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*Self-Help Advice*

# FLOODS

What to do before and after



Canada<sup>🇨🇦</sup>

This publication was co-produced by the Office of Critical Infrastructure Protection and Emergency Preparedness and Canada Mortgage and Housing Corporation in co-operation with the National Archives of Canada and the Canadian Conservation Institute.

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# FLOODS



**B**eyond the human toll taken in lives and suffering, flood damage costs Canadian taxpayers millions of dollars annually.

Though governments at every level work to reduce the risk of floods, the first line of defence always rests with the individual. Each of us has a responsibility to protect our homes and families to the greatest extent possible. By planning ahead and taking sensible precautions, you can do your part to minimize flood damage.

Flood threats to particular areas can usually be forecast in a number of ways:

- by constant evaluation of rising water tables that result from heavy rain
- through surveys of snow conditions in river drainage basins
- by meteorological observations and forecasts.

Flash or sudden flooding, in which warning time is extremely limited, can result from other causes such as earthquakes, tsunamis or tidal waves, hurricanes, violent storms or bursting of dams.



In all cases, local government authorities try to keep residents informed of developments in areas most likely to be affected by flooding. Regular media advisories will recommend actions people should take to limit or prevent disaster. As the need arises, more detailed instructions by municipal or provincial authorities will be given.

## **BEFORE THE FLOOD**

- **ELECTRICITY**

When there is immediate danger of flooding, shut off all power in your home.

- **HEATING EQUIPMENT**

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.

- **GENERAL PRECAUTIONS**

Ensure that you have a battery-powered radio in working order, with spare batteries, to listen to instructions from your local station.

Prepare an emergency survival kit that includes food, water and medical supplies in an easy-to-carry container. In addition to the battery-powered radio and spare batteries, it should contain at least the following items:

- flashlight with spare batteries

- warm clothing, including waterproof outer garments and footwear
- blankets
- all necessary medication
- infant care items
- personal toiletries
- identification for each member of your household
- any important personal and family documents.

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 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. But this approach requires specific instructions that must be obtained from your local emergency officials.





- **EVACUATION**

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 or those people who might eventually have to come to your rescue.

When you leave, take your emergency survival kit with you.

Follow the routes specified by officials. Don't take shortcuts. They could lead you to a blocked or dangerous area.

Make arrangements for pets.

Should time allow, leave a note informing others when you left and where you went. If you have a mailbox, leave the note there.

If you are evacuated, register with the reception centre so that you can be contacted and reunited with your family and loved ones.

If you are using your car, try not to drive through flood waters. Fast water can sweep your car away. However, should you be caught in fast rising waters and your car stalls, leave it behind. Always consider your safety and the safety of others first.

## AFTER THE FLOOD

**F**ollowing a flood, it is important to restore your home to good order as soon as possible to protect your health and prevent further damage to your house and its contents.

Canada Mortgage and Housing Corporation has prepared the following handy checklist to help you organize your clean-up. However, this information is provided as self-help advice only.

