



## EPA and Federal Partners Warn of Potential Environmental Health Hazards When Returning to Homes and Businesses after Hurricane Katrina

Cleanup activities related to returning to homes and businesses after Hurricane Katrina can pose significant health and environmental challenges. People may be exposed to potentially life-threatening hazards posed by leaking natural gas lines, and carbon monoxide poisoning from using un-vented fuel-burning equipment indoors. During a flood cleanup, failure to remove contaminated materials and to reduce moisture and humidity may present serious long-term health risks from micro-organisms, such as bacteria and mold.

When citizens are authorized by local authorities to return to their homes and businesses, federal authorities urge people to take the following precautions:

**Be Aware of Possible Combustible or Explosive Gases** - Many natural gas and other fuel lines were broken during Hurricane Katrina and highly explosive gas vapors may still be present in many buildings. In addition, methane and other explosive gases may accumulate from decaying materials.

**Open all windows when entering a building. If you smell gas or hear the sound of escaping gas:**

- Don't smoke, light matches, operate electrical switches, use either cell or conventional telephones, or create any other source of ignition.
- Leave the building immediately; leaving the door open and any windows that may already be open.
- Notify emergency authorities. Don't return to the building until you are told by authorities that it is safe to do so.

**Avoid Carbon Monoxide Poisoning** - Carbon monoxide (CO) is a colorless, odorless gas that is produced when any fuel is burned and that can kill you at high levels.

- Do not use fuel-burning devices such as gasoline-powered generators, gasoline-powered pressure washers, camp stoves and lanterns, or charcoal grills in homes, garages, or any other confined space such as attics or crawl spaces, or within 10 ft. of windows, doors or other air intakes. Opening doors and windows or using fans will not prevent CO buildup in the home. Have vents and chimneys checked to assure that debris does not block or impede the exhaust from water heaters and gas furnaces.
- If you start to feel sick, dizzy or weak while using a generator, get to fresh air right away. The CO from generators can readily lead to full incapacitation and death.

**Avoid Problems from Mold, Bacteria and Insects** - Standing water is a breeding ground for a wide range of micro-organisms and insects, such as mosquitoes. Mosquitoes can spread diseases like West Nile Virus. Micro-organisms, including bacteria and mold, can become airborne and be inhaled. Where floodwater is highly contaminated, as it is in many areas of the Gulf Coast, infectious disease is of concern.

- Remove standing water as quickly as possible.

- Remove wet materials and discard those that cannot be thoroughly cleaned and dried, ideally within 48 hours. While smooth, hard surface materials such as metal and plastics can often be cleaned effectively, virtually all building contents made of paper, cloth, wood and other absorbent materials that have been wet for longer than 48 hours may need to be discarded as they will likely remain a source of mold growth.
- Dry out the building. The heavily contaminated flood waters resulting from Hurricane Katrina contain micro-organisms and other contaminants that can penetrate deep into soaked, porous materials and later be released into air or water. Completely drying out a building that has been immersed in contaminated flood waters will take time and may require the extensive removal of ceiling, wall, insulation, flooring and other materials as well as, in some cases, extensive disinfection. The growth of micro-organisms will continue as long as materials remain wet and humidity is high. If a house or building is not dried out properly, a musty odor, signifying growth of micro-organisms, can remain long after the flood. When fumes are not a concern and if electricity is available and safe, closing windows and running a dehumidifier or window air conditioner can be an effective way to remove moisture if the damage is moderate.
- Reduce your exposure to air and water contaminants. Every effort should be made to [limit contact with flood water](#). This includes the breathing of water vapors or mists formed from the contaminated water; this may occur when water is pumped or sprayed. If removing materials or furnishings already contaminated with mold or when cleaning significant areas of mold contamination or generally disinfecting areas soiled by flood waters, federal authorities recommend limiting your exposure to airborne mold spores by wearing gloves, goggles, and wearing an N-95 respirator, if available, or a dust mask.

**Avoid Problems from the Use of Cleaners, Disinfectants, and Pesticides** - Disinfectants, sanitizers, and other pesticides can contain toxic and potentially hazardous substances.

