.
- Smoking of tobacco products and breathing second-hand smoke.
- Emission of automobile exhaust into attached garages or into the outdoor air near a home.

You can reduce health risks of CO and smoke by following these guidelines.

- Don't use unvented gas space heaters, unvented gas fireplaces, or kerosene space heaters.
- Install an exhaust fan above gas stoves to vent combustion byproducts outdoors.
- Open the flue damper completely when using a gas or wood fireplace.
- Don't warm up your car inside an attached garage.
- Have a heating technician inspect and maintain combustion appliances every year or two. Heating technicians should look for spillage of combustion gases and measure the gases for CO during a service call, combustion-appliance replacement, weatherization project, or major renovation.

Effects of Second-Hand Smoke



Second hand smoke is a major health problem. According to insurance experts, the social cost of second-hand smoke is \$10 billion, split between medical costs and lost wages.

Install Carbon Monoxide and Smoke Alarms

Carbon monoxide and smoke alarms are now common products that are required by the building code in all new homes. These alarms will wake you if the concentration of CO or smoke becomes dangerous. You can buy combination alarms that sound or talk when they sense either CO or smoke.

Many CO alarms simply have a plug that plugs into a wall outlet. The best place for a smoke alarm or combination alarm is on the ceiling in the center of a room.

Hard-wired alarms are the best solution for new homes and for renovations when an electrician is involved. CO alarms last only about 5 years, and smoke alarms last up to 10 years. Therefore combination alarms aren't always the best choice because the CO sensor wears out before the smoke sensor.

If you choose to use battery-powered alarms, consider lithium batteries. Lithium batteries are more expensive than standard batteries but will probably last the lifespan of the alarm. If you use standard batteries, a chirping sound will alert you when the batteries need to be changed.

Reduce Causes of Asthma and Allergy

One in nine Americans suffers from asthma. Asthma is a permanent inflammation of the lungs. The lungs of asthma sufferers are excessively sensitive to materials that are called triggers or allergens. When some trigger causes an asthma attack, the victim suffers wheezing, shortness of breath, and tightness in the chest.

Asthma has no cure, so prevention is very important. Asthma causes one-quarter of all emergency room visits. Asthma and allergy symptoms are a sign that your home has allergens that are affecting the allergic family member or asthma sufferer. A certain amount of the allergen triggers an asthma attack that can lead to an emergency-room visit or a hospital admission. To reduce the risk of an asthma attack, reduce the quantity of triggers or allergens.

The most potent causes of asthma and asthma attacks are these triggers or allergens.

1. Dust mites
2. Tobacco smoke and other smoke
3. Cockroaches
4. Dogs and cats
5. Mice

Carbon Monoxide Monitor and Alarm



The best location for a CO alarms is halfway up the wall in the room where you sleep. Smoke alarms should be installed on the ceiling in the middle of the room.

6. Mold
7. Air pollution

Dust mites, mold, and cockroaches need high humidity and wetness to prosper. The highest concentrations of dust mites live on bedding. Mold likes bathrooms, kitchens, and other wet areas. These pests prosper less in dry climates and dry homes than in humid climates and wet homes.

Cockroaches and mice enter the building through cracks and holes in the building's exterior. Cockroaches and mice need a food source, and they thrive where residents are careless about food storage, dish washing, and house cleaning.

Reduce Sources of Allergens - If you want to eliminate allergens, you must eliminate the sources of the allergen. Allergens are mold spores or materials from the skin or feces of an animal. If being away from home reduces the symptoms of allergies and asthma, then the home is likely triggering the allergies and asthma attacks. Consider these ways to reduce allergens in the home.

- To reduce dust mites and mold, reduce the home's humidity and eliminate wetness. Dry your home using the suggestions in this booklet.
- Wash sheets in hot water frequently, and enclose mattresses in plastic covers to further hinder dust mites.
- To reduce cockroaches, first clean your house completely and keep it clean. Next, use bait to poison the cockroaches. Obey the bait manufacturer's instructions. Keep children and pets away from the bait. Bait creates less poisoning hazard than spraying, and bait is more effective than spraying.
- To reduce mice, trap them. Then repair holes and cracks in the building or ask your landlord to do the repairs. Repairing holes and cracks also reduces cockroaches.
- You may have to make a difficult choice between removing your pets from the home and allowing the pets to trigger the allergies or asthma of a family member.

