

Shakedown

Earthquake preparedness tips
for your family and home



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Now is the time to get prepared

The Lower Mainland is identified as a potential major earthquake zone. This makes it especially important to take preventive measures with your gas equipment and appliances.

With a little knowledge, planning and preparation, you can reduce the possibility of gas service disruption and make your home or building as safe as possible should an earthquake occur.

In this earthquake preparedness booklet, we've outlined key preventive measures and natural gas emergency procedures for you to take in the event of an earthquake. After you implement the steps, keep the booklet with your emergency supplies as a quick reference should an earthquake occur.

Quick quake facts

- British Columbia's southwest corner is the most active earthquake region in Canada. More than 200 earthquakes are recorded each year in the Lower Mainland and on Vancouver Island.*
- Although most recent earthquakes in the area have been small (magnitude 4.0 or less), experts agree we should expect an earthquake capable of substantial structural damage (magnitude 5.0–7.0 or greater) to occur somewhere in this region about once every 10 years.
- Scientific evidence has shown with certainty that British Columbia will experience a great earthquake (magnitude 8.0 or higher). The boundary where the Juan de Fuca (oceanic) and the North America (continental) tectonic plates meet off the west coast of Vancouver Island is locked—when it eventually snaps loose, a very large earthquake will occur.**

* Scientists' recordings of activity at the Pacific Geoscience Centre, Sidney, BC;

** Geological Survey of Canada—Natural Resources Canada

What to know about natural gas

Natural gas is a safe and reliable source of energy. It provides homes and businesses with a supply of heat and comfort.

Despite common misconceptions, it is rare and unlikely that gas lines will rupture or explosions will occur due to an earthquake. The more real and direct threat is a leak inside your home or building due to earth movement, so it's critical to understand the properties and potential hazards of gas.

- Natural gas is lighter than air.
- Natural gas is odourless. We add an odourant that smells like rotten eggs or sulphur to make it easy to detect even small leaks.
- If leaked outdoors, natural gas tends to rise and dissipate into the atmosphere.
- If leaked in a confined space, such as inside your home, natural gas mixes with air. In rare circumstances, it can form a combustible mixture. If ignited by sparks from electrical switches and appliances, or from open flames such as matches and pilot lights, a fire or explosion could result. If you smell gas, act fast and get out.

Safeguard your appliances

Water heaters

When full, a water heater can weigh a staggering 180 kilograms. Because of its height and weight, even moderate ground movement could cause it to fall over. As a result the tank could break, along with the gas supply line to the tank, creating a dangerous situation and damage to your home.

There are two things you can do to minimize the risk:

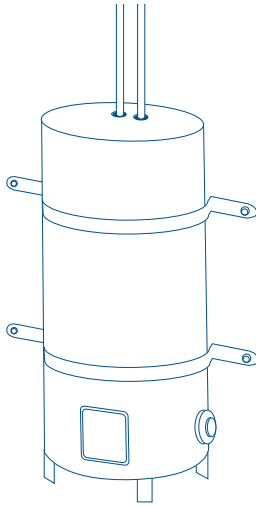
- strap the water heater to your wall, and
- hire a registered gas contractor to install a flexible gas supply line.

By properly securing the tank, you can effectively safeguard against leaks, fire or explosion. You'll also retain a valuable source of water for washing.

Strapping your tank

The BC Building and Plumbing Codes actually require ALL gas and electric water heaters to be strapped securely in British Columbia's seismic zones. The installation must also satisfy the water heater's minimum clearance from combustible materials. You'll find that information stated on the heater nameplate.

Gas contractors who install water heaters can strap the water heater for you. If you schedule the work during your next maintenance service call on other gas appliances, you can save on the cost of a separate appointment. Be sure to confirm that the gas contractor is registered with the BC Safety Authority (BCSA) and employs certified gas fitters. Contact the BCSA Gas Safety Program at safetyauthority.ca, or by phone at **778-396-2000** or **1-866-566-7233**.



A typical water tank with steel strapping

If you feel comfortable strapping your water heater yourself, use an approved water heater seismic restraint kit that has been designed specifically for this purpose. You'll find them at home improvement stores. Choose a kit strong enough to handle the number of litres in your heater. Ensure that the strapping is attached to the frame of your home with steel screws or lag bolts. Plasterboard anchors are not strong enough.

Approved kits contain parts that have been selected and tested for the application. Follow the instructions precisely.

A specification tip: make sure you strap the heater in at least two locations: one in the upper one-third of the unit, and the other in the lower one-third of its vertical dimension (see picture, page 3). The lower strap must be a minimum distance of 101.6 mm (4 inches) above the gas controls.

