



# Rebuilding Healthy Homes: Assess Damages & Hazards

Regardless of the type of disaster, before you tackle any cleanup and restoration, damages and hazards should be carefully evaluated, including the following:

## ASSESS STRUCTURAL STABILITY

Most buildings that suffered structural damage will show distinctive outward signs. **Never enter a building that might have structural damage, such as a separated foundation, broken windows, shifted rafters or exposed gas line.** Review the information below about how to tell what is wrong and what to do.

## What should I look for?

Evidence of structural damage may include:

- Roofs that sag in the middle or at the ends due to load-bearing walls that have shifted
- Broken windows
- Walls that are not vertical or straight
- Stuck doors or door jambs with cracks extending from upper corners
- Missing or broken support columns or beams
- A shift or separation where the structure meets the foundation
- New cracks in the exterior of the building or its foundation
- Continuous cracks or leaning of basement walls, crawl space walls, or piers
- Wet, sagging drywall in the ceiling
- Floors that sag, have separated from the walls, or have holes

## What should I do about it?

If you see any of those structural damage indicators, assume that the building is unsafe. Don't climb onto or go into the building until it has been verified by a qualified professional as safe to enter.

Even if the building is verified as structurally sound to enter, remain alert to dangerous walking and working surfaces, such as:

- Cracks, buckles, voids and weakened spots in the floor
- Slippery conditions
- Sharp debris such as broken glass and splintered wood



### **Collapse Warning Signs**

*Leave the property immediately if you hear noises from shifting debris, see dust clouds, see changing crack patterns, or hear sounds such as creaking and crackling.*

- Debris piles that could collapse
- Sagging ceilings that may contain water or wet insulation that might collapse
- Smoldering material that might reignite

## Should I bring in a professional?

Never enter a building that might have structural damage until it has been inspected by a local official, engineer, or professional home inspector. If there is structural weakness, hire a licensed, bonded and insured contractor or engineer to design and install reinforcements (unless the building is condemned and must be demolished). Get a building permit and inspections of the corrective work.

Check with your local building permit office to find out about any residential damage assessment programs and procedures. They may have a post-disaster inspection and rating system, such as:

- **GREEN:** Building is safe to enter and occupancy is permitted.
- **YELLOW:** Building has potential structural damage and/or failing non-structural items or accessories (like a porch or deck).
- **RED:** Building is unsafe to enter and its occupancy is prohibited. The building is structurally unstable and may collapse.

## INSPECT FOR CREATURES, CHEMICALS AND BIO-HAZARDS

### What should I look for?

- Just as people are displaced during disasters, so too are animals and insects. Rats, mice, cockroaches and other pests tend to hide in debris. Standing water breeds mosquitos. Bears are attracted to garbage and may be disturbed and more active.
- Disasters often result in toxic chemical and fuel spills. Industrial, agricultural and household chemicals can be released into the air or floodwater and leave a hazardous residue on materials. Find out about major sources of chemicals in your area.
- Consider rising floodwater to be contaminated. It's likely to contain sewage and infectious bacteria, in addition to chemicals. Tetanus, commonly known as lockjaw, can be acquired from contaminated soil or water that gets on broken skin, like a cut or scrape.