### BEFORE YOU BEGIN

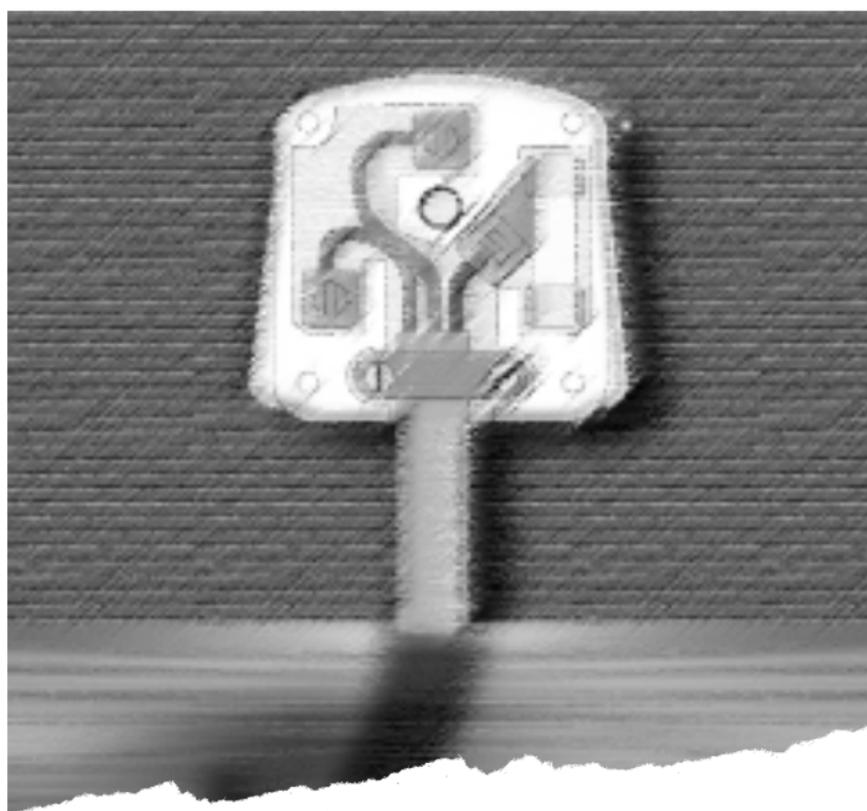
Exercise caution when re-entering your home. Avoid electrical shock by wearing rubber boots in an area flooded with more than 5 cm (2 in.) of standing water.

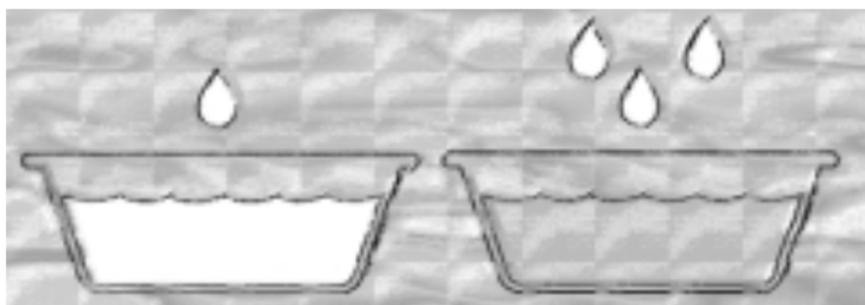
- **ELECTRICITY**

Keep extension cords out of the water. If the power is on in the flooded area, shut it off immediately at the breaker box.

If conditions are wet around the breaker box, stand on a dry board and use a dry stick to turn off the switch.

Consult with your local electrical utility if you require assistance.





- **THE BUILDING**

Make sure the building is structurally safe. Look for buckled walls or floors. Watch for holes in the floor, broken glass and other potentially dangerous debris.

- **WATER**

Flood water can be heavily contaminated with sewage and other pollutants, and pose a serious health hazard. If through taste, colour or odour you suspect that your drinking water has been contaminated, purify it before drinking either by boiling it for 10 minutes or adding purification tablets. If you choose to chlorinate your water with a non-perfumed bleaching compound, add one drop per litre of water, or three drops per litre of cloudy water, and allow it to stand for 30 minutes before consuming.

Household items that have been flood-damaged will have to be bagged, tagged and discarded according to local regulations.





- **EQUIPMENT**

Assemble equipment and supplies, which should include:

- gloves, masks and other protective gear
- pails, mops, squeegees and plastic garbage bags
- chlorine bleach and non-ammonia dishwashing detergent

**(Note:** *Never mix bleach with ammonia since the fumes produced together are toxic.*)

- large containers for soaking bedding and clothing, and lines to hang them until they are dry.

You may also need to rent extension cords, submersible pumps, wet/dry shop vacuums, a carbon monoxide sensor, and dehumidifiers, fans or heaters.

Remember to store all valuable papers that have been damaged in a freezer until they are needed.

Record details of flood damage, by photograph or video if possible. Register the amount of damage to your home with both your insurance agent and local municipality immediately.