- Mixing certain types of household cleaners and disinfectants can produce toxic fumes and result in injury and even death. Do not mix them or use them in combination.
- Read and follow all label instructions carefully.
- Provide fresh air by opening windows and doors. Remain in a room no longer than necessary. Allow adequate time for the area to air out.
- If there is no standing water in the building and it is safe to use electricity, use fans both during and after the use of disinfecting, cleaning, and sanitizing products. Be sure that before using any electrical appliances, that they are properly grounded, and where possible, connected to a ground break equipped electrical source.
- Keep all household products locked, out of sight and out of reach of children. Use child-resistant packaging properly by closing the container securely after each use. Keep items in original containers. Call 1-800-222-1222 immediately in case of poisoning.

**EPA Urges Avoiding Problems from Airborne Asbestos and Lead Dust** - Elevated concentrations of airborne asbestos can occur if asbestos-containing materials present in many older homes are disturbed. Pipe or other insulation, ceiling tiles, exterior siding, roof shingles and sprayed on-soundproofing are just some of the materials found in older buildings that may contain asbestos. Buildings constructed before 1970 are more likely to contain asbestos. Airborne asbestos can cause lung cancer and mesothelioma, a cancer of the chest and abdominal linings. Lead is a highly toxic metal which produces a range of adverse health effects, particularly in young children. Many homes built before 1978 may contain lead-based paint. Disturbance or removal of materials containing lead-based paint may result in elevated concentrations of lead dust in the air.

- If you know or suspect that your home contains asbestos or lead-based paint and any of these materials have been damaged or will otherwise be disturbed during cleanup, [seek the assistance of public health authorities and try to obtain help from specially trained contractors, if available.](#)

- If possible, removed materials should be handled while still wet or damp, double bagged and properly labeled as to contents.
- In handling materials that are believed to be contaminated with asbestos or lead, EPA recommends that, at a minimum, you wear gloves, goggles, and most importantly, OSHA-approved respiratory protection, if available.
- While still wearing a mask, wash hands and clothing after handling such materials.
- If at all possible, avoid activities that will generate dust, such as sweeping or vacuuming debris that may contain asbestos or lead.
- Take precautions before your contractor or you begin remodeling or renovations that disturb surfaces that may contain lead-based paint (such as scraping off paint or tearing out walls):
- Have the area tested for lead-based paint.
- Do not use a belt-sander, propane torch, heat gun, dry scraper, or dry sandpaper to remove lead-based paint. These actions create large amounts of lead dust and potentially harmful fumes.
- Temporarily move your family (especially children and pregnant women) out of the apartment or house until the work is done and the area is properly cleaned. If you can't move your family, at least completely seal off the work area.

**Properly Dispose of Waste** - Caution must be exercised to assure that all waste materials are removed and disposed of properly. Open burning of materials by individuals should be avoided. Improperly controlled burning of materials not only represents significant fire hazards but can also produce additional hazards from the vapors, smoke, and residue that are produced from the burning.

**For those who have access to the internet, here are links to additional information:**

- For more detailed information and guidance on mold prevention and cleanup, visit: <http://www.epa.gov/mold> or call **IAQINFO at 800-438-4318**.
  - EPA recommends that those dealing with extensive flood damage obtain and follow the detailed guidance in the American Red Cross/FEMA publications [Repairing Your Flooded Home: http://www.redcross.org/services/disaster/0,1082,0\\_570\\_00.html](http://www.redcross.org/services/disaster/0,1082,0_570_00.html)
  - For more information on safe management of asbestos, visit: <http://www.epa.gov/asbestos/ashome.html>
  - For more information on safe management of lead-based paint, visit: <http://www.epa.gov/oppt/lead/>
- Federal Emergency Management Agency's Flood website - <http://www.fema.gov/hazards/floods/>
- CDC Hurricanes Health and Safety: <http://www.bt.cdc.gov/disasters/hurricanes/>
  - National Institute for Occupational Safety and Health -- Storm and Flood Cleanup <http://www.cdc.gov/niosh/topics/flood/>
  - U.S. Department of Health and Human Services (HHS), Centers for Disease Control and Prevention's (CDC) Emergency Preparedness and Response web page, "Protect Yourself from Mold" - <http://www.bt.cdc.gov/disasters/mold/protect.asp>