



British Columbia Ambulance Service

Personal and Family Disaster Preparedness Handbook

In the event of a disaster, the British Columbia Ambulance Service requires you to report to work! Your ability to respond will depend on how well you have prepared yourself and your family to survive a disaster.

"There are no emergencies for those who are truly prepared."

James Talmadge Stevens



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Introduction

Preparing for the worst does not mean that you believe it will happen. Preparation will help protect your family, yourself and your community from the effects of a disaster. If you and your family are prepared, you can also help your community deal with the after effects of a disaster.

Many believe that the worst case disaster scenario involves an earthquake. Floods, forest fires, landslides and severe storms can also cause significant disruption to our daily lives. Through emergency preparedness, we want to ensure that you and your family are prepared for disasters.

During a disaster telephone, gas, electricity, and water services may be interrupted for days. Roads may be impassable, and stores and gas stations may be closed. Emergency services may be unavailable. Everyone should be prepared to be self sufficient for a minimum of 3 days and, ideally, for up to two weeks. Preparedness will keep personal injury, damage, and discomfort to a minimum.

The British Columbia Ambulance Service (BCAS) recognizes the importance of ensuring all employees are prepared for a disaster. As an emergency response organization, it is imperative that we continue functioning after the impact phase of a disaster. The public, while knowing that emergency services will be hampered after an event, will non-the-less demand continued services. In order to continue working, it is essential that employees know that their families are safe and cared for. If they are not, the employee will naturally want to care for their family first. All BCAS employees are encouraged to become personally prepared for a disaster situation in order to minimize its adverse effects, and allow staff to report to work in a timely manner.

Planning

We cannot stop disasters from occurring, but we can limit their impact on us by assembling a family emergency preparedness plan. The most important concept in developing this plan is communication. Every member of the family needs to be involved so that when disaster strikes, everyone will know what to do. How well you manage the aftermath of disaster depends a great deal on your level of preparedness when disaster strikes. Planning and practicing what to do before an emergency occurs lessens fears and anxieties. Knowing you have stored essential supplies increases peace of mind.

Steps to an effective plan include

1. understanding what kinds of disasters can occur and their possible effects,
2. making preparations in advance,
3. developing procedures and instructions for safety, escape, and possibly evacuation during the disaster and in the days following,
4. putting the plan into action by providing training and practice sessions for family members,
5. practicing and maintaining the plan and state of preparedness.

The worksheets and information in this workbook have been developed to assist and provide guidance as you develop an emergency preparedness plan for you and your family.

Strategies for Preparedness

A state of total preparedness can be expensive and time-consuming to achieve. The following are a few suggestions that might help:

- Take into consideration the hazards that affect your area of the province – some preparedness activities may be less important in your area and could be deferred.
- Separate the effort into tasks following the layout of this workbook – addressing family safety first then safety of possessions and home.
- Do a little each week; buy a little each payday.
- Emergency supplies (e.g. water, food, first aid, etc.) can be acquired as ready-made kits or compiled item-by-item according to the lists provided here.

Hazards in British Columbia

Earthquakes

During an earthquake, the ground will move or shake strongly for up to 30 seconds or more and the main quake may be followed by one or more after-shocks. Earthquakes may induce landslides, liquefaction of saturated sandy soils, flooding of low-lying areas, and tsunamis.

Earthquakes happen without warning and there is no opportunity to evacuate ahead of time. The effects of a large earthquake can be widespread.

Earthquake risk in BC is greatest for the Queen Charlotte Islands, Vancouver Island, and along the mainland coast. The risk diminishes for the interior and eastern portions of the province.

Floods

Floods can be caused by intense rainfall, melt-off from heavier than normal winter snowfall, landslide dams on rivers, and tsunamis. They may be precipitated by an earthquake and, in turn, may precipitate landslides.

There may be sufficient advance warning to permit evacuation prior to the event, possibly enough advance warning to permit flood proofing to protect your home. The effects of flooding can be localized or widespread.

All of BC is subject to risk of flooding.

Forest Fire / Wildland Interface Fire

Forest fires can start very easily during dry periods. Lightening and careless individuals are the primary causes. An interface fire is when a forest or wildland fire threatens residential areas.

There may be sufficient advance warning to permit evacuation prior to the fire reaching you. The effects of forest or interface fire can be widespread.

While all of BC is at risk to forest and wildland fires, the risk is greater in certain parts of the province.

Landslide (mud, rock), Avalanche

Landslides may be triggered by earthquakes and heavy rainfall. They may also result directly from construction activity that undercuts or overloads dangerous slopes or that redirects the flow of surface or ground water.

Avalanche hazards develop over the snow season as weak layers occur in the snowpack and create a sliding surface. In many areas, particularly ski resorts, the hazard is managed through manual triggering of avalanches. Everywhere else it remains fairly unpredictable.

There is unlikely to be sufficient advance warning to permit evacuation prior to the landslide or avalanche. Unless you are in the direct path of the landslide or avalanche, the effect is most likely to be one of blocked roads and interrupted utility service.

Most of BC is at risk to landslides of one form or another. Avalanches will occur in all mountainous regions. The Coast and Selkirk ranges are the most at risk due to the higher humidity.

Severe Weather – wind, snow, hail, rain

All of British Columbia is at risk to serious storms or severe weather conditions of one kind or another.

Depending on the type of storm/weather, there may be sufficient advance warning to permit preparation or even evacuation if advisable.

Possible effects:

The possible effects of a natural hazard include:

- Personal injuries, casualties; either resulting from the event, during evacuation, or from failure to evacuate
- Damaged or destroyed houses, buildings and other structures
- Damaged vehicles, boats, RVs, etc.
- Damaged utility infrastructure: telephone poles and wires may be down. Underground cables, water, sewer and gas lines may be damaged.
- Damaged or impassible roads and bridges

Considerations:

In terms of emergency planning, the following possibilities should be taken into consideration:

- Water supply may be disrupted and/or contaminated
- Food supplies may be contaminated
- Electricity and telephone service may be disrupted, locally or widespread
- Sewer system may be damaged
- Grocery stores may be closed or inaccessible
- Gas stations may be closed or inaccessible

Protecting Your Family

Family Meetings and Drills

Any good emergency plan observes one cardinal rule: it must be tested and updated continually. At least once a year meet with family members to discuss and update your plan and to determine what training, equipment, and supplies are required. Occasional drills will ensure quick reaction and avoid injury and panic in an emergency. Family members should have basic first aid and CPR training.

Family Reunion Plan

There is a good chance that you will not be with your loved ones when the disaster occurs. To prepare for these separations, identify a neighbourhood reunion site and an out-of-province contact person. This will help you get back together and if that is not possible, at least they will know where you are and how you are doing.

Reunion Site:

List two or three places to go if you cannot or choose not to stay at home. Possible sites include neighbours' or nearby relatives' homes, local schools, churches or community centres. When other family members arrive home, it will give them some places to start looking for you. Make sure you leave them a note telling them where you have gone.

Possible reunion site #1 _____

Possible reunion site #2 _____

Possible reunion site #3 _____

Out-of-Province Contact:

Choose a relative or friend who lives at least 160 kilometres (100 miles) away, preferably out of province, who can be contacted by all family members if it becomes impossible to reach you or the reunion locations. During an emergency, long-distance phone service is often easier to obtain than local service and pay phones are more likely to be operational before private phones.

Name of contact: _____

Phone number: _____



Make small cards with this information for each family member to keep in their wallets, purses, or backpacks. Keep this card with you at all times and tape a quarter to the back of it.

Discretion is advised regarding phone use during an emergency. Emergency services personnel rely on telephones when carrying out their work and non-essential phone use can cause failure in a weakened and/or damaged telecommunications system. Public information broadcasts via radio will indicate when phone service is stable enough to support non-essential use.

Floor Plan

Draw your home's floor plan.

- Mark the best escape routes and also alternatives if the main hallways are blocked. Consider purchasing an emergency rope ladder in case you need to escape from an upper floor and staircases are blocked.
- Indicate hazardous areas (e.g. large windows and tall furniture if in an earthquake area) and also indicate safe places to take cover.
- Indicate the storage area(s) for the emergency supplies kits, first aid kits and fire extinguishers.
- Show utility shut-off locations.
- Indicate the *meet here* location outside the home.



Tips for the Elderly and the Disabled

Safety during an emergency requires advance planning and preparation. Taking the time to identify a nearby neighbour and to acquaint them with your needs can provide peace of mind now, as well as vital help following a disaster.

Assess your own special needs, capabilities, and limitations and write them down. Be sure to include your requirements for special equipment and medications.

Special Needs:



Register life-sustaining equipment with BC Hydro. Consider purchasing a small generator or know where to rent one if you use life-sustaining equipment that requires electrical power.

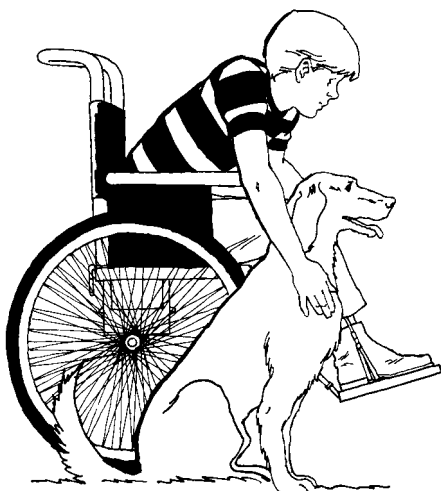
Know where the safer places are in each room of your home. Determine any obstacles that might make a safe exit difficult and, if possible, remove or alter them. Figure out how you can get out of each room if the doorway is blocked.

Ask someone in your neighbourhood to be your helper(s) during time of emergency. Review your complete self-assessment and floor plan with this person and give them a copy of each. If you know your helper(s) well, you may wish to tell them where an extra key to your home is located.

Helper's name: _____

Address: _____

Phone Number: _____



Carry a small flashlight and whistle with you at all times to help alert others to your location in times of an emergency or disaster.

People who are blind should keep an extra cane at home and at work. During and after a disaster, your seeing-eye dog may be injured or too frightened to help you.

Helping Your Children with Their Fears

Talk with your children honestly about what they can expect to happen during and after a disaster. Explain to them that you may be required to go to work once they have been taken care of. Children are less likely to experience prolonged anxiety or fear if they know what to expect.

Before the Event

- Talk about your own experience and/or read aloud about disaster scenarios. Local libraries have a number of good reference books. Be sensitive to your children's concerns as you do this. The point is not to frighten them, but to increase their awareness of some of the things that will happen.
- Walk through your house with them and have them practice getting quickly into each room's safe place. Hold frequent drills to reinforce this practice and allow them to react. Discuss what they did and where they went to be safe. Emphasize that they are learning to be safe.
- Talk with your children about their favourite places to play. Identify the safe places to be in those locations.
- Ask your children's school about their disaster response plans. If the school plans to hold the children until the parents arrive to pick them up, explain this to your children so they will know what to expect.
- Provide your children with the name of a relative or friend who will care for them if you should get stuck at work or elsewhere. Make sure this is someone the children know and are comfortable being with. Tell them this person will take care of them until the family can be reunited.

After the Event

Children may experience some of the following anxiety reactions:

- Irrational hysteria, anxiety, irritability, anger, sadness
- Diarrhea, vomiting, headache, loss of appetite
- Inability to complete simple jobs
- Fatigue, nightmares, bed wetting, thumb sucking

Children may revert to immature behaviour for a few days. This is very normal and probably won't last long. Rather than focusing on this behaviour, praise them for their help in cleaning up and for sharing their feelings.

Children may have fears:

- Fear of injury to oneself or another family member
- Fear of death
- Fear of separation from family
- Fear of the dark
- Fear of being alone

- Encourage your children to express their feelings of fear. Drawing pictures or telling stories may be a good way to do this. Listen to them carefully when they share these things with you. Explain what really happened and what might still happen.
- Give lots of hugs to your children and reassure them that everything will (eventually) be OK. Do not lie to them. Have an adult stay with the child
- Include the children in the cleanup activities. It is comforting to the child to watch the household begin to resume its normal functions and to have a job to do.
- Fear is a normal reaction to any danger that threatens our well being. Be careful not to ignore the emotional needs of your children once you have determined that everyone is physically safe.
- If sleeping problems or fears get worse or other unusual behaviour persists for more than two weeks, it is time to seek professional advice. Mental health professionals are trained to help parents and children overcome their fears more easily.

Important Individual and Family Information

Take a few minutes and record vital family information. Keep copies in two safe places, fire and water resistant if possible. Also store deeds, wills, tax records, birth certificates, and other vital documentation in a safe place, such as a fireproof safe or safety deposit box.

Name, Social Insurance Number and BC Care Card # of all Family Members

_____	SIN _____	Care Card # _____
_____	SIN _____	Care Card # _____
_____	SIN _____	Care Card # _____
_____	SIN _____	Care Card # _____
_____	SIN _____	Care Card # _____

Employment Information

Father's work (business name) _____	Mother's work (business name) _____
Address _____	Address _____
Phone Number(s) _____	Phone Number(s) _____
_____ 's work (business name) _____	_____ 's work (business name) _____
Address _____	Address _____
Phone Number(s) _____	Phone Number(s) _____

School Information

Name of Child _____	Name of Child _____
Name of School _____	Name of School _____
Address _____	Address _____
Phone Number _____	Phone Number _____
School will HOLD/RELEASE (circle one) child in the event of a disaster	School will HOLD/RELEASE (circle one) child in the event of a disaster

Medical and Legal Information

Doctor _____ Address _____ Phone _____

Doctor _____ Address _____ Phone _____

Doctor _____ Address _____ Phone _____

Hospital _____ Address _____ Phone _____

Lawyer _____ Address _____ Phone _____

Important Medical Histories

Allergies

Name _____ Type _____

Name _____ Type _____

Name _____ Type _____

Name _____ Type _____

Regular Medication

Name _____ Type _____

Name _____ Type _____

Name _____ Type _____

Name _____ Type _____

Other

Name _____ Type _____

Name _____ Type _____

Name _____ Type _____

Accounts and Policy Types and Numbers

Bank _____ Account type _____ # _____

Bank _____ Account type _____ # _____

Insurance _____ Policy type _____ # _____

Insurance _____ Policy type _____ # _____

Insurance _____ Policy type _____ # _____

Vehicle Registration Numbers

Car Make _____ Licence # _____ ID # _____

Car Make _____ Licence # _____ ID # _____

Boat Make _____ Licence # _____ ID # _____

RV Make _____ Licence # _____ ID # _____

Other _____ Licence # _____ ID # _____

Other Important Numbers

Ambulance: **911**, non-emergency: _____

Police: **911**, non-emergency: _____

Fire: **911**, non-emergency: _____

Poison Control Centre _____

Natural Gas Company _____

BC Hydro _____

BC Tel _____

Other Utility / Phone Company _____

Landlord _____

Canadian Red Cross _____

Provincial Emergency Program _____

Other: _____

Other: _____

Emergency Water

Water is essential for survival. During earthquakes and landslides, water lines may be broken or cracked, allowing the water to become polluted and/or cut off. During flooding or following extremely heavy rainfall, the water supply may become contaminated. Storing an alternative supply of water is essential.

It is imperative to avoid dehydration. The young and elderly are more susceptible to dehydration. Symptoms of mild dehydration include impatience, fatigue, emotional instability, and apathy. The symptoms of severe dehydration may include headache, sunken eyes and cheeks, difficulty breathing, weakness, confusion, rapid but weak pulse, and hallucinations.



Amount to Store

To cover drinking, first aid, cooking, and sanitation needs, you should store **nine litres** of water per person per day. Ideally, you should store a two-week supply for each individual. Also remember to store water for your pets. Trauma victims, young, old, sick, diabetic, and pregnant people may require more water. Strenuous physical activity may increase a person's water requirement.

How to Properly Store Water

Store water in sturdy, opaque plastic jugs or bottles. Four and twenty litre jugs are available at many camping supply stores or water distributors. Plastic soft drink containers work well. Avoid the use of plastic milk or other similar containers. This plastic becomes brittle over time and can easily crack.

Rinse the inside of the bottles thoroughly. Fill approximately one half the jug with water and add chlorine bleach or tincture of iodine in the amount according to the chart below. Finish filling the container to its top with water. Spread melted candle wax around the top of the rim and screw the lid on tightly creating an air tight seal. Label the bottle with "purified drinking water" and the date.

Store these containers in cool, dark locations, preferably in an area close to an outside exit. Avoid storing water in areas where toxins, such as gasoline and pesticides, are present. These vapours penetrate the plastic over time. Water supplies should be inspected **every six months**. Bulk water that contains water preservative can last for up to five years. Any supplies that look questionable should be replaced.

If you have a regular delivery of commercially bottled water, consider increasing your supply. You can also consider purchasing a portable water supply. Purchase two or more 2-½ gallon, five year **Water Cubes** and several cases of 8 oz boxed water. Remember to store your supplies in a cool area and rotate your supplies as required.

Purifying Water

Strain out any sediment or particles from the water by pouring it through several layers of paper towels, cheesecloth, or coffee filters, then use one of these purification methods.

- a. Boil the water vigorously for seven to ten minutes. To improve the taste, aerate the water by pouring it from one container to another several times
- b. Purification tablets are available at drug stores and most camping equipment stores. Use according to the instructions on the packaging.
- c. Purification of water may be accomplished by using common, unscented, **liquid chlorine bleach (LCB)**, not over one year old. It must contain sodium hydrochlorite, preferably in a 5.25% concentration. *Do not use dry, granular bleach; it is poisonous.*
- d. Purification of water can also be accomplished using **tincture of iodine (TOI)**, which is available from most drug stores.

Amount	If Water is Clear	If Water is Cloudy
1 litre	2 drops LCB	4 drops LCB
4.5 litres (1 gallon)	8 drops LCB	16 drops LCB
20 litres	½ teaspoon LCB	1 teaspoon LCB
4.5 litres	20 drops TOI	40 drops TOI

* purchase an eyedropper for adding bleach and don't use it for anything else.

Thoroughly mix the treated water and purification compound and let stand at least *30 minutes* to kill any bacteria. There should be a faint chlorine or iodine smell after treating. If there is not, repeat the amount and let stand for another 15 minutes.

Water Consumption

Water should be distributed several times per day and it is important to limit unnecessary water usage. Monitor the amount of water used and the amount remaining as well as the water quality.

Additional Sources of Water

Ice cubes, Blocks

Ice cubes or ice blocks in your freezer can be thawed to provide pure drinking water.

Hot Water Heater

Water will drain from the heater easier if a hot water faucet is turned on somewhere in the house. **Shut off the gas or electricity** before emptying the heater and turn it on **only after** it has been totally refilled. To rely on hot water heaters for drinking water, it is best to flush the tank at least once every six months to remove rust and mineral deposits. Drain the tank until water runs clear.

Flush Tank of the Toilet

Purify this water before using it. Do not use as drinking water if a chemical disinfectant or bluing agent has been used in the toilet tank.

Existing Water in the Plumbing

After shutting off the main water valve, open a faucet on the top floor and catch the water as it drains from an open faucet on the **lowest** level.

CAUTION:

Do not drink water from the swimming pool or hot tub. This water can have a high concentration of salts and/or chlorine and, if drunk on an ongoing basis, could cause serious health problems. Use this water only for hygienic purposes.

Do not drink water from waterbeds. Chemicals in the vinyl cause this water to become undrinkable. Use this water only for hygienic purposes.



Emergency Food

An emergency can disrupt your ability to purchase food. Consequently, it is wise to maintain a **two-week** supply of food beyond your normal requirements. You may have plenty of food on hand right now, but check your supplies to make sure.