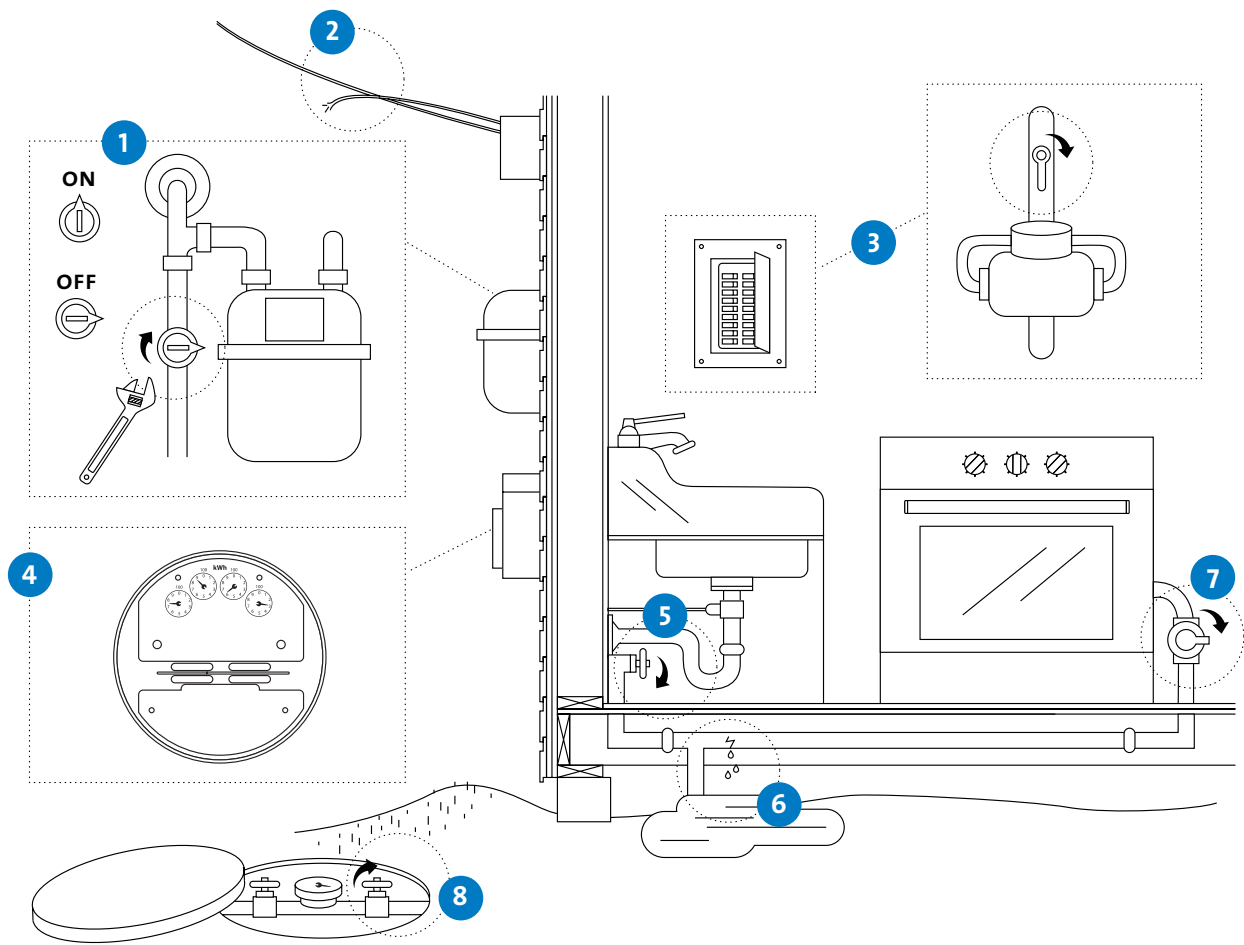
### What should I do about it?

- Look before you leap! Expect hidden hazards and plan accordingly. Wear protective gear.
- Tap the floor and piled debris with a long stick ahead of your path to reveal hiding creatures.
- If you see a dangerous animal, back away slowly, then call local animal control.
- Listen for alerts from authorities about chemical releases or hazards.
- Wash skin exposed to hazardous chemicals or bacteria. Keep a first aid kit handy.
- Do not let children play in floodwater or debris.

### Should I bring in a professional?

- Report major chemical and fuel spills to local authorities or to the U.S. EPA National Response Center at 1-800-424-8802.
- If anyone shows signs of illness or infection, immediately see a health professional and describe the exposure. If you suspect poisoning, call 911 or the National Poison Control Center at 1-800-222-1222.
- Note: People with hearing or speech disabilities may reach these phone numbers through the Federal Relay Service teletype service at 800-877-8339. Visit [www.gsa.gov/fedrelay](http://www.gsa.gov/fedrelay) for additional ways to communicate with federal agencies.

## ILLUSTRATION C Shutting Off Utilities



**1. Gas meter:** Check gas meter or fuel tank to be sure valve is off. You may need a wrench.

**2. Power lines:** Report any down, loose or damaged power lines or wires.

**3. Electric box or panel:**

- If exterior electric box (common on older homes), place handle in off position (down). Secure or label it to prevent accidental activation.
- If no exterior shut-off, turn off the main circuit breaker switch or remove fuse in electrical panel.
- **CAUTION!** Do not touch electrical panel while standing in water or if it is damaged. Get an electrician to shut off power.

**4. Electric meter:** Before entering, make sure there is no dial movement on electric meter.

**5. Water valves:** Turn off water valve (clockwise) of each sink, toilet, water heater, ice maker, etc.

**6. Drains:** Pour bucket of water into sinks, toilets and tubs to check for leaks.

**7. Gas appliances:** Turn off all valves to gas appliances. Valve handles should be perpendicular to pipe.

**8. Water meter:** Find and turn off main water shut-off valve at meter (may be in the front yard). You may need a wrench. Call the water district office if you can't find or reach the valve.

## **INSPECT UTILITIES — ELECTRICAL, GAS AND WATER SUPPLY**

### **What should I look for?**

- **CAUTION!** Be aware of power lines, power junctions and downed electrical wires. They can cause electrocution and burns. Make sure that no live electric lines are on the property or in the house.
- Find out if there is a natural gas line or fuel tank, and check for damage. If you smell gas, assume the area is unsafe.
- Look for water streaming out of the home from a plumbing break.
- Find out if the community water supply is safe to use and to drink.

### **What should I do about it?**

- Notify the electric company of damaged and downed power lines. Do not touch fallen wires.
- Shut off any gas supply to the building. Turn off the shut-off valve at the gas meter or propane tank; you may need a wrench or pliers.
- Open all windows when you enter a building to clear the air. If you smell gas or hear a noise that sounds like escaping gas, leave immediately. Also leave the door open and notify the gas company.
- Never create any ignition until you are 100% sure that there is no gas in the air. That means do NOT smoke, light matches or lighters, operate electrical switches or flashlights, use telephones or mobile phones, or start a car.
- Turn off all electricity at the main electrical panel, but NOT while standing in water.
- Then, unplug appliances and lamps, remove light bulbs from fixtures, and remove the cover plates of any wall switches and outlets that got wet.
- Visually inspect equipment before use. Label or remove damaged items.
- When power is turned back on, make sure the circuits and electrical equipment are grounded.
- Never use an electric tool or appliance while standing in water or a wet area.
- If there are plumbing leaks or the water supply might be contaminated, turn off the main shut-off valve with a wrench. Do not use contaminated water for cleanup.
- Test or install carbon monoxide (CO) detectors and smoke alarms in the home. When there's no power, get a battery-operated CO detector, if using any fuel-burning equipment.
- If anyone feels dizzy, weak or nauseated during work, get fresh air immediately. If symptoms persist, seek immediate medical help.

### **Should I bring in a professional?**

Have a licensed electrician inspect and repair the electrical system before using anything electrical, if any wiring was damaged or flooded, if the power supply is not grounded, or if the electrical path has been broken.

If there could be damage to gas lines (from floods, earthquake, fire, etc.) or if you smell gas, have the gas utility company inspect your service before using it. If there is damage, disconnect gas appliances or pipes.

*This publication is adapted with permission from “Rebuild Healthy Homes,” a publication of the U.S. Department of Housing and Urban Development.*



Download the FREE Rebuild Healthy Homes app! This app has information for restoring homes after a natural disaster, including the principles and technical aspects of the safe and proper removal of mold, radon, asbestos, lead, and other hazards. Available on the App Store for iOS devices: <https://itunes.apple.com/us/app/rebuild-healthy-homes/id980660616?mt=8>