## **FIRST STEPS IN CLEAN-UP**

- **WATER DAMAGE**

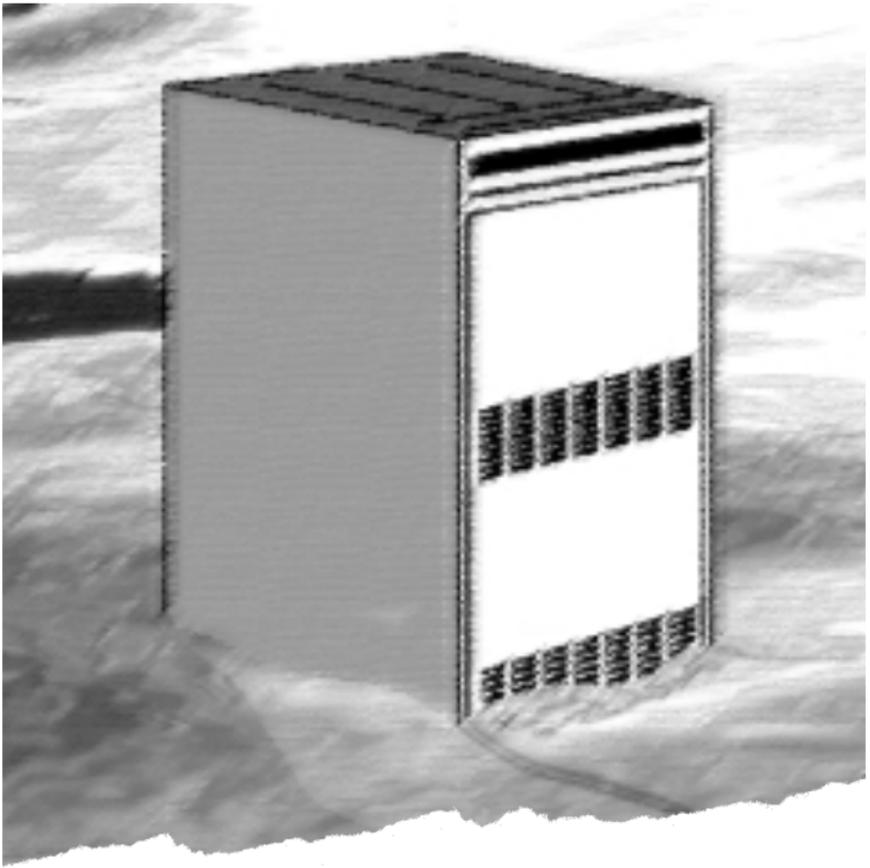
Immediately add about 2 litres of chlorine bleach to standing water.

Do not occupy a house that still contains standing water.

Remove water from your flooded home slowly. Drain it in stages — about a third of the volume daily. If the ground is still saturated and water is removed too quickly, it could cause the walls or the floor to buckle.

Use pumps or pails to remove standing water, followed by a wet/dry shop vacuum to mop up the rest.





For instructions on how to disinfect and restore wells and cisterns, contact your local or provincial health authorities or emergency measures organization.

- **HEATING**

Do not heat your home to more than 4 degrees Celsius (about 40 degrees Fahrenheit) until all water is removed.

If you use gasoline-, kerosene- or propane-powered pumps or heaters, buy and install a carbon monoxide sensor. Combustion devices can produce large amounts of lethal carbon monoxide when out of tune or improperly ventilated.

- **DIRT AND DEBRIS**

Remove all soaked and dirty materials and debris. Break out walls and remove drywall, wood panelling and insulation at least 500 mm (20 in.) above the high-water line. Remove residual mud and soil, furniture, appliances, clothing and bedding.