Selecting Foods for Your Emergency Supply

- It is generally **not** necessary to buy dehydrated, freeze dried, or other types of emergency food. Canned foods and dry mixes that you have on your shelves right now are well suited for emergency supplies, especially if you have young children.
- Choose foods your family will enjoy. Offering your family strange foods can make the experience of a disaster even more upsetting.
- Store foods that require little or no cooking or refrigeration.
- Store foods that require little or no water for preparation. Water supplies may have been damaged.
- Choose foods that will not increase thirst.
- Choose can and package sizes carefully. Refrigeration may be difficult. Choose sizes your family can consume in one meal.
- Store foods that will meet the needs of family members requiring special diets.
- Include such things as:
 - Vitamin supplements
 - High-energy foods: granola bars, fruit & nut mixtures, peanut butter
 - Canned goods: meat, fish, pasta, soup, stew, vegetables, fruits
 - Instant soup mixes, instant cereals
 - Crackers, biscuits, oatmeal cookies
 - Staples: salt & pepper, sugar, honey, syrup, jam
 - Beverages: fruit juice, evaporated or powdered milk, UHT milk, instant coffee, tea, hot chocolate mix,
 - Infant / toddler foods

Other Items to Store

- Paper or plastic plates, cups, and utensils
- A manual can opener and a bottle opener
- The appropriate cooking utensils to prepare the food you have stored.
- Mixing bowl(s), storage containers
- Tin foil, plastic wrap, small plastic bags
- Plastic shopping bags, full-size garbage bags

Cutting Down on Dishwashing

- Line regular dinnerware with plastic food wrap. This can be thrown away after each use, leaving the plate relatively clean.
- Label a separate water-drinking cup with each family member's name. This cup can then be used by the same person all day.

Storing Emergency Foods

- Date each stored package and tin. Once or twice a year, rotate these items into your regular food supply and replace them with fresh items.
- Store foods in a cool, dry, dark place, preferably 5 – 15°C. High temperatures contribute to the rapid deterioration of many types of foods.
- Keep stored foods away from petroleum products. Some foods absorb smells.
- Avoid storing canned foods directly on a cement floor. Water condensation can cause cans to rust.
- Protect food from rodents and insects. Items stored in boxes or in paper cartons will keep longer if they are heavily wrapped or stored in metal containers. Put the contents inside tightly closed plastic bags before placing them in the can. Don't use glass as it is susceptible to breakage. Don't use containers that have previously held petroleum or other chemicals.
- One method of storing emergency supplies is to place them in a large, covered garbage can, preferably plastic or rubber. This can be stored outside, in a cool, sheltered location.
- The amount of each item you put in the can depends upon the number of people in your family.

Using Emergency Foods

- Use perishable foods in your refrigerator first.
- Use frozen foods in your freezer second. Tape a list of freezer contents on the outside to minimize the need to open the door.
- Use canned foods and dry mixes later. Discard cans that bulge at the end or are leaking.
- Do not eat or drink anything from open containers near shattered glass.

Cooking

Make sure you have at least one alternative cooking method.

Caution: Never burn charcoal indoors. This could lead to carbon monoxide poisoning!

- Camp stove, Sterno stoves, barbecues, and hibachis – store extra propane, charcoal, or Sterno, lighter fluid, and waterproof matches
- Fireplaces – do not use until the chimney, mortar and flue have been inspected for cracks. Sparks may escape into your attic through an undetected crack and start a fire
- Fondue pots and chafing dishes – store extra fuel
- Heavy duty aluminum foil – requires less water for clean up than a pan



First Aid

It is important that you have a complete First Aid kit. You can put together your own kit or purchase a ready-made one. Your first aid kit must contain those things necessary to meet the needs of your family. The following list of supplies provides a useful guide.

Store your supplies in a cosmetic bag, a fishing tackle box, a toolbox, or even a small cardboard box with a handle. Tape a list of the contents to the inside of the lid. Your first aid kit should be stored out of children's reach, in an area with easy access and, preferably, close to an outside exit. Store prescription medications and copies of critical medical information in watertight bags in the refrigerator.

Plan to use this kit for your everyday first aid needs. As you replace items you use, you will be keeping them fresh. Periodically check the expiration dates of these items and replace those that have expired.

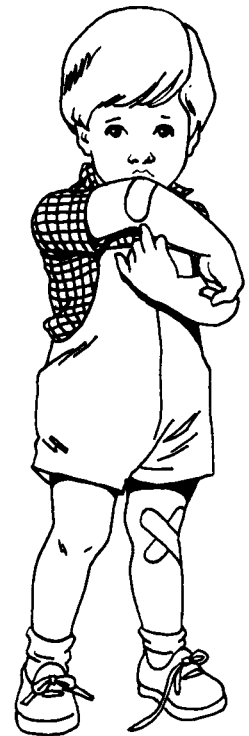
In addition, members of your family should take a first-aid course and a cardio-pulmonary resuscitation (CPR) course.

Medications

- Prescription medication taken regularly
- Aspirin tablets (anti-inflammatory)
- Non-aspirin tablets (e.g. Tylenol)
- Antihistamine
- Cough mixture
- Anti-diarrhea medicine
- Antacid
- Gravol
- Eye drops / ointment
- Syrup of Ipecac / Activated charcoal
- Laxative

Bandages

- Band-Aids
- Clean sheets torn into strips
- Ace bandages
- Butterfly bandages
- Gauze pads
- Field dressings
- Burn pads / abdominal pads
- Rolled gauze – 2 rolls each of 3", 4", and 6" widths
- Adhesive tape – ½" and 1" rolls
- Pressure pads
- Tensors
- Regular and finger splints
- Cotton-tipped swabs
- Sterile dressings
- 6 – 12 Triangular bandages



NOTE: Bandages can also be made from clean rags, disposable diapers, and sanitary napkins; dressings can be held in place by neck-ties, cloth belts, nylon stockings, and plastic bags

Additional Supplies

- Antibiotic ointment
- Individual alcohol swabs or rubbing alcohol & cotton balls
- First aid book
- Latex gloves
- Cleansing soap
- Tweezers
- Scissors: bandage & heavy duty
- Safety razor blade
- Thermometer
- Assorted safety pins
- Hot and Cold packs
- Survival blankets
- Pre-moistened towelettes
- Antiseptic spray
- Hydrogen peroxide to wash and disinfect wounds
- Petroleum jelly
- Skin lotions
- Calamine lotion
- Zinc oxide
- Sunscreen
- Insect repellent
- Ammonia inhalants (smelling salts)
- Hot water bottle
- Tissues
- Paper cups
- Plastic spoons

Other Home Emergency Supplies

It is important to plan in advance for alternative ways of caring for you and your family's needs if the normal means have been disrupted. The information provided in these lists offers suggestions and safety tips to help you prepare for the unexpected.

Once accumulated, these items should be stored in a safe location where they can be easily reached following a disaster. For example, individual items can be tightly wrapped in plastic bags then packed into a plastic or rubber garbage can and stored in a cool, sheltered location outside.

Emergency Information

Obtain a battery powered, portable radio, and store extra batteries. A good place to keep batteries is in the refrigerator. Windup portable radios are also available and do not require batteries. Many are also solar powered. Identify the radio stations in your area that are likely to carry emergency information.



Station _____ # _____ AM/FM

Station _____ # _____ AM/FM

Lighting

Store two or three alternate sources of lighting.

Caution: Make sure there are no gas leaks before using any open flame, including matches, candles, and lanterns. Remember that these could start a fire, so locate them with care!



- Flashlights and extra batteries – store batteries in the refrigerator to extend battery life. Keep a small flashlight in your car, purse, and briefcase. No matter where you are, you will have a source of light.
- Camping lanterns – store extra fuel, wicks, mantles, and matches
- Lightsticks – these can provide light for one to twelve hours and can be purchased at camping supply stores.
- Candles – placing these in glass jars taller than the candle provides extra protection if the candle is knocked over. Remember that the glass can get **very hot**.

Personal Safety and Comfort

These items should be stored for **each** family member, in a backpack or duffel bag perhaps:

- Eyeglasses and/or contact lenses – store an extra pair, supplies & prescription
- Medications
- Toiletries: toothpaste & toothbrush, soap, shampoo, deodorant, feminine hygiene supplies, wash cloth & hand towel, brush & comb, small mirror, razor, lip balm
- Complete change of clothes, extra sweater, wind breaker, warm socks
- Sunglasses, rain gear, hat
- Parka with hood, mittens or gloves, scarf & toque, if winter



Other useful items



- Waterproof matches
- Needle and thread / sewing kit
- Pocket knife
- Water purification tablets
- Compass
- Plastic bags, all sizes
- Writing material – pen, pencil, paper
- Whistle – 3 short blasts is the recognized signal for help
- Battery or wind-up clock
- Photographs of loved ones
- Phone & address book
- Small amount of cash, including coins
- Extra set of car/house keys
- Playing cards, games
- Novel
- Toys and games for small children, colouring book & crayons

Shelter

It may not be possible to stay in your home following a major disaster or you may not want to pending structural inspection. Make sure you have an alternative means of shelter to help you and your family be as comfortable as possible. Suggestions include:

- Tents or waterproof tarps
- Sleeping bags and pillows
- Blankets
- Mylar “space” blankets are compact and easy to store
- Newspapers provide insulation from the cold or heat



Reception Centres or other emergency shelters are likely to be in school gyms or other similar buildings and may only provide a roof over your head. Sleeping bags, extra blankets, pillows, etc., will still be necessary in order to be comfortable there.

Tools / Implements



- Sturdy shoes or boots
- Heavy leather work gloves
- Hard hat
- Duct tape
- Pliers
- Crescent wrench
- Disposable dust masks – for protection from dust and smoke
- Ax
- Shovel
- Hammer & nails
- Pry bar, crowbar
- Survival book
- Magnifying glass

Sanitation During an Emergency

In many emergencies, the usual means of getting rid of garbage, refuse and human wastes are at least temporarily interrupted. Failure to dispose of wastes properly can lead to the spread of diseases and will attract flies and vermin.

Disposing of Human Wastes

If the water or sewer lines are damaged, or if damage is suspected, do not flush the toilet.

Solid wastes (feces) are the main health problem and must be dealt with carefully. Urine is sterile so it is less a health problem than an odour problem.

Store a large supply of heavy-duty plastic bags, twist ties, disinfectant and toilet paper. A good disinfectant is a solution of one part liquid bleach to ten parts water. Powdered, chlorinated lime (not quick lime) may also be used. Dry, granular bleach is caustic and not safe for this type of use.

Portable camp toilets, small trashcans, or sturdy buckets with tight-fitting lids can be used as emergency toilets. Avoid digging holes in the ground and using these. Untreated raw sewage can pollute fresh water supplies.

Even though the toilet cannot be flushed, it can still be used if accessible and intact. This is less stressful for most people than using some other container. Remove all the bowl water and follow instructions as indicated below.

Emergency Toilet:

Line the bucket with 2 heavy-duty plastic garbage bags. Put absorbent material (e.g. kitty litter, shredded newspaper) into the inner bag. **COVER CONTAINER TIGHTLY WHEN NOT IN USE.**

To use:

Uncover it, fold the bags down over the sides and defecate directly into the inner bag. Use toilet paper sparingly and put all used toilet paper into the same bag. Sprinkle disinfectant directly onto the feces. Replace the cover, taking care not to tear the plastic bags. **WASH HANDS**

Never urinate into the bag, urine weakens the plastic. Urinate into a separate bucket that can be tightly covered (put the toilet paper into the emergency toilet).

To change bags:

Close the 2 bags one at a time with twist ties. Expel the air before you close the bags to avoid tearing them. Put the bags into a closed container (like a garbage can) which itself has been lined with one or two heavy plastic bags and marked as human waste. **WASH HANDS.**

Eventually, the municipality or Regional District will provide a means to dispose of these bags. Until then, keep them well away from human activity. Mark them clearly and protect them against breakage or spillage.

To empty the urine bucket:

Dig a hole 18" – 24" deep in an area away from a well, spring or other water supply and in an area not subject to flooding. Empty the contents and shovel the dirt back over top. **WASH HANDS**

How to Handle Garbage

Odour and insects are two problems that must be overcome when garbage cannot be disposed of.

Strain any liquids and bury liquid residue the same as for urine. After straining, wrap solids in several layers of newspaper and store in a plastic garbage bag in a large garbage can with a tight-fitting lid. Keep in an area away from human activity and prevent pets and other animals from getting into it.

Pets

In most cases, pets are not allowed in emergency shelters. Pet owners should make provisions for their animals and include the following items in their basic emergency preparedness kit:

- Portable kennel (which can be used to store everything else listed here)
- Two week's supply of food – if canned, include a manual can opener
- Two week's supply of water → 30ml per kg of pet weight per day. For example, a 10 kg (22lb) pet needs 300ml (11oz) water per day
- Combination food and water dish
- Collar, chain, leash or harness
- Pet health and vaccination records
- Extra identification tags
- Blanket
- Basic first aid kit
- Plastic bags to collect and dispose of pet waste

Your pet is not able to fend for itself in the event of an emergency. Where possible keep your animal with you, a confused pet may behave abnormally and your voice and actions should project reassurance and calm.

If you must leave your pet in the house, fill the bathtub and/or sinks with fresh water and leave plenty of food in an accessible area.

An animal left in a car (not advisable during hot or sunny weather) must have adequate water, shade and ventilation.



Information on this page courtesy of the BC Veterinary Medical Association

Comfort Kits

A major disaster could cause you to spend several hours in your car or may force you to stay at work. On these occasions you will want to have the supplies you need to make that time as comfortable as possible.

Car Comfort Kit

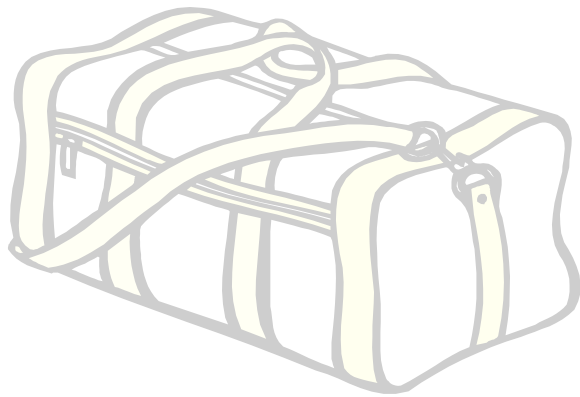
You can assemble or purchase a comfort kit for your car. Try to keep your gas tank at least half full at all times. If you are unable to drive home, a car comfort kit could turn your car into a comfortable temporary shelter. Plan your food & water rotation for spring and fall: during the winter you should have foodstuffs that are not damaged by freezing and in summer have things that aren't damaged by heat.

- A large, sturdy backpack, preferably one with padded shoulder straps
- Snack-type, nutritious foods – dried fruits, nuts, granola bars, crackers, seeds, jerky
- Bottled water – at least 1 ½ gallons
- Small first-aid kit, including personal medications
- Pre-moistened towelettes
- Out of province contact card(s), phone & address book
- A small amount of cash including coins; phone credit cards
- Large Ziplock bags, toilet tissue and newspaper
- AM/FM radio and extra alkaline batteries
- Local maps and compass
- Photographs of loved ones
- Deck of cards and good book
- Extra clothing
- Warm blanket
- Flashlight and extra alkaline batteries
- Comfortable, sturdy walking shoes and socks
- Heavy leather work gloves
- A whistle – 3 short blasts is the recognized signal for help
- Tube tent
- Utility knife
- A hard hat
- A supply of dust masks
- Fire extinguisher
- Flares and matches or warning light
- Shovel
- Sand / salt / kitty litter; traction mats
- Tow chain or rope
- Rags and/or paper towel
- Ax / hatchet
- Booster cables
- Ice scraper & brush
- Methyl hydrate to de-ice fuel line & windshield

Grab and Go Bag (Work)

A grab and go bag, similar to the car comfort kit, could turn your work place into a temporary shelter. Take the responsibility to provide yourself with this kit. Assemble a grab and go bag using the following guidelines:

- A large, sturdy backpack, preferably one with padded shoulder straps
- Snack-type, nutritious foods – dried fruits, nuts, granola bars, crackers, seeds, jerky
- Bottled water – at least 1 ½ gallons
- Small first-aid kit, including personal medications
- Pre-moistened towelettes
- Out of province contact card(s), phone & address book
- A small amount of cash including coins; phone credit cards
- Large Ziplock bags, toilet tissue and newspaper
- AM/FM radio and extra alkaline batteries
- Local maps and compass
- Photographs of loved ones
- Deck of cards and good book
- Extra clothing
- Warm blanket
- Flashlight and extra alkaline batteries
- Comfortable, sturdy walking shoes and socks
- Heavy leather work gloves
- A whistle – 3 short blasts is the recognized signal for help
- A supply of dust masks



Safety During a Disaster / Evacuation



Earthquake Safety

Violent ground motion and loud noise frequently accompany earthquakes. When they occur, the instinct is to run. Most injuries happen as people run in or out of buildings. Instead of running: **DROP**, take **COVER** under anything sturdy, and **HOLD** on until the shaking stops.

If indoors:

- Immediately move to your safe place. Take cover under a heavy table, desk or any solid furniture and hold on. Remember, **do not run**.
- Stay away from tall bookcases, glass, fireplaces, and windows –anything that may fall or break and hurt you.
- If you can't make it to cover, crouch near an interior wall and protect your head & neck with your arms (pillows, blankets, coats, whatever). Avoid doorways since doors may slam and cause injuries.
- Remain in your safe place until all ground movement stops

In your car: stay in your car. Move to the shoulder of the road and away from power lines, trees and tall buildings as quickly as is safe. If you are under an overpass, try to move from underneath it. If you are in front of an overpass, be aware of people behind you and move to give them room. If you leave your vehicle afterwards, leave a note indicating your name/names, condition and destination. If power lines come down on your car, stay inside and wait to be rescued.

Outdoors: stay outdoors. Try to duck cover and hold. Get under a picnic table, bus bench, etc. Move away from brick walls, power lines, trees and chimneys.

If in a hotel: keep shoes under the bed, clothes close by. Consider travelling with a battery-powered radio and flashlight and extra batteries. Identify the safest place in your hotel room to take shelter; read all safety material provided in your room and note the emergency exits on your floor. Don't use elevators. If you're in an elevator, hit the button for every floor and get out as soon as you can.

If you are in a crowded public place: try to take cover where you won't get trampled. If you are inside, don't run outside where you may be hit by falling debris. Sidewalks next to tall buildings are particularly dangerous. In shopping centres, try to take cover in the nearest store. Keep away from windows, skylights and display shelves laden with heavy objects.

If at school: get under a desk or table and hold on. Face away from windows.

If on a bus: stay in your seat until the bus stops

Wherever you are, expect the ground or floor to move violently. Take cover. If you can't take cover, sit down in a crouched position and protect your head and face from falling debris and splintering glass. Remain in a protected place/position until the shaking stops. Expect aftershocks – they may occur for some time after the initial quake.

Elderly / Disabled People

- If you are able, move to one of the pre-identified safe areas.
- Stay away from tall furniture, mirrors, and glass windows.
- If you are unable to move quickly and safely, stay where you are and cover your head and body with pillows, blankets, magazines – anything you can reach to protect your head from falling objects
- If in a wheelchair: stay in the chair. Move to a safe place away from glass, tall bookcases, etc. Lock the wheels and cover your head with your arms to protect yourself from falling debris



Flood Safety

Vacate your home when you are advised to do so by local emergency authorities. See *the section on Evacuation, page 29*. Once flood waters have receded you must not live in your house until every flood-contaminated room is thoroughly cleaned, disinfected and dried. You should not use tap water or toilet facilities until they are inspected and officially declared safe for use. For more information, refer to the Self-help Advice

booklet: Floods; available from the Safe Guard Secretariat (see the Additional Resources section at the end).



Forest Fire / Interface Fire Safety

Vacate your home when you are advised to do so by local emergency authorities. See *the section on Evacuation, page 29*.



Landslide / Avalanche Safety



Severe Storm Safety

Generally speaking, staying indoors during a severe storm is your safest bet and if you're outdoors, take shelter where you can find it.

Thunderstorm: take shelter in a building or depressed area such as a ditch or culvert – don't go near trees, especially lone ones. If swimming or in a boat, get to shore as quickly as possible.

Hail storm: take shelter in a building or under something solid.

Blizzard: take shelter where you can. Visibility can be virtually zero and you may easily lose your way. If you must travel during a snowstorm, do so during the day and let someone know your route and expected arrival time.

Rain storm: if outdoors, take shelter on higher ground in case of flash-flooding.

Tornado: take shelter in the basement or a small, interior, ground floor room like a bathroom or closet. If you live in a mobile home, take shelter elsewhere. If you are outdoors or travelling, take shelter in a ditch or culvert: lie flat and protect your head from debris.

During and After an Emergency

- Try not to panic.
- Check yourself and others nearby for injuries – administer first aid. Do not move the seriously injured unless absolutely necessary.
- Stay off the telephone unless you have to report a serious, life-threatening emergency. Ensure the receiver is in its cradle.
- Place a HELP sign in your window if you need assistance or an OK sign if everything is OK.
- Listen to your battery-powered radio (or car radio) for instructions from emergency officials.
- Put on sturdy shoes and protective clothing to help prevent injury from debris, especially broken glass. Leather work gloves, dust mask, and hard hat are also a good idea.
- Check for fires. *See the section on Fire Safety, page 39*
- Use a flashlight. **DO NOT** light a match or turn on a light until you are sure there are no gas leaks or flammable liquids spilled.
- Check the natural gas, electricity, and water. Shut them off if necessary. *See the section on shutting off utilities, page 32*
- Do not flush toilets if you suspect sewer lines are broken. *See the section on Sanitation, page 22*
- Check your immediate area for danger, including broken glass, spilled chemicals, or things that were shifted and may easily fall. Open closets and cupboards carefully as objects may fall out.
- Carefully clean up any spilled materials. *See the section on Toxic Substance Safety, page 40*
- Check your home for structural damage and other hazards. If you suspect your home is unsafe, do not re-enter.
- If you have to leave your home, take your evacuation pack and other essential items with you. *See the section on Evacuation, page 29*
- Do not use your vehicle except in extreme emergency or unless told to do so by emergency officials. Keep roads clear for rescue and emergency vehicles.
- Do not attempt to get out of your car if downed power lines are across it. Wait to be rescued.
- Stay at least 10 metres away from downed power lines.
- Avoid waterfront areas in case of a tsunami. If a tsunami warning is issued, follow evacuation instructions immediately.
- If you have any pets, try to find and comfort them. *See the section on Pets, page 23*
- Check on your neighbours after looking after the members of your own household. *See the section on Community and Neighbourhood, page 41*
- Don't go sightseeing.

Elderly / Disabled People

- Use your flashlight or whistle to signal for help if you need it. Remember that your helper will be coming to assist you.
- If it appears evacuation will be necessary, begin to gather the medications and other supplies needed to take care of yourself.

Evacuation

In the event of major devastation or threat to your home, you will need to be prepared to evacuate quickly and efficiently. By planning and practicing what to do before you need to, you will help yourself and your family to react correctly and instinctively at the first sign of danger.

If you are told that you need to evacuate immediately, you will have little time to think about what to do.

List the *MOST* important items to be taken with you, and *only* those that can be hand carried:

List other items in order of importance:

List items to be removed by car or truck if one is available:

Make a list of things to do if time permits. For example, locking the doors and windows, turning off the utilities, etc.

- Vacate your home when you are advised to do so by local emergency authorities. Ignoring such a warning could jeopardize the safety of your family and those people who might eventually have to come to your rescue.
- Make arrangements for your pets.
- When you leave, take your emergency survival kit with you and lock your doors and windows.
- Leave a note informing others when you left and where you went. Leave this note in your mailbox if you have one.
- Should time allow, and you haven't already done so, turn off the electricity and natural gas to your home. Take other home-safety precautions as indicated in the *Protecting Your Home* section.
- Follow the routes specified by officials. Don't take shortcuts ... they could lead you to a blocked or dangerous area.
- After leaving, register with the designated reception centre so that you can be contacted and reunited with your family and loved ones.

Protecting Your Possessions

There is a great deal of information and advice available regarding safeguarding household contents against earthquake damage. Some of that will be presented in more general terms because many of the suggestions can also protect your possessions, to some extent, from thieves and/or looters. When making decisions about securing certain objects, bear in mind that you may have identified them as things you want to take with you if you have to evacuate – if it's bolted to the wall, you may not have enough time to get it unbolted before you have to leave.

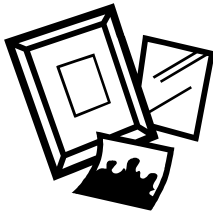
Discussion of household cleaners, paints, solvents, etc. is deferred to the section on *Toxic Substance Safety* (page 40).

Insurance

- Review your household insurance and make sure it covers the specific disasters you may face.
- Store important receipts in a fireproof safe or safety deposit box.
- Take photographs or videotapes of all valuable items as documentation for insurance claims.



Irreplaceable Items



We all have things that would be difficult or impossible to replace. Identifying them ahead of time allows you to determine means of safeguarding them from a potential disaster.

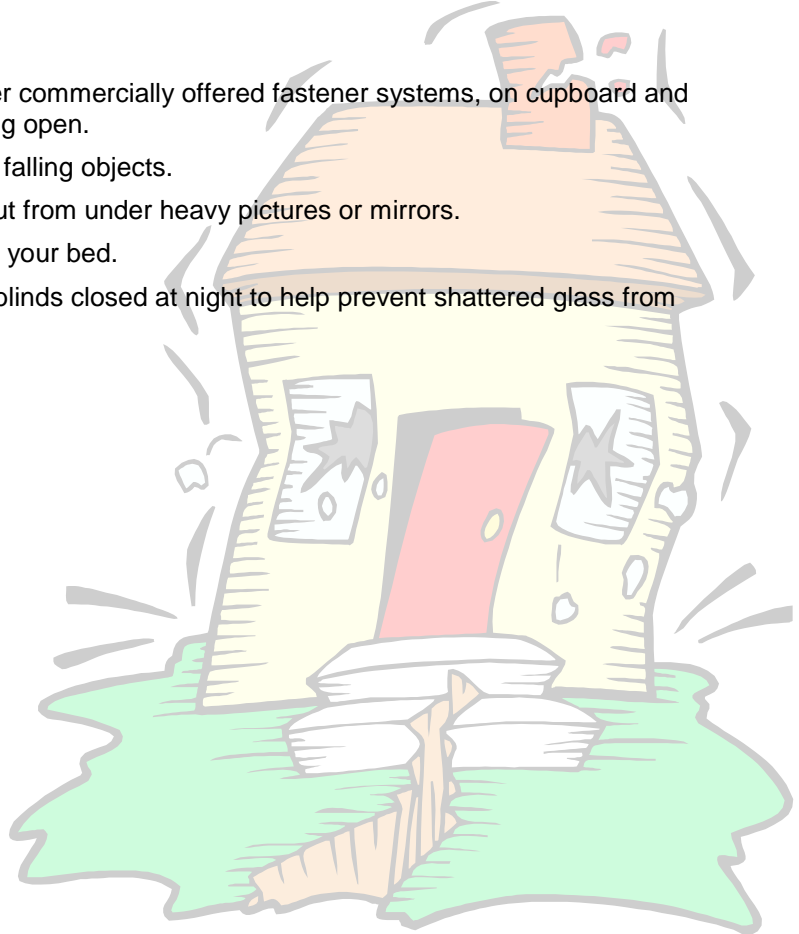
Photographs are often the most cherished possessions. You can make copies of your favourites and store them or give them to an out-of-area friend or relative for safekeeping. You can also scan them into a computer and store the electronic files offsite.

In General

- Secure electronic equipment (e.g. television, stereo, computer, etc.) to cabinet or shelf top or to wall studs. You can use hooks, brackets, wire or commercial fasteners and hardware.
- To protect other items on shelf and counter tops, such as kitchen appliances, answering machines, sewing machines, etc., secure them with anti-skid mats, self-stick Velcro or other similar products.
- To protect art objects, secure with “sticky wax”, a special product used by museums to secure artifacts to display stands (check at an art supply store), double-sided tape, or fine fishing line wrapped around the object and tied to an eye screw in the wall. Museums also specially build mounts (internal and external) to secure items which can be damaged by sticky wax, tape or anti-skid mats. For specific advice, contact the “Exhibits” director at any of the large museums in Vancouver or Victoria.
- Thread the wire of picture frames and mirrors through security hooks, closed hooks or eyebolts rather than hanging them on open hooks. Where frame damage is not a concern, secure these items by placing angle screws on their top and bottom or by securing them with wire to an eyebolt screwed directly into a wall stud. Velcro may also be used to secure pictures, mirrors, wall clocks, and other items to the wall.
- Use screws or bolts to secure hanging plants and other hanging objects into ceiling joists. Secure these objects by closing the opening in their hook with a lock wire.
- Securely mount and brace light fixtures to ceiling joists.
- Protect large windows with a window coating or security film to prevent glass from flying into the room when it is broken.

Earthquakes

- Secure tall, freestanding furniture, such as bookcases, china cabinets, and shelving units to the wall studs using “L” brackets, corner brackets, or anodized aluminum moulding.
- Appliances on castors/glides may move about – lock the wheels or place a wedge under the front wheels.
- Wood-burning stoves must be freestanding so are unsupported and vulnerable to sliding or overturning – check with the manufacturer about bolting it to the floor.
- Ensure hanging plants and lamps can’t swing close enough to a window to break it.
- Install a wooden or metal guardrail on the front edge of shelving to help keep books and other items from sliding off.
- Place heavy objects on lower shelves.
- Install nylon childproof latches, or other commercially offered fastener systems, on cupboard and vanity doors to prevent them from flying open.
- Make sure exits will not be blocked by falling objects.
- Move beds away from windows and out from under heavy pictures or mirrors.
- Keep a pair of shoes or slippers under your bed.
- Consider keeping shutters, drapes or blinds closed at night to help prevent shattered glass from spraying into the room.

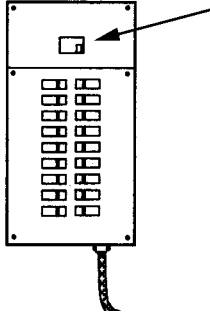


Protecting Your Home

Utilities

Identify the locations of all utilities and make sure all family members know their locations and how each is shut off. If flooding is imminent, it is recommended that all utilities be shut off.

Electricity



Teach all responsible family members how to shut off the electricity by flipping the main switch. Locate the electricity circuit box and label its location and the main switch.

During an earthquake, house electrical wiring may be damaged thus creating a fire hazard. Appliances and equipment that are normally “on” may be damaged or have fallen. Electrical sparks have the potential of igniting natural gas if it is leaking.

In case of flooding, shutting off the power is essential. You must be standing on dry ground or a dry platform when you do this and you should use a non-conductive, dry material like a wooden stick (e.g. broom handle) or special, insulated tool.

Although the restoration of electricity following a power outage is unlikely to cause voltage surges that damage stereo and computer equipment, you may consider unplugging these from the wall as an added measure of safety (even if you have surge protectors).

Water

Water can very quickly become a precious and rare commodity following a major disaster. It is important that all family members learn how to shut off the water for two reasons:

1. The normal supply of water to your home will likely be disrupted or perhaps become polluted because of broken or cracked lines. It is wise to shut off the water supply until you hear from the proper authorities that it is safe for drinking.
2. Shutting off the water will trap the water that is in the hot water heater and toilet tank. Not shutting the water off may allow it to flow out of these appliances and back into the main water lines.

Locate the shut off valve for the water main that enters the house. Make sure that the valve can be completely shut off. Valves that have not been recently turned may be rusted open or they may only partially close. Replace any faulty valves. Label the valve with a large tag and ensure all family members know where it is located.

Turning off the water at the water meter, usually located in a cement box, is not recommended because of the difficulty in turning the valve.

Natural Gas

It is vital that you and all your family members know where the gas meter is located and know the proper procedures for turning the gas off. You should keep a 12" to 16" crescent wrench in a nearby location and use it only for emergency shut off of the natural gas valve. Once gas has been shut off, only qualified service personnel can turn it back on.

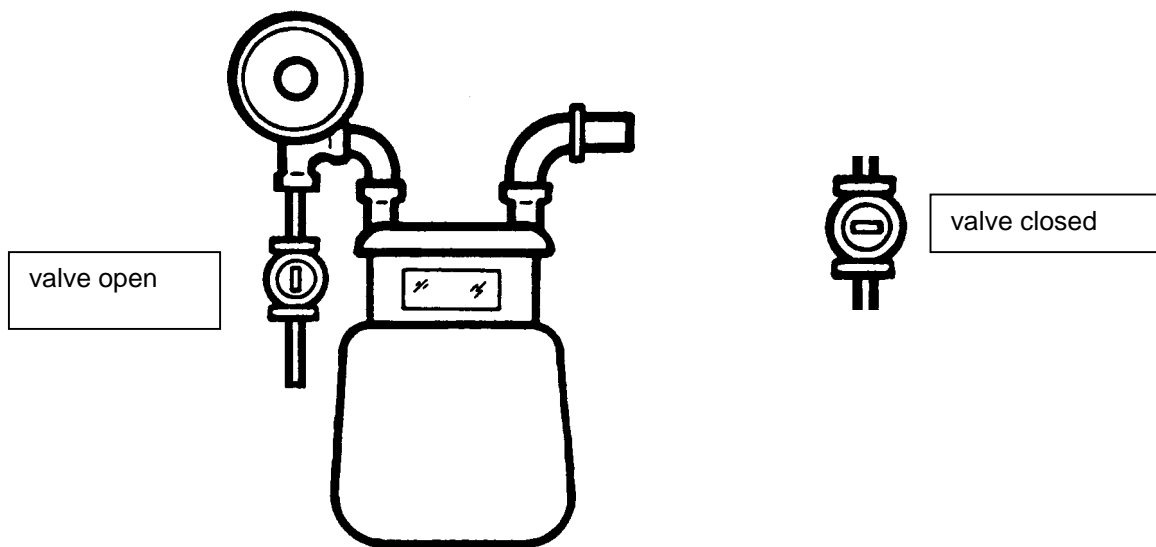


In case of flooding, shutting off the natural gas is essential. If floodwaters reach the vent on the underside of the pressure regulator, the water will damage it and the regulator will not function safely (it will have to be replaced prior to gas service being reactivated.)

In case of heavy snowfall, it is important that snow be cleared away from the pressure meter area. The regulator vent must remain clear and open in order to function properly.

Natural gas leaks and explosions are responsible for a significant number of fires following a major disaster.

- Until you are sure no gas leaks exist, *DO NOT* use matches, lighters, open flames and appliances or operate any electrical switches – not even a light switch!
- If you smell the characteristic warning odour of gas *and/or* you notice a large consumption of gas being registered on your gas meter, immediately shut off the gas meter by turning the shut-off valve in either direction to stop the flow of gas through the inlet pipe.



Get everyone out of and away from the house. Open the windows and doors to provide ventilation (but don't use an electric garage door opener.)

- If your appliances or equipment have been damaged, especially the vent, you can shut off the gas at the valve for that appliance. In the **off** position, the handle of the valve is at a right angle to the pipe.

Protection Against an Earthquake

Although most Canadian houses are built of wood, the construction methods, materials, and details used often defeat the inherent earthquake resistance of the wood frame. To successfully resist seismic forces, a house has to be attached to its foundation and its structural components have to be tied together. These details are essential in order to limit damage in an earthquake; however, they are often overlooked in contemporary houses and are rarely found in older ones.¹ The BC Building Code contains no specific structural design requirements pertaining to seismic design for Part 9 buildings (which covers small residential buildings including single family, duplex and row housing/townhouse units.)

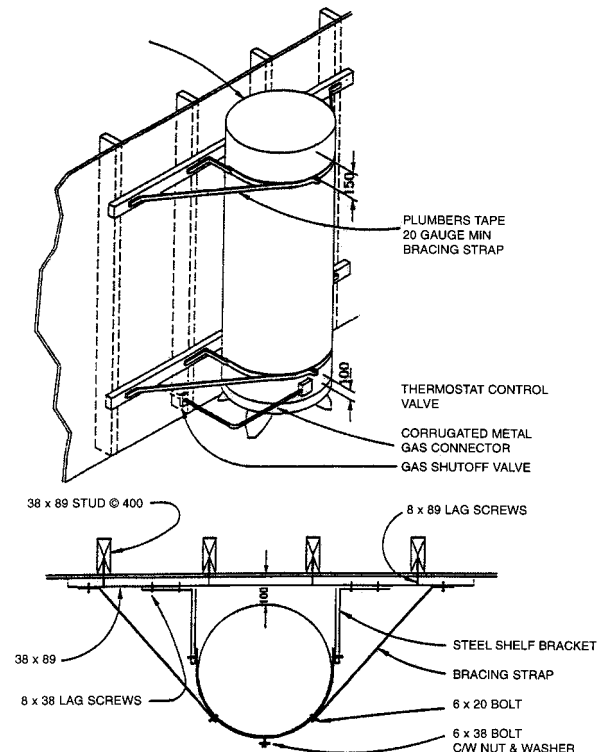
The Canada Mortgage and Housing Corporation (CMHC) has published a book, *Residential Guide to Earthquake Resistance*, that provides extensive information, systematic inspection and assessment worksheets, and detailed construction information for seismic upgrading. Many of the upgrade recommendations are within the ability of a home handyman to perform. CMHC has also produced a video, *Is Your Home Earthquake Resistant?*. See the Additional Resources section at the end for information on how to get these resources.

At a minimum, the following upgrades should be considered:

1. Ensure that your **water heater is secured against falling over**; either by strapping it to the wall studs or overhead floor joists. In addition, the copper water supply lines should be replaced in part or total with flexible connectors. Likewise the natural gas connection if the water heater is a gas model.

It's the second, wider-angle strap that provides the additional necessary support.

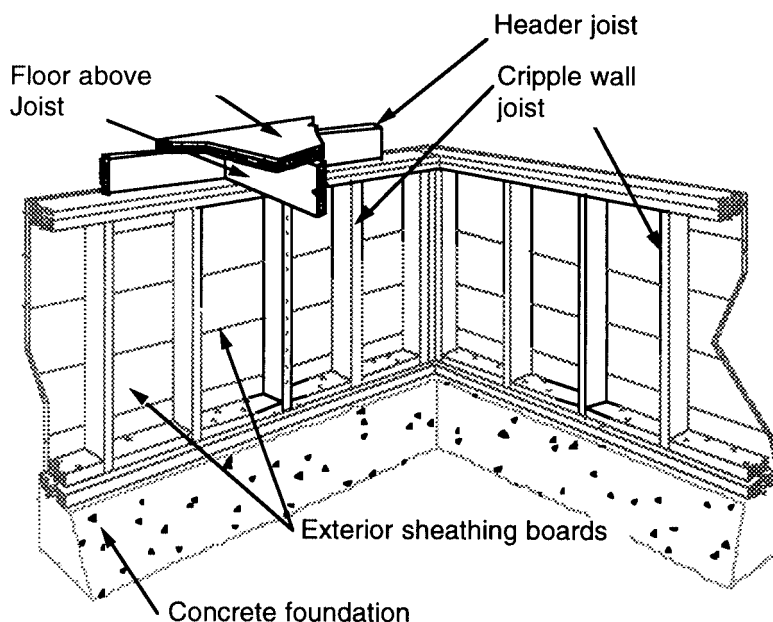
Diagram courtesy of CMHC.



2. Ensure that your **home is properly bolted to the foundation** to prevent it being rocked off the foundation by the strong, lateral forces of the earthquake.

¹ *Residential Guide to Earthquake Resistance*, CMHC, 1998, p. 4

3. Ensure that **cripple walls are adequately braced** either by cross bracing or plywood sheathing on the inside. Cripple walls are the exposed stud walls between the concrete foundation and the first floor of the house. *Diagram courtesy of CMHC.*



4. Ensure **loose roof tiles and chimney bricks are repaired**. Bracing the chimney and reinforcing the roof against damage due to chimney collapse should also be considered.
5. Inspect all large **plate glass windows** to make sure they are safety glass. Consider adding a safety film to all windows. This does not prevent the window from breaking, but it does keep the glass from falling and injuring loved ones.

Protection Against a Flood

When there is immediate danger of flooding, shut off the electricity and natural gas. *See the section on shutting off utilities, page 32*

Special precautions should be taken to safeguard or minimize damage to electrical, natural gas or propane heating equipment. If there is enough warning time, consult your supplier for instructions on how to proceed.

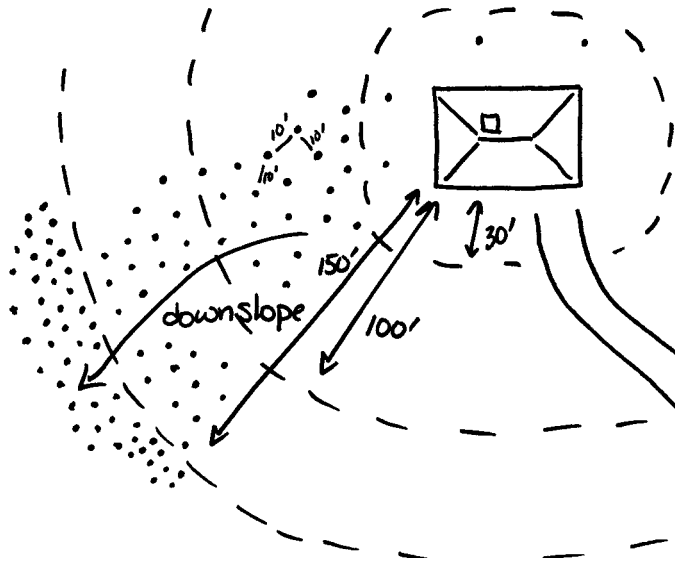
- Move furniture, electrical appliances and other belongings to floors above ground level.
- Remove such toxic substances as pesticides and insecticides from the immediate area to prevent pollution.
- Remove basement toilet bowls and plug basement sewer drains and toilet connections with a wooden plug.
- Disconnect eavestroughs if they are connected to the house sewer.

In some cases, homes may be protected by using sandbags or polyethylene barriers. For specific instructions, contact the Provincial Emergency Program (see Additional Resources section at end) and request the booklet: *Flood Proofing Your Home*.

This PEP booklet also contains additional important information for homeowners threatened by flooding (including anchoring your propane tank so it doesn't float away.)

Protection Against a Forest Fire / Wildland Interface Fire

During a forest fire, vegetation is fuel, and so is your house, if the fire gets to it. The first line of defense is to clear back and thin out trees and brush. The second line of defense is to use fire safe building materials and construction techniques.



Property:

Fires race uphill so additional effort is required on the down-slope side.

Thin trees to leave 3 metres (10 ft) of separation between trees – remove dead or highly flammable trees first.

- On level ground, thin stands of trees within 2 tree heights of your house – minimum 30 metres (100 ft).

- On sloping ground, thin down-slope stands of trees to a greater distance from your house: the steeper the slope, the greater the distance.

Remove trees and brush growing under taller trees.

Prune trees to remove branches within 2.5m (8 ft) of the ground.

Regularly perform general cleanup, removing logs, needles, leave, twigs and shrubs that encourage fire to spread on the ground. Keep firewood and debris at least 10 m (30 ft) from your house and not on the down-slope side.

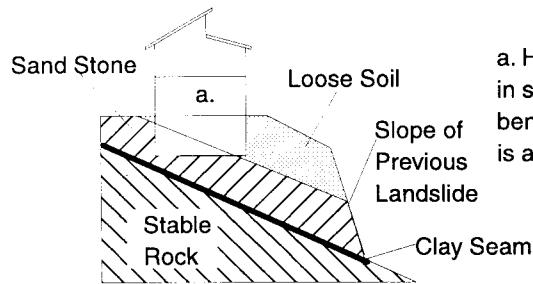
House:

- Use fire resistant roofing and siding material.
- Clear over-hanging branches, needles and other combustible debris from roof.
- Construct balcony and deck surfaces of non-combustible or fire-retardant materials.
- Clear combustible material within 3m (10 ft) of propane and natural gas tanks.
- Maintain a 3m (10 ft) clearance between branches and power lines.
- Keep a garden hose and nozzle permanently connected.

For more complete information, contact the Ministry of Forests and request the pamphlet: *How to make your forest home and property Fire Safe* (see Additional Resources section at end for address).

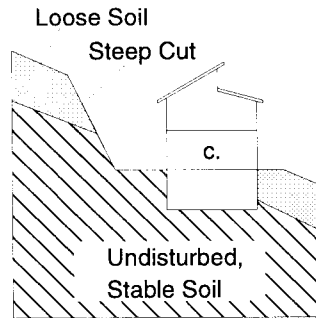
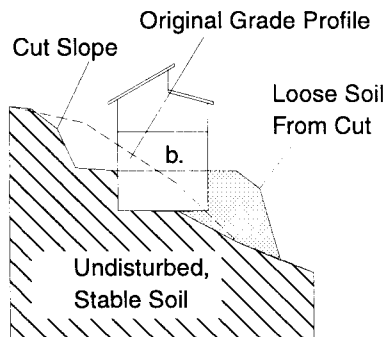
Protection Against a Landslide / Avalanche

Learn about your local geology and specifically of the area around your home site - this can help you identify landslide risk. Consider moving if your home is in a high-risk area.



a. House's foundation is embedded in stone, but there is a clay seam beneath it. Evidence of previous landslides is a clue to the existence of risk.

b. House is partially supported by loose soil taken from the grade cut, which may slip.



c. House is supported by stable ground, but there is a risk of loose soil sliding into the house.

In examples b. and c. there is potential for limiting damage through structural support for house and property – consult an engineer for professional advice. *Diagram courtesy of CMHC.*

In addition to engineered retaining wall systems to stabilize and/or contain steep slopes, other options may exist such as lines of trees and specific vegetation, steel netting, etc.

If you live in an area where there is avalanche risk, talk to the local authorities about controlled avalanche triggering similar to what is done in ski/winter resort areas.

Protection Against a Severe Storm

Learn about the type of storms common to your area and the time of year they are likely to strike. Thunderstorms and tornadoes can form suddenly in hot, humid weather. Most other storms can be predicted at least a day in advance, allowing time for additional preparations.

- Prune dead or rotting branches and cut down dead trees to reduce the danger of these falling on your house. Contact BC Hydro to have tree limbs removed around power lines.
- Ensure the exterior of your house is in good repair: no loose roof tiles, chimney and other masonry in good shape, eavestroughs cleared of debris and connected to downspouts.
- Check the drainage around your house to reduce the risk of basement flooding after a heavy rain.
- Secure items that might be blown around or torn loose.
- Put your car and other items in the garage to protect against hail damage.

Power Outages

Most power outages last for only a few moments and are usually localized. In disaster situations, the power can be disrupted over a large area and the outages can last for days. In these situations, specific precautions should be taken to protect your home and possessions when the power is restored. Also follow these steps if you have turned off your main switch and are ready to reconnect.

- Disconnect all electrical heaters and appliances to reduce the initial demand when the power is restored. Turn down the thermostat.
- Unplug any heat-producing appliances (e.g. coffeepot, iron) in order to reduce the fire danger if you are away when the power is restored.
- Turn off anything else that was in use when the power went off but leave one lamp on so you'll know when power is restored.
- If the outage was less than 4 hours, turn on only the most essential appliances and wait 10 to 15 minutes before reconnecting others.

If an extended power outage occurs during winter, you may want to take special precautions with your **plumbing**. Details are included in the *Winter Power Failures* article on the Safeguard Secretariat website:

<http://www.safeguard.ca/english/index.html>

Mobile Homes

It is relatively easy for a mobile home to be thrown off its supports during an earthquake, or lifted off during a flood. As well, special care must be taken to protect it in the event of severe storms.

- Leave the wheels on the coach to limit its fall.
- Check the undercarriage to make sure that it has been securely tied to the foundation – consult the manufacturer for information on secure tie-down systems.
- Tie doublewide mobile homes together. The two halves generally are of different weights. Because of this, they move differently in an earthquake or flood and can easily pull apart.
- Position the home near a natural windbreak such as a hill or clump of trees. As severe storms usually come in from the southwest, west or northwest, the narrow end of your trailer should face in a westerly direction to make a smaller target.

Fire Safety

Having a fire extinguisher handy, and knowing how to use it, may save your home, your possessions and perhaps your life. This is especially true following a major disaster when the fire department will be overwhelmed by a number of calls and may not be able to get to you in time. *However, be smart: knowing when the fire is too big to handle is equally important. Do not endanger yourself or your family by trying to save your home.*

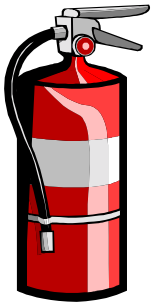
Putting Out Small Fires

- Remove the heat by cooling it – for example, with water
- Remove the air – for example, smother it
- Remove the fuel – for example, shut off the natural gas
- Natural gas fires – First, shut off the gas. Second, put out the fire by using an extinguisher, dirt, or water.
- Electrical fires – First, shut off the electricity. Second, put out the fire by using an extinguisher, dirt, or water. (**CAUTION:** if the electricity cannot be shut off, **DO NOT** use water on the fire.)
- Oil or grease fires – Use baking soda, a lid, a breadboard, or a fire extinguisher to smother the flames. **NEVER** use water on a grease fire!



Fire Extinguishers

Locate your fire extinguishers where they are readily accessible. It is better to have several smaller extinguishers located throughout the house (in the kitchen, garage, and workroom) than to have one large one that may be difficult to reach quickly. This is especially important if your home has multiple floors.



An ABC extinguisher is effective for all types of fires.

- “A” fires involve ordinary combustibles, such as wood, paper, cloth, and many plastics.
- “B” fires come from flammable liquids, such as gasoline, paints, kitchen grease and spills.
- “C” fires involve electrical equipment, such as fires in wiring, motors, appliances, and the fuse box.

Check your fire extinguishers on a regular basis to ensure they are properly charged. Regularly review their operating instructions.

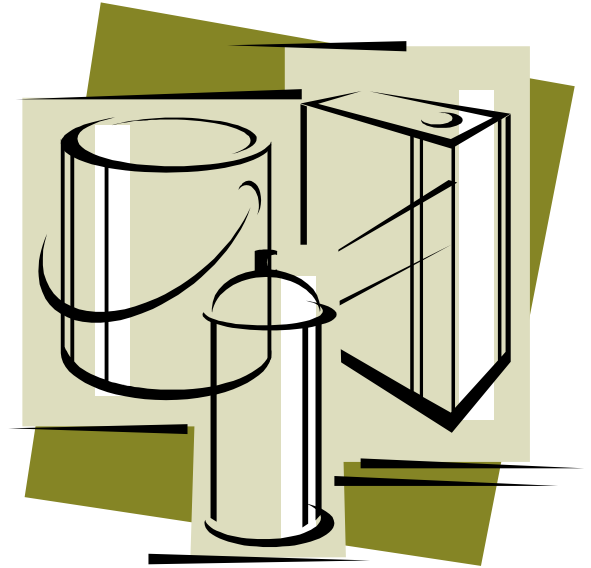
Using a Fire Extinguisher

- Try to remain calm.
- **VITAL:** Keep an escape route open between you and the small fire you are attempting to extinguish. If the fire is large or becomes too large, immediately get out of the house. Close the door on your way out to slow the spread of the flames.
- **Always point the extinguisher at the base of the fire rather than at the top of the flames.**
- Squeeze or press the handle and slowly sweep the fire from side to side until it goes out. Remember, if the fire is too big for you to handle immediately get yourself and your family out of the house. Do not stop to gather anything or to do anything. Seconds can make all the difference.
- Once you are outside, stay outside. Intense heat and toxic fumes can kill you in seconds.

Toxic Substance Safety

Improperly stored chemicals (e.g. household cleaning products, paints, solvents, etc.) can create a secondary disaster following a major disaster. Care must be taken to store these substances properly.

- Keep only those chemicals you need and use on hand. Safely dispose of old or unwanted chemicals. Many Regional Districts have programs to dispose of unwanted chemicals.
- Place pesticides, gasoline, paint thinners, and other chemicals on the floor, on a low shelf, or in a locked cabinet that is securely fastened to the wall. Care should be taken to locate them away from a child's play area.
- If the chemicals must be stored on a shelf, install a guardrail to prevent the bottles or containers from slipping off the shelf and breaking on the floor.
- Chemicals should be stored well away from any water or food storage items and away from the water heater, furnace and/or other heat source.
- Make sure that all container lids are tightly closed.
- Store gasoline for lawn mowers in a vapour-proof container.
- Store ammonia and bleach in different locations. If these liquids mix, they create toxic fumes.



Following a Disaster:

- Though not an immediate priority, you will want to check on the status of your stored chemicals as soon as possible. If they have spilled or their containers have broken, they may pose a threat to children and pets until they are cleaned up.
- Clean spilled chemicals with rags or paper towels that can be discarded. Wear proper hand and eye protection.
- If multiple bottles have broken, try to clean each chemical separately. Place these rags in individual plastic garbage bags. Tie them securely. It is difficult to know the reactions that may take place when chemicals are mixed, so it is best to keep them as separate as possible.
- These individual plastic bags may be put in a larger trash bag and securely closed.
- Label this bag and store it out of the way until it can be taken to a regional disposal site.

Community & Neighbourhood

Neighbourhood Preparedness

Neighbourhoods need to be organized and able to function as a group, independent of any outside help for at least 3 days following a major disaster. Police, fire and ambulance services will be overwhelmed and their staff have families and homes to be concerned about as well. It may be longer before phone, natural gas, water, sewer, and/or electrical services are restored.

Organizing now as a neighbourhood will save precious time immediately following the disaster, reducing the severity of an injury or lessening property damage. Neighbours should begin organizing by determining who will provide the following services:

- Neighbourhood coordinator
- First aid
- Fire suppression
- Light search and rescue
- Damage assessment
- Communication coordination (may include ham radio)
- Child care

Check with your local fire department regarding neighbourhood partnerships already in place. Specific training is available for first aid, fire suppression, search and rescue, and damage assessment. Volunteers in these categories should be encouraged to take the appropriate training.

Basic Search and Rescue

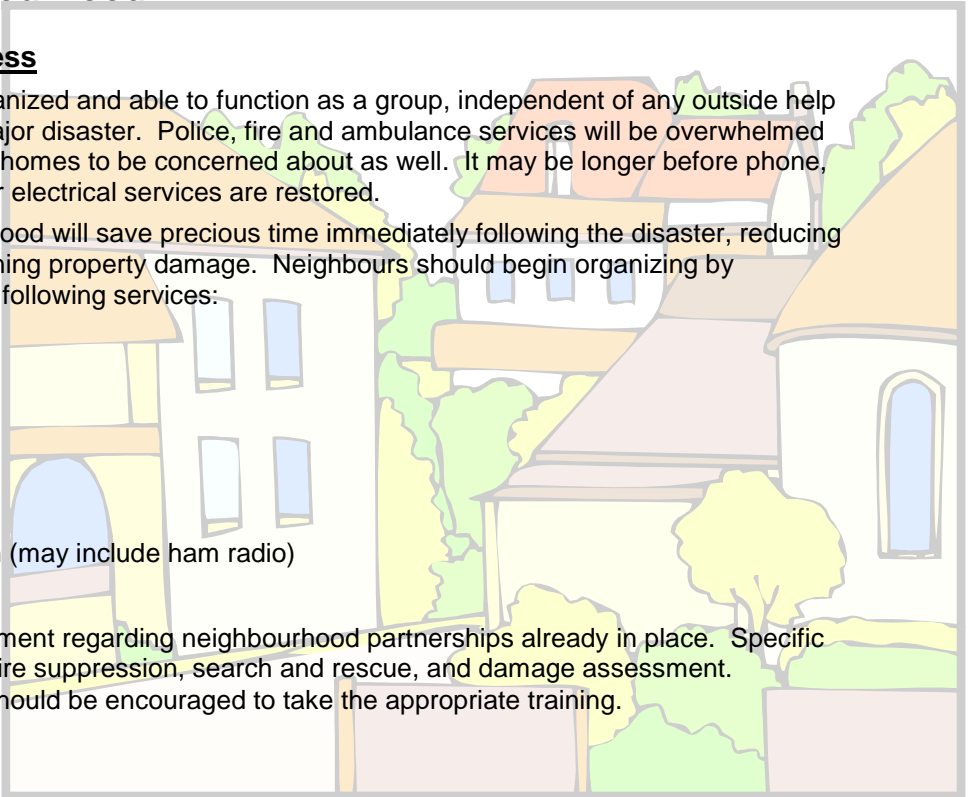
It may be a number of days before any professional help can arrive in your neighbourhood to conduct search and rescue. It will be necessary for neighbours to look out for one another; to assist in rescue and in treating the sick and injured. It is stressed that only trained and properly equipped people should engage in search and rescue activities.

BCAS paramedics have been trained in performing risk assessments while they are on duty. Those same principles should be applied to any disaster situation whether on duty or off duty.

Basic Damage Assessment

Conduct preliminary and updated surveys of damage within the neighbourhood. Report the results of these surveys to the Neighbourhood Coordinator.

- Before going outside, dress properly. Since you may be walking over rubble, sturdy shoes, a hard hat, and leather gloves are essentials. Goggles and a dust mask are good items to carry.
- Within 72 hours after the disaster, conduct a detailed damage survey of the neighbourhood using the following form. Do not go into homes or structures. Observe what you can from the outside.



Preliminary Report

Street Name: _____

Date: _____ Time: _____

- _____ # of severe injuries requiring skilled care
- _____ # of dead
- _____ # of fires
- _____ # of broken gas mains
- _____ # of downed power lines
- _____ # of broken water lines
- _____ # of large cracks in street, driveways, or lawns
- _____ # of uprooted trees
- _____ # of items blocking street, doorways, driveways
- _____ # of homes off their foundations
- _____ # of homes with collapsed walls and/or ceilings
- _____ # of front doors that appear blocked or jammed
- _____ # of broken windows
- _____ # of _____



Reminder: Local authorities will be inundated with calls for assistance. Please help them by reporting only injuries and damage that require immediate, professional assistance.

- Report this information to the neighbourhood communicator.
- If necessary conduct subsequent damage assessments and report the information to the neighbourhood communicator. For example, in the case of an earthquake, additional damage will be caused by after-shocks.
- Report the total number of homes in the neighbourhood sustaining damage to the neighbourhood communicator.
- Remind neighbours to take photos of the damage to their property and to keep their repair receipts for damage assistance applications and insurance claims.

Updated Report

Street Name: _____

Date: _____ Time: _____

- _____ # of severe injuries requiring skilled care
- _____ # of dead
- _____ # of fires
- _____ # of broken gas mains
- _____ # of downed power lines
- _____ # of broken water lines
- _____ # of large cracks in street, driveways, or lawns
- _____ # of uprooted trees
- _____ # of items blocking street, doorways, driveways
- _____ # of homes off their foundations
- _____ # of homes with collapsed walls and/or ceilings
- _____ # of front doors that appear blocked or jammed
- _____ # of broken windows
- _____ # of _____



Additional Resources

General

Provincial Emergency Program: <http://www.pep.bc.ca/index.html>

455 Boleskine Road, Victoria, BC V8Z 1E7 (250) 952-4913

Emergency Preparedness Canada: <http://www.epc-pcc.gc.ca/home/index.html>

Safe Guard Secretariat: <http://www.safeguard.ca/english/index.html>

Canadian Red Cross: <http://redcross.ca/main.htm>

American Red Cross: <http://www.redcross.org/disaster/safety>

Earthquakes

CMHC book: *Residential Guide to Earthquake Resistance*

CMHC video: *Is Your Home Earthquake Resistant?*

These CMHC resources are available for purchase directly from CMHC, call Customer Service at (604) 731-5733. The book may also be available at your public library or through inter-library loan (the Greater Victoria Public Library has 2 copies.)

Floods

PEP book: Flood Proofing Your Home

Safe Guard Secretariat booklet, *Self-help Advice*

FLOODS, on their website:

<http://www.safeguard.ca/english/index.html>

<http://www.ag.ndsu.nodak.edu/flood> North Dakota State University

<http://www.fema.gov/library/floodf.htm> Federal Emergency Management Agency

Forest Fire / Wildland Interface Fire

Ministry of Forests pamphlet: *How to make your forest home and property Fire Safe*

www.for.gov.bc.ca or write: Ministry of Forests, Protection Branch, P.O. Box 9502, Stn Prov Gov't, Victoria, BC V8W 9C1

Severe Weather

Safe Guard Secretariat article, *Winter Power Failures* on their website:

<http://www.safeguard.ca/english/index.html>

