

## Potential hazards of repairs

Affiliates have encountered all types of potential hazards while completing rehabs and repairs on existing homes, including many of the common ones listed below. They are also dealing with additional resources and related laws pertaining to hazards. The [EPA retrofit protocol](#) document contains a variety of links and resources.

## Ventilation and asthma triggers

**Fact:** Good ventilation protects you and your family from unpleasant odors, irritating pollutants, and potentially dangerous gases like carbon monoxide and radon. Well-planned ventilation also prevents the growth of mold and mildew, which can cause or aggravate allergic reactions or lung problems such as asthma. Good ventilation protects your home from damage by eliminating excess moisture from the air. Too much moisture rots window sills and attic eaves, peels paint, and invites insect infestation. Damp insulation in walls and ceilings can mean lost heat, higher fuel bills, and destructive mold growth.

Indoor pollution sources that release gases or particles into the air are the primary cause of indoor air quality problems in homes, some cleaning products, back drafting appliances; pollen, dust, and inadequate ventilation are all common sources.

**Resource:** [EPA website link](#)

## Mold and moisture

**Fact:** Molds are alive. There are hundreds of thousands of different types of mold, or fungi. They are living organisms that grow naturally, particularly in warm, damp, humid conditions where there is little air movement. Often called “mildew,” molds are related to mushrooms and yeast but are much smaller— we can only see or smell mold when there is a large quantity. Mold can grow almost anywhere: on walls, ceilings, carpets, or furniture. Humidity or wetness, caused by water leaks, spills from bathtubs or showers, or condensation, can cause mold to grow in your home. Mold produces “spores,” tiny particles that float through the air. These can sometimes cause health problems. Mold does not affect everyone, and different people are affected differently when mold is breathed, inhaled, or absorbed through skin or eyes. People who are allergic to mold may get watery eyes, runny or stuffed noses, itching, headaches, and may have difficulty breathing. Mold can also trigger asthma attacks. Some molds produce toxins (poisons) that may be hazardous if people are exposed to large amounts of these molds.

Who should do the cleanup depends on a number of factors. One consideration is the size of the mold problem. If the moldy area is less than about 9 square feet (less than roughly a 3 ft. by 3 ft. patch), in most cases, you can handle the job yourself with proper personal protection and follow the [EPA guidelines](#).

The main steps in mold remediation are: wear protective equipment, contain mold spores, set up a negative pressure area, remove the mold, prevent mold from returning, clean belongings, HEPA vacuum, and dispose of the mold. For specific safety information, please see Chapter 2 of the Construction Affiliate Operations.

**Resource:** [EPA link](#); [OSHA link](#); [CDC link](#); [HUD link](#)

## Carbon Monoxide (CO)

**Fact:** Carbon monoxide is an odorless, colorless, tasteless toxic gas that can be lethal at high concentrations. Low levels of CO can contribute to health problems and is a byproduct of incomplete combustion. The symptoms that occur with carbon monoxide poisoning are similar to those of the flu and allergies. These similarities often lead to an incorrect diagnosis, such as a migraine headache, stroke, food poisoning, or heart disease and in extreme cases death.

Repairing a home by performing anything that can tighten the building envelope could potentially cause more harm to the family by allowing combustible appliances to back draft flue gasses into the home or draw in fumes from a connected garage. It is extremely important to have all homes tested by certified professionals to ensure the safety of the home and install low level CO monitors and alarms, as well as replace older alarms. The National Fire Protection Association (NFPA) has authority over placement of CO detectors, 720 sections 5.1.1.1 and 5.1.1.2.

CO alarms have a lifetime (typically 5 years) and only go off at the presence of very high levels (75 ppm) over a period of several hours. Many CO alarms will not detect low levels that are dangerous if they build up. OSHA has exposure limits for workforce. Most homes need to replace their CO alarms.

**Resource:** [EPA link](#); [NFPA link](#); [OSHA link](#); [CDC link](#);

## Radon

**Fact:** Radon is a radioactive gas that cannot be seen, smelled, or tasted and is found naturally around the country. Radon is the second leading cause of lung cancer, after smoking. Radon is found in the dirt and rocks beneath houses, in well water, and in some building materials. It can enter your house through soil, dirt floors in crawlspaces, and cracks in foundations, floors, and walls. Once inside, radon gas can sometimes get trapped inside the house.

Radon levels may vary by location so the only way to measure your particular risk is to test your own house. Radon is measured in “picoCuries per liter of air,” abbreviated “pCi/L.” This measurement describes the number of radon gas particles in one liter of air. The amount of radon outdoors is usually around 0.4 pCi/L, and indoors is around 1.3 pCi/L. Even though all radon exposure is unhealthy, radon at levels below 4 pCi/L are considered acceptable. If your home has more than 4 pCi/L, you should take action to lower this level.

**Resource:** [EPA link](#)

## Lead

**Fact:** Lead is a toxic metal used in a variety of products and materials. When lead is absorbed into the body, it can cause damage to the central nervous system and vital organs like the brain, kidneys, nerves, and blood cells. Symptoms of lead poisoning include headaches, stomachaches, nausea, tiredness, and irritability, which may also occur with the flu and some viruses, so it can be difficult to detect.

When rehabbing a home, special attention must be given to the possibility of the presence of lead-based paint, as the Federal Government has stringent rules and regulations addressing lead-based paint hazards. Lead in homes is primarily found in paint in pre-1978 homes, but lead may also be contained in varnishes, flooring, and wall coverings. The EPA has issued the Renovation, Repair and Painting Rule (the “[RRP Rule](#)”), which became effective April 22, 2010, to address lead-based paint hazards created by renovation, repair and painting activities where lead based paint is disturbed in “target housing and child-occupied facilities.”

After April 22, 2010, to comply with the RRP Rule, a certified renovator or a certified risk assessor in all target housing and child-occupied facility projects must: identify any potential lead hazards; train volunteers before work commences; and set up a job and supervise the job to insure that it is completed and cleaned up in accordance with the EPA standards. In addition, proper clothing, respirators, gloves, hats, booties, and eye protection must be worn at all times and disposed of each day properly. Also, records and documentation must be kept according to the EPA reporting requirements, and a final cleanup must be completed by a certified renovator. See the Lead Safety Statement on My.Habitat.

**FINES:** The EPA has the authority to seek civil fines of \$37,500 per offense and an additional criminal fine of \$37,500 plus jail time for knowing and willful violating of the Renovation, Repair, and Painting Rule requirements.

**Resources:** [EPA link](#); [OSHA link](#); [HUD link](#)

## Asbestos

**Fact:** Asbestos is a mineral fiber. It can be positively identified only with a special type of microscope. There are several types of asbestos fibers. In the past, asbestos was added to a variety of products to strengthen them, provide heat insulation, and fire resistance. Asbestos is very dangerous to your health. It can harden on your lungs and create lung cancer, making it very hard to breath. Studies of people who were exposed to breathing high levels of asbestos fibers lead to an increased risk of lung cancer: Mesothelioma and Asbestosis.

If disturbed, asbestos material may release asbestos fibers, which can be inhaled into the lungs. The fibers can remain there for a long time, increasing the risk of disease. Asbestos material that would crumble easily if handled, or that has been sawed, scraped, or sanded into a powder, is more likely to create a health hazard.

Asbestos can be found in many products before 1970s such as insulation, steam pipes, boilers, tape, floor tiles, backing for sheet flooring, adhesives, joint compounds, textured paints, cement roofing, shingles, and siding just to name some more common products.

If asbestos is present (or suspected to be present) in the house, it will be necessary for the affected material to be removed and disposed of by a licensed asbestos remediation company. Under no circumstances should staff or volunteers disturb asbestos. Check with local health, environmental, or other appropriate officials to find out proper handling and disposal procedures. Trained asbestos contractors should remove dust by wet mopping or with a special HEPA vacuum cleaner.

**Resources:** [OSHA link](#); [EPA link](#)

If you have any questions, do not hesitate to contact the Affiliate Support Center at 877-HFHIHELP (877-434-4435) or [USSupportCenter@habitat.org](mailto:USSupportCenter@habitat.org) or Affiliate Support Center will direct your call or questions to the appropriate person.