Other gas appliances

Your other gas appliances should also be anchored wherever possible.

It is recommended that you use flexible metal connectors to connect appliances to rigid gas piping. If a flexible metal connector is used on a vented appliance, the appliance must be secured to prevent dislodgement of the vent or chimney. A gas contractor can advise you on flexible connectors.

Natural gas appliances have open flames and can be a source of ignition if combustible products are stored or used nearby. Keep the areas in front of gas appliances clear of combustible materials such as laundry, paper, paints and solvents, charcoal and propane cylinders. Do not store propane cylinders, lawnmowers, motorcycles or other gasoline-powered vehicles indoors or near gas appliances.

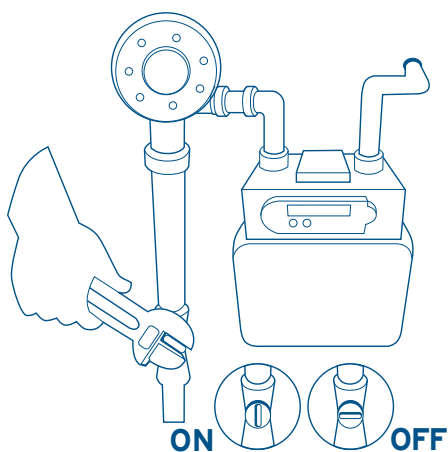
Plan for an emergency shut-off

Make sure that you and your family, or the occupants of your building, know the location of your gas supply shut-off valve (normally located at your meter). Keep a clear path to it for quick, easy access.

Designate a 12" to 16" adjustable wrench or specially designed shut-off tool (available from your gas contractor) just for emergency shut-off of your gas supply. Make sure everyone that resides or works in the building knows where the wrench or tool is stored and how to use it. You should also know the location of your water shut-off valves and how to shut them off.

If you live in a multi-family building and your suite is individually metered, you'll need to locate your suite's meter. They're usually found in clusters in an entranceway or open area. Refer to your FortisBC bill for the meter ID number so you can properly identify the correct one.

You may also have an individual valve in a meter closet within your unit. Familiarize everyone in your household with its location and how to turn it off.



The gas supply shut-off valve is located where your gas service connects to your meter. To close, turn the valve a quarter turn with a 12" to 16" adjustable wrench or shut-off tool.

Preventive tools

1. Seismic gas shut-off systems

There are two kinds of seismic gas shut-off systems: mechanical and electrical. While these products are not required by provincial or national installation codes, some homeowners may decide to install supplemental seismic gas shut-off valves.

The way the mechanical seismic shut-off device works is that when an earthquake causes the ground to shake at a pre-determined level the valve will automatically stop the flow of natural gas at the meter.

The electrical seismic gas shut-off valves are designed to shut off the natural gas when gas leakage is detected.

Homeowners should be aware that with any automatic gas shut-off system, there is a potential for false alarms and malfunction. The unit may shut off gas service even though the piping is not damaged or gas is not leaking.

Once the automatic valve shuts off the flow of gas, only a registered gas contractor can turn the service back on. In the event of a regional emergency such as an earthquake, it may take days or weeks before a contractor is available.

Another consideration is that in a mild tremor, the gas shut-off valve may not shut off the system, even though gas is leaking.

Before purchasing an automatic seismic shut-off valve, discuss the features, options and limitations of these products with a registered gas contractor.

2. Natural gas (methane) alarms

If you or a member of your family has concerns about your ability to smell natural gas, you may want to consider the purchase of a natural gas (methane) alarm.

Natural gas alarms may provide an extra measure of comfort and warning. However, they should never be relied upon as a substitute for regular inspection and maintenance of your natural gas appliances, or for taking quick action when you do smell natural gas. These devices are available at most hardware and home supply stores.

If you do smell gas, act fast! Get out and call FortisBC at **1-800-663-9911**

NOTE: Natural gas (methane) alarms are NOT the same as—or a replacement for—carbon monoxide alarms or smoke detectors.

Prepare yourself

The best way to protect yourself and your family in an earthquake is to be prepared. In addition to making sure your home is safe, and appliances are secured, we recommend the following:

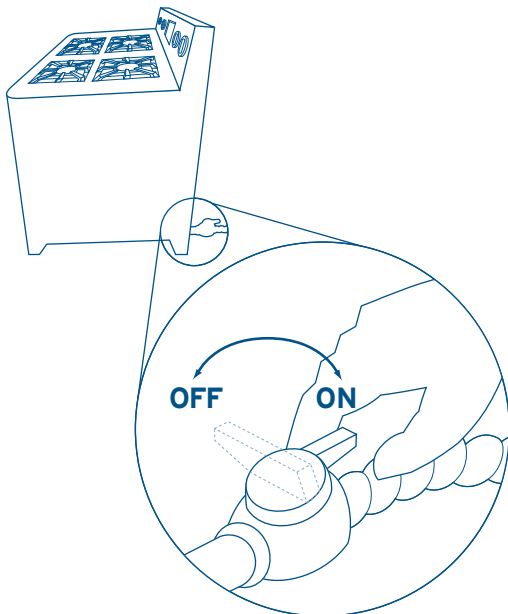
- Develop your earthquake plan.
- Discuss your home emergency plan with your entire family and involve everyone in practice exercises.
- Put together earthquake kits for your home, car and office.
- Ask your children's schools for their emergency plans.
- Familiarize yourself with your employer's emergency plans.
- If you rent your home, ask your landlord what earthquake preparedness measures have been taken.

What to do after an earthquake

A major earthquake can last anywhere from several seconds to several minutes and may be followed by a number of aftershocks. Be alert for danger, and keep the safety of you and your family uppermost in your mind. Do not put anyone's life (including your own) at risk.

1. Listen and smell for escaping gas. You may hear a hissing sound and smell rotten eggs. If so, do not attempt to operate electrical switches or other ignition sources. Evacuate everyone from the premises **IMMEDIATELY**, and turn off your gas at the meter, if you know how.
2. Get to a nearby phone and call your natural gas utility, **911** or the fire department emergency number. The FortisBC 24-hour natural gas emergency line is **1-800-663-9911**. Inform your neighbours there is a gas leak at your home.
3. If there are no gas leaks, or if you hear no hissing, inspect your gas appliances,

pipng and venting for damage. The vent of an appliance (for example, your furnace, water heater or fireplace) may be broken or disconnected. If so, turn off the gas supply to that appliance. Each appliance is equipped with its own shut-off valve. In the off position, the handle of the valve is at a right angle to the pipe. Do not operate a gas appliance with a broken or damaged vent—dangerous levels of carbon monoxide can result. Turn the valve so it is at a right angle to the pipe.



Turn valve so it is at a right angle to the pipe.

4. Know where the shut-off valve is for each utility and how to use it. There are a number of valves in your home's gas system—individual shut-off valves for each appliance, and the main gas supply shut-off valve at the meter which controls the entire gas supply to your home. Each of your appliances can be shut off individually at its valve, or you can shut off the entire gas supply to your home at the meter.

The gas supply shut-off valve is located where your gas service connects to your meter. To close, turn the valve a quarter turn with a 12" to 16" adjustable wrench or shut-off tool.

5. Remember that if you do not smell gas or don't have severe damage to your home, you may not have to shut the gas off. It's your decision. It may be your only source of energy for some time.

You may need your gas service to keep warm, sterilize water and cook food. Once your gas supply is turned off, pilot lights are extinguished. It can be dangerous for you to turn the gas supply back on after an earthquake.

Leave it to an expert. A registered gas contractor will properly inspect the piping, appliances and venting.

6. Once you've determined that the gas system is in safe operating condition, check your other utilities. If electrical service is interrupted, some appliances (like your furnace) will not work until the electricity comes back on.

IMPORTANT: Once you've turned your gas off at the meter, leave it off. A registered gas contractor must check your system before turning the gas back on.

Your gas should also be turned off if:

- a gas appliance or water tank has broken loose from its connections or has fallen over
- your building has been seriously damaged
- there is, or has been, a fire
- in the event of a fire, turn off the gas after you have evacuated the building, but only if doing so does not put you in danger

Gas emergencies at a glance

Smell gas? Act fast!

1. Leave the premises.
2. Call your natural gas utility, **911**, or fire department emergency number.
3. Turn off your gas at the meter if you know how.

FortisBC 24-hour natural gas emergency line:
1-800-663-9911

There is no way to forecast the intensity and subsequent damage that might result from an earthquake. This booklet is meant as a reference guide only. The authors are not liable for any damage or loss arising out of, or in any way related to, the information presented here.

For more information

Visit **fortisbc.com** or call Customer Service at **1-888-224-2710**.

There is also useful emergency preparedness and first aid information in the white pages of the telephone directory.


More information on earthquakes is available from:

Provincial Emergency Program (PEP)
pep.bc.ca
1-800-663-3456

Public Safety Canada
publicsafety.gc.ca
1-800-830-3118



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Safety.

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