Clean Up Allergens - Even if you eliminate the source of the allergens, you still have to clean up all of the existing dust. A HEPA vacuum and wet mop are the best tools to clean up existing dust. Conventional vacuums spread fine dust particles during vacuuming. A HEPA vacuum uses a very effective filter to trap all the allergens and triggers.

Controlling Cockroaches and Other Insects



Insects such as cockroaches can cause an allergic reaction among many people. You can use baits and poisons to reduce these pests. Be sure to read and follow the instructions on the label carefully.

Keep Your Home Dry

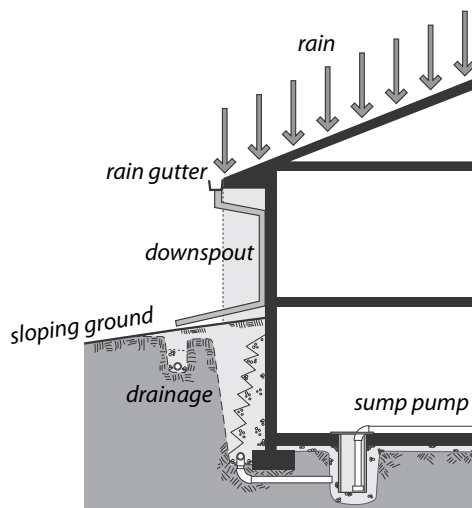
Water itself isn't a pollutant. But high humidity and wetness encourage the growth of many pests that produce airborne allergens. Water also damages buildings. Damaged buildings are more likely to cause environmental illnesses than well-maintained buildings.

Moisture is a Health Hazard - Excess moisture in a home is one cause of allergies, asthma, and other illnesses. Dust mites, cockroaches, and mold are three of the leading causes of asthma, they need wetness or high humidity to thrive.

Consider these solutions, which we've arranged from high priority to lower priority, if your home has moisture problems.

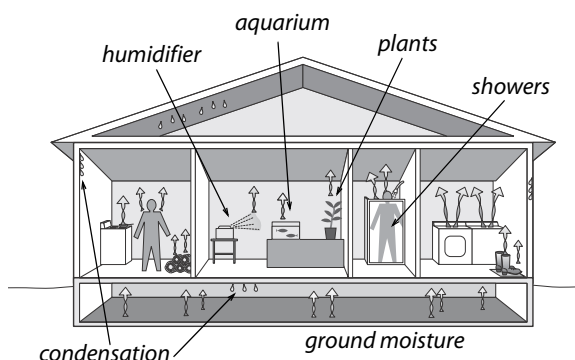
- Install or repair rain gutters and downspouts to move rainwater away from the home.
- Install an airtight plastic ground moisture barrier in your crawl space or dirt-floor basement to block moisture (and other pollutants) coming in from the ground.
- Make sure that rainwater doesn't flow toward your home. Ask your landlord or contractor to solve wetness problems around the home's foundation.
- Reduce other moisture sources inside your home such as aquariums, humidifiers, and stored firewood. Don't dry clothing indoors or vent your clothes dryer indoors.
- Insulate the home and install more efficient windows to reduce the cold surfaces where moisture condenses.
- Operate fans in kitchens and bathrooms as much as needed to remove moisture generated in those rooms.
- Install a ventilation fan or ventilation system to remove moist air from the entire home.
- Use a dehumidifier or air conditioner to dry the air in your home.

Managing Rainwater



Homes become wet when rainwater drains into the home. The features shown above help water to drain away from the home.

Managing Indoor Humidity



Homes become wet because of many moisture sources within the home. You can reduce these moisture sources and improve your family's health.

Moisture Hurts Home Durability - Basements and crawl spaces have many moisture problems because of wet soil around the foundation. Leaky pipes and leaky roofs can admit more water to the home. Water moves from the soil into the home as a liquid or a vapor. As humid air in the basement moves around the home's wood structure, the wood absorbs moisture allowing mold and other pests to thrive.

Humidity spreads from the homes lower parts to the living areas. When the water vapor in humid air touches a cold surface, such as a window or concrete wall, the vapor condenses into water droplets. This wetness increases the risk of mold, rot, and peeling paint.

Excess moisture can damage both your health and your home. Focus on solving existing moisture problems and managing moisture sources, both during home-improvements and after their completion.

Ventilate Your Home

Ventilation dilutes indoor air pollutants and dries the indoor air. Outdoor air is usually, but not always, cleaner than indoor air. Clean outdoor air dilutes pollutants that build up indoors. Outdoor air is usually, but not always, drier than indoor air. Ventilation dilutes moist indoor air with drier outdoor air.

Ventilation isn't a substitute for removing pollutants at their source. Ventilation can't solve major moisture problems either. Removing moisture and pollutants at their source is the most important job for avoiding environmental illness.

Air leaks in the building and open windows are the only ventilation that exists in many homes. However, fan-powered ventilation is much more reliable than air leaks and open windows. There are two types of fan-powered ventilation: local ventilation and whole-house ventilation.

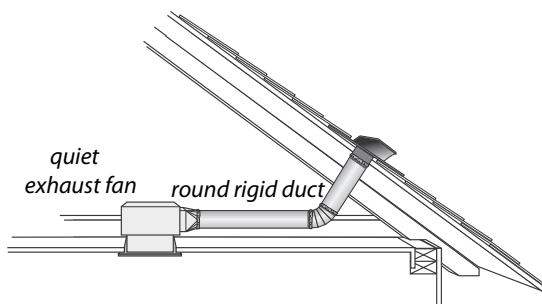
Local Ventilation - Local ventilation fans remove moisture and pollutants where they are generated, especially in the kitchen and bathroom. Whole-house ventilation systems ventilate the whole house with one or more fans.

Ideally every kitchen and bathroom should have an exhaust fan. Modern exhaust fans are quiet and efficient. Fan noise bothers residents and can discourage them from using the fan, so a quiet fan is important to encourage its use.

There are several intelligent ways of controlling an exhaust fan by either a specially designed wall switch or by a switch inside the fan.

- The bathroom light and the fan are connected, so both are activated by one standard wall switch.

Exhaust Ventilation Systems



A well-installed exhaust fan is a health asset to any home. Depending on the fan's location and controls, the fan can ventilate one room or the whole home.

- A humidity control turns the fan on if the bathroom becomes too humid.
- A timer keeps the fan on for a set period of time after a bath or shower.
- An occupancy sensor turns the fan on when you enter the bathroom.

The functions described here may exist in combination through one wall-mounted control or by a wall-mounted control combined with a control built into the fan.

Whole-House Ventilation - Some buildings are so airtight that they must use a ventilation system to provide acceptable indoor air quality. There are several types of whole-house ventilation systems.

- **Exhaust ventilation system:** an exhaust fan blows air out of the home and intake air comes in through air leaks in the building.
- **Supply ventilation system:** a fan brings intake air in while stale air is forced out through air leaks.
- **Balanced ventilation system:** fans power both intake air and exhaust air.
- **Adaptive ventilation:** residents open windows throughout the home as needed to freshen the air, dilute pollutants, and take advantage of favorable outdoor temperatures.

If you have workers perform improvements to your home, ask that they evaluate the need for ventilation as part of their work.

Prevent Lung Cancer

Cancer develops slowly over many years. Lung cancer is the most common cancer related to indoor air. Tobacco smoke causes most lung cancer, but radon is also a major cause. Smoking and second-hand smoke causes 180,000 lung-cancer deaths each year according to the Centers for Disease Control and Prevention. These cancer cases cost the American economy \$18 billion per year.

The U.S. Environmental Protection Agency (US EPA) estimates that radon causes 21,000 lung cancer deaths each year. Radon-induced lung cancer costs the United States over \$2 billion dollars per year in both direct and indirect health care costs.

Health Risks of Radon Exposure

Radon is the second leading cause of lung cancer in the United States. The threat of radon exposure is also widespread; the EPA estimates that 1 in 15 homes has dangerously elevated radon levels, and homes with high radon levels have been found in all 50 US States.

Radon is a naturally occurring radioactive gas produced by the decay of uranium in soil. You can minimize the health risks of radon by testing indoor air quality and working with radon mitigation professionals to install a radon-mitigation system if a radon problem exists. If you have high levels of radon in your home, you can mitigate it by ventilating the ground underneath the home and air-sealing penetrations in your home's foundation, basement floor, or crawl space.

Your likelihood of having a radon problem depends on these factors.

- **Geographic location:** Soil in some areas has naturally high uranium content that produces elevated levels of radon. Check with your State or local office of the Environmental Protection Agency (EPA) to determine the likelihood of elevated radon levels in your area.
- **Location of living areas:** Radon is a dense gas that commonly seeps into a home through the foundation or crawlspace. Finished basements and lower floors are at greater risk for high radon concentration.
- **Foundation air leaks:** If your foundation has cracks and holes to the surrounding soil, these openings may allow radon to build up indoors.
- **Well water:** Radon can also enter a home through your water supply if you use a well. Though testing airborne radon levels should be your first priority, consider testing for radon in your well water as an additional precaution.

Radon Testing - Use home-testing kits or hire a radon mitigation professional to measure the radon level in your home.

Home-testing kits are inexpensive and easy to use. The most popular kits are charcoal canisters placed in your home's lowest floor. The canister absorbs airborne radon over a period of 2 to 90 days, depending on manufacturers' instructions. After sampling, you return the canister to the manufacturer for analysis.

The EPA established a maximum radon concentration measured in picocuries per liter of air (pCi/L). The EPA states that the average home contains 1.4 pCi/L of radon, and recommends radon mitigation in homes with over 4.0 pCi/L of radon.

Indoor radon concentrations can change, so you should plan a follow-up radon test before beginning any radon mitigation. During follow-up testing, consider using a long-term canister kit for a more balanced estimate of average radon levels.

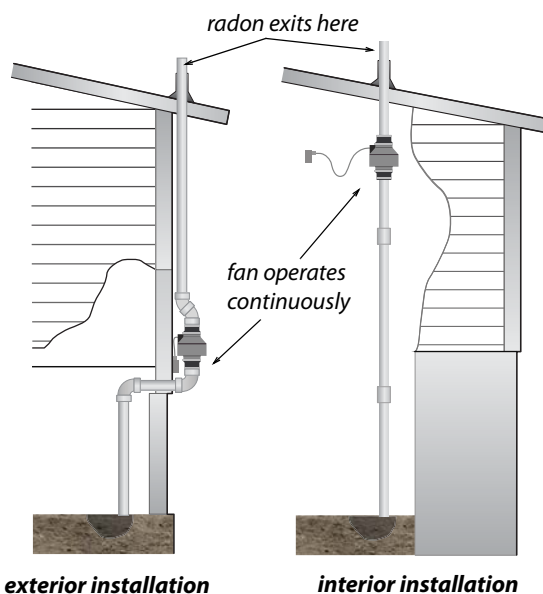
Radon Mitigation - Contractors have installed hundreds of thousands of radon mitigation systems throughout North America in the past 25 years. A radon mitigation system is a system that reduces the amount of radon in a home. Radon mitigation systems suck air out of the soil

Radon Test Kits



To test for radon, these simple charcoal canisters are left in the lower living area of your home for several days. You then mail the canisters to the lab who sends you a written report.

Radon Mitigation Systems



underneath the home and vent it to the outdoors. Each radon-mitigation system uses a fan to create a slight suction below the home. If there are air leaks in the foundation, home's air flows through the leaks into the soil, rather than the radon-laden air entering the home from the soil.

Don't Disturb Asbestos

Asbestos is classified as a “known carcinogen.” Asbestos dust lodges in the lungs and can lead to a mesothelioma, which is a particular type of lung tumor. This type of lung cancer and other types related to asbestos are most common in workers exposed to asbestos on the job. Your risk of cancer from being exposed to asbestos in your home is very low as long as you don't disturb asbestos.

Asbestos is found in many older building materials including: boiler and steam-pipe insulation, vermiculite insulation, floor tile, ceiling tile, siding, roofing, and some adhesives. Before you remove or disturb any of these materials, find out if the material contains asbestos. A building expert or asbestos specialist can easily identify asbestos by lab tests.

Deteriorating Asbestos Pipe Insulation



This photo shows a worst-case situation where the asbestos pipe insulation is falling apart and creating asbestos dust. Never disturb asbestos.

Prevent Lead Poisoning

Lead is a dangerous poison. Lead was widely used in the paint and plumbing pipes of residential homes until 1978, and lead poisoning remains one of the most serious health risks during weatherization or remodeling. Lead was also used in gasoline until 1996. Depending on how near your home is located toward major roads, your soil may contain lead.

Lead Poisoning

Lead poisoning causes a wide range of health problems, including reproductive dysfunction, decreased IQ, and nerve damage. Lead can cause impaired mental and physical development, hearing damage, attention deficit disorder, and behavior problems.

Children are at high risk because their growing tissues absorb lead more readily than adult tissue. Young children are more likely to ingest lead because of hand-mouth contact and the sweet taste of lead-paint chips.

Managing Sources of Lead in and around Your Home -

Though lead paint is the most common household lead source, hazardous quantities of lead can often be found in old plumbing pipes and the soil around a home. Homeowners, weatherization professionals, and contractors should work together to reduce the risks of household lead exposure. The Environmental Protection Agency (EPA) requires contractors to attend training on lead safety before disturbing lead paint in pre-1978 homes.

Some home-improvement tasks must be left to certified professionals, but homeowners can greatly reduce the hazards of lead poisoning in pre-1978 homes by following these EPA guidelines:

Lead Paint Can Poison Children



Children poison themselves in lead-rich environments by their hand-to-mouth behavior. Lead paint is the primary source, but the soil near major roads may also be contaminated with lead.

Lead Paint Test Kit



Lead paint is common in homes built prior to 1978 before disturbing the paint. This simple test kit can show you if lead paint is present in your home.

- If you rent, notify your landlord of peeling or chipping paint.
- Clean floors, window frames, window sills, and other surfaces regularly to remove all accumulated lead dust.
- Clean up paint chips immediately.
- Thoroughly rinse sponges and mops. Wash your hands after cleaning dusty surfaces.
- Wash children's hands often, especially before they eat or sleep.
- Wash children's bottles, pacifiers, and toys regularly.
- Clean or remove shoes before entering your home to avoid tracking in lead from the soil.
- Test your home's paint with an EPA-approved lead paint test if you live in a pre-1978 home.

The EPA, Contractors, and the Home - The Environmental Protection Agency (EPA) has strict rules about home improvements in pre-1978 homes. Contractors must comply with rigorous dust-control rules if their work disturbs lead paint according to the Repair, Renovation, and Painting Rule (EPA RRP). Contractors may either test for lead paint or assume that the home has lead paint. Dust-control is always necessary during home improvement projects to protect the lungs of both workers and residents. With lead dust, contractors must take dust control to a very high standard of cleanliness according to the EPA RRP.

- Every pre-1978 weatherization or renovation job must be supervised by an EPA-certified renovator when workers disturb more than a specified painted surface area or when they disturb paint on windows.
- Renovation firms must be registered with the EPA and employ one or more certified renovators.
- Signs and barriers must warn occupants and passersby not to enter the work area.
- Floor-to-ceiling dust-tight barriers must prevent the spread of dust from the work area.
- Plastic sheeting must protect surfaces and fixtures within the work area.
- Workers must not track dust from the work area into the home.
- Workers must clean work surfaces sufficiently to pass an EPA-approved dust-wipe test, conducted by the certified renovator.

Lead Abatement - When children are threatened with peeling lead paint, property owners may be required to remove the lead paint or take other action. This is called lead abatement, which is regulated by the EPA. Technicians and their supervisors receive special training to perform lead abatement correctly according to demanding EPA regulations.

Perform Home Improvements Safely

Making homes healthier and safer should be a goal of every weatherization and renovation project. When you weatherize or renovate your home, you face some health and safety risks from these home improvements. Your home may already have health and safety problems too. Protecting your

family's health is the most important consideration in any home improvement. Why not use the trained technicians that work on a home improvement project to remove health risks and to optimize a home's health benefits with their skills?

We believe that weatherization or renovation should improve your home's health and safety and should never cause problems or make existing problems worse. Your contractor needs special training to recognize hazards and to help you reduce health-and-safety risks both during the job and afterwards. You can help your contractor find and remove hazards by reading this booklet and following its suggestions. Home improvements give you an opportunity to improve the health and safety of your home at the same time.

Home Interventions for Health and Safety

An intervention is a special program or list of tasks to improve health and safety in a home. The goal of an intervention is to remove the cause of the injury or illness. Any of this book's suggestions could be part of an intervention:

- Installing grab bars in a senior housing complex to reduce the probability of falls.
- Installing a radon mitigation system in a single-family home.
- Eradicating mice and cockroaches in a 40-unit public housing project.
- Installing grab bars in bathtubs and laying carpet on the stairs in a 70-unit assisted-living facility.
- Removing peeling lead paint in a four-plex under EPA lead-abatement procedures.
- Implementing pest management measures to eliminate cockroaches from a multifamily building.

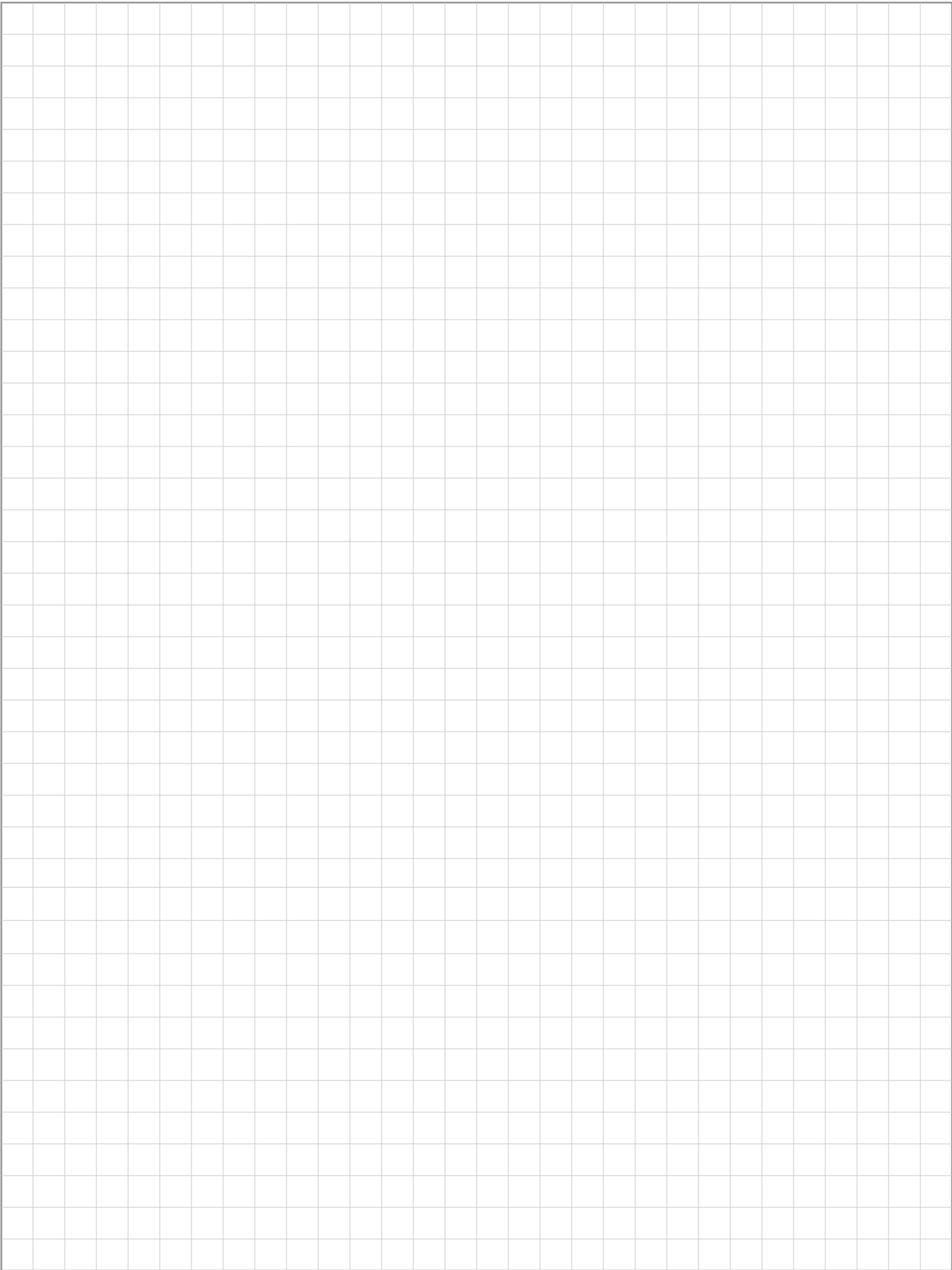
Whether you own or rent your home, your attention to the condition of your dwelling can help improve your family's health and safety.

Health and Safety Action Checklist

Hazard	Awareness / Action	Action Needed	Action Taken	No Action Required
Falls	Handrails, grab bars			
	Clear walkways			
	Bathtub no-slip surface			
Poisoning	Label/organize pills			
	Collect/protect chemicals			
CO/ Combustion	CO monitor/alarm			
	Combustion tests			
Lead paint	EPA rules for testing and handling			
Fires	Remove fire hazards			
	Lighters and matches stored			
	Cooking: back burners			
	Check/install smoke detector			
Chronic Lung Diseases Asthma/ Allergies	Ban smoking indoors			
	Manage rainwater outdoors			
	Manage indoor humidity			
	Housecleaning improvement			
	Bedding treatments			
	Eliminate cockroaches			
	Trap mice			
	Manage pets			
	Improve ventilation			
Lung Cancer	Ban smoking indoors			
	Eliminate combustion byproducts			
	Evaluate radon risk			
	Identify asbestos and don't touch it			

Resident Signature and Date _____

Health Evaluator Signature/Date _____





SATURN RESOURCE MANAGEMENT

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