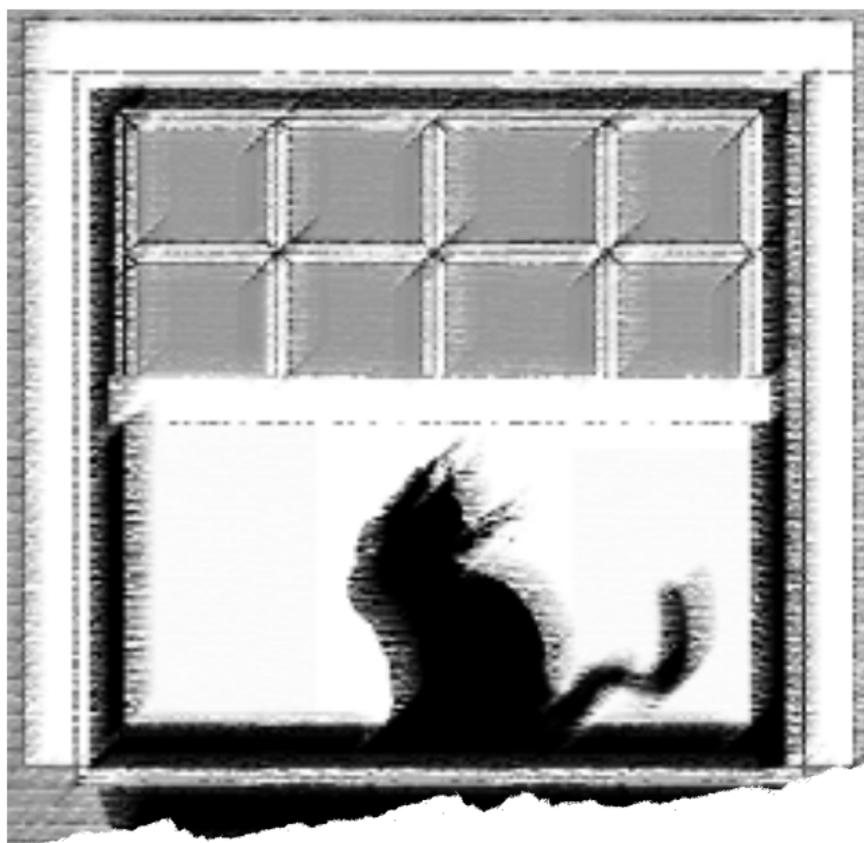
Hose down any dirt sticking to walls and solid-wood furniture. Then rinse several times.

Wash and wipe down all surfaces and structures with chlorine bleach, ensuring there is adequate cross ventilation to remove fumes. Then rinse again. Wear a charcoal respirator (which can be obtained at major safety supply or hardware stores) when using bleach in any closed space.

Wipe down surfaces that have not been directly flood-affected using a solution of one part chlorine bleach to four parts cold or tepid water, mixed with a small amount of non-ammonia dishwashing detergent. Then rinse.

- **STRUCTURES**

Ventilate or dehumidify the house until it is completely dry. Tape clear food wrap to sections of material. If these sections are still damp inside, they will turn darker than the surrounding material. Dry until this does not occur.





Rinse, then clean all floors as quickly as possible. Replace flooring that has been deeply penetrated by flood water or sewage.

Clean all interior wall and floor cavities with a solution of water, chlorine bleach and non-ammonia dishwashing detergent and dry thoroughly.

If regular checks reveal mould, kill it with chlorine bleach. Mould can lead to serious health problems.

- **FLOOR COVERINGS**

Carpets must be dried within the first two days. For large areas, hire a qualified professional to do the job. Carpets soaked with sewage must be discarded immediately.

# **WATER-DAMAGED HEIRLOOMS AND ANTIQUES**

## **GENERAL RECOMMENDATIONS**

Act quickly to prevent further damage. Wet items will be heavy and fragile, so keep them well supported when handling, drying or freezing. Relocate items to a cool, dry location. Books, documents and textiles can be placed in a freezer until they can be properly treated. Consult a conservator before attempting repairs. If items are contaminated with sewage, take proper health precautions (see page 7).

## **DIRT**

Dirty items that are saturated can be rinsed with clean water if they are strong enough to withstand it; exceptions are paper, fragile items, and items with loose parts or soluble paints and adhesives. If items are just damp, let mud dry and then brush it off.

## **MOULD**

Mould is a health hazard; if mould is present, wear a face mask and disposable gloves. To minimize mould growth, move items to a cool, dry area within 48 hours and set up fans. Alternatively, textiles, furs, paper and books can be frozen. Wet mould will smear if wiped; let it dry and then brush it off outdoors. Materials not affected by alcohol can be lightly misted with isopropanol (rubbing alcohol) to kill mould spores.

## **FREEZING**

Freezing can temporarily halt further damage. Freezing is appropriate for books, paper documents, furs and textiles. Gently blot (do not wring) furs and textiles first with towelling to remove excess water; keep them well supported. Place items in individual plastic bags or separate with wax paper to keep them from sticking together when frozen.

## **AIR DRYING**

Most items can be air-dried. Move them to a cool, dry location and set up fans. If drying outdoors, keep items out of direct sunlight.

## **TIPS AND PRECAUTIONS FOR SPECIFIC ITEMS**

*Furs:* Blot gently with towels to remove excess water. Air dry or freeze.

*Textiles:* Rinse till the water runs clear. Air dry, or bag and freeze.

*Upholstered furniture:* Remove cushions and dry separately. Do not remove upholstery. Raise furniture on blocks and place fans underneath.

*Wooden furniture:* Remove drawers and open doors. Do not dry quickly or splitting may occur.

*Books:* Do not squeeze. Fan open and air dry using fans, or freeze.

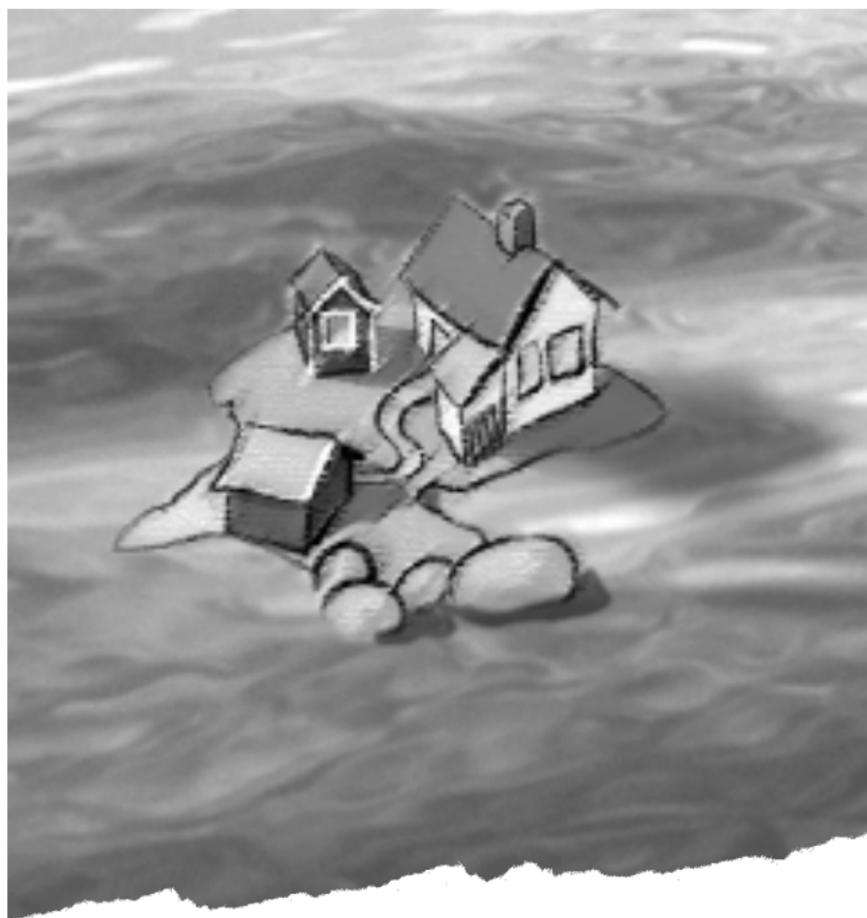
*Framed items:* Unframe and air dry.

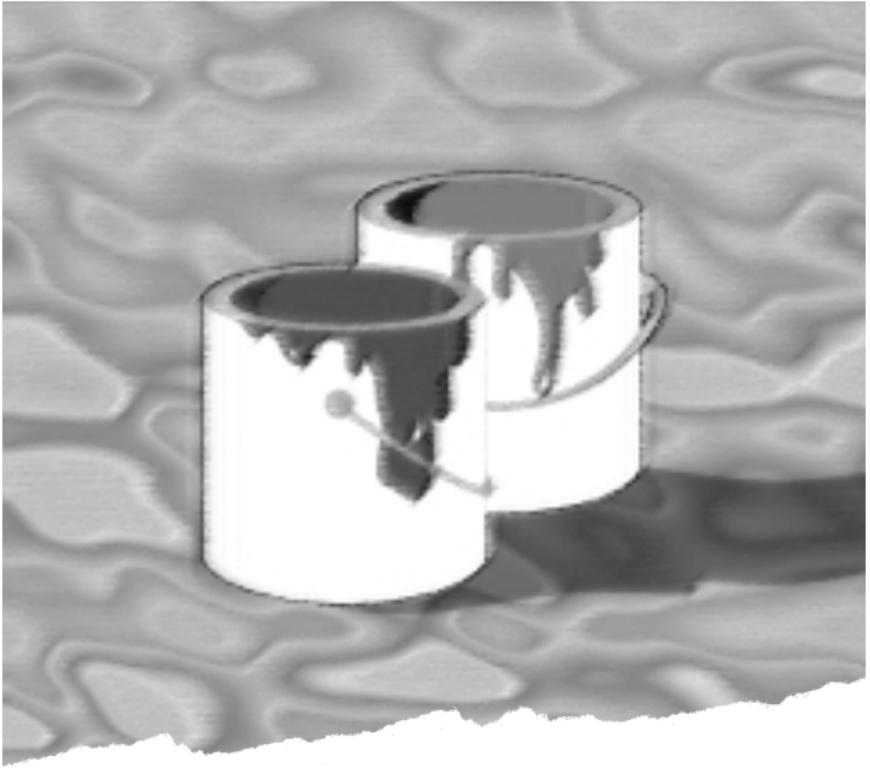
*Glossy paper:* Do not let dry or pages will stick together. Freeze immediately.

*Paintings:* Do not remove canvas paintings from their stretchers. Do not freeze.

*Contemporary photographs, negatives and slides:* Remove from mounts or plastic sleeves and air dry. If stuck together, do not force apart.

*A more detailed version of this section can be found on the SAFE GUARD web site.*





## **WHAT TO KEEP OR DISCARD**

**R**emove and replace all insulation materials and other articles that have been soaked, including particleboard furniture, mattresses, box springs, stuffed toys, pillows, as well as furniture coverings, paddings and cushions.

Frames on high-quality furniture can often be salvaged. However, they must first be cleaned, disinfected and rinsed, then dried by ventilation away from direct sunlight or heat. Drying too quickly can cause warping and cracking.

Scrape heavy dirt from washable clothes. Rinse and wash them several times in cold water treated with one cup of chlorine bleach per washer load, and dry quickly.

Consult your lawyer to determine whether flood-damaged documents or just the information in them must be retained.

The yard area should also be cleared of all debris and refuse, which can provide a breeding ground for bacteria and mould.

Keep children away from contaminated areas during clean-up operations.

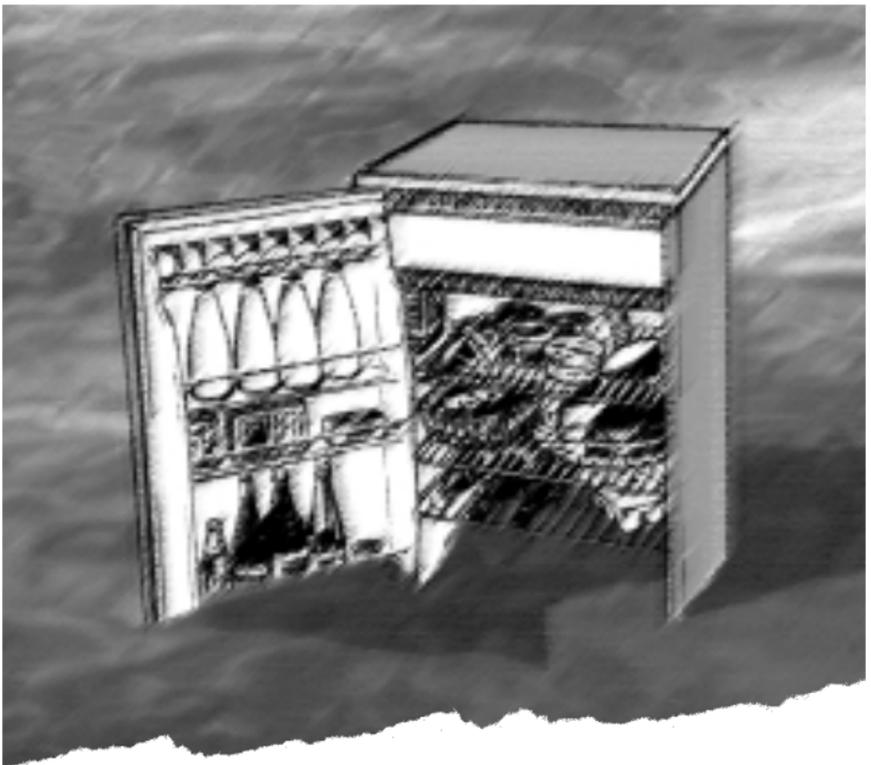
## **BEFORE MOVING BACK IN**

**O**nce the flood waters have receded, you must not live in your house until several steps have been followed:

- the regular water supply has been inspected and officially declared safe for use
- every flood-contaminated room has been thoroughly cleaned, disinfected and surface-dried
- all contaminated dishes and utensils have been thoroughly washed and disinfected either by using boiling water or by using a sterilizing solution of one part chlorine bleach to four parts water; then rinse dishes and utensils thoroughly
- adequate toilet facilities are available. (For more information, consult your local health authority.)

### **HEATING SYSTEMS AND APPLIANCES**

Do not use flooded appliances, electrical outlets, switch boxes or fuse-breaker panels until they have been checked by your local utility.



Whether you use a wood, gas or electrical heating system, ensure that you have it thoroughly inspected by a qualified technician before using it again. If they have been soaked, replace the furnace blower motor, switches and controls. Flooded forced-air heating ducts and return-duct pans should be either cleaned or replaced.

Replace filters and insulation inside furnaces, water heaters, refrigerators and freezers if they have been wet. However, it is often cheaper to replace this equipment.

- **FLOOR DRAINS**

Flush and disinfect floor drains and sump pumps using undiluted chlorine bleach. Scrub them to remove greasy dirt and grime. Clean or replace footing drains outside the foundation when they are clogged. Consult a professional for advice or service.

- **FOOD**

Any of the following food items exposed to flood waters must be disposed of:

- the contents of your freezer or refrigerator
- all meats
- all fresh fruit and vegetables
- all boxed foods
- all bottled drinks and products in jars, including home preserves — since the area under the seal of jars and bottles cannot be properly disinfected
- all medicines, cosmetics and other toiletries.

All undamaged canned goods must be thoroughly washed and disinfected. Any cans with large dents or that reveal seepage must also be disposed of.

(A reminder: Anything that stays wet long enough will grow mould, and mould can make people sick. Dry everything quickly to avoid future health problems.)

For more information on emergency preparedness, please contact the emergency measures organization in your province or territory.

To obtain copies of this or other publications in the self-help series, contact:

**OFFICE OF CRITICAL INFRASTRUCTURE PROTECTION  
AND EMERGENCY PREPAREDNESS**

**Communications**

122 Bank Street, 2nd Floor

Ottawa ON KIA 0W6

Tel.: (613) 991-7035

Toll-free: 1-800-830-3118

Fax: (613) 998-9589

E-mail: [communications@epc-pcc.gc.ca](mailto:communications@epc-pcc.gc.ca)

Internet: <http://www.epc-pcc.gc.ca>

For additional information on cleaning your house after a flood, home repair and renovation contact:

**Canadian Housing Information Centre  
Canada Mortgage and Housing Corporation**

700 Montreal Road

Ottawa ON K1A 0P7

Tel.: (613) 748-2367

Toll-free 1-800-668-2642

Fax: 1-800-245-9274

E-mail: [chic@cmhc-schl.gc.ca](mailto:chic@cmhc-schl.gc.ca)

Internet: <http://www.cmhc-schl.gc.ca>

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SAFE GUARD is a national information program based on partnerships and aimed at increasing public awareness of emergency preparedness in Canada.

The SAFE GUARD program brings together government, private organizations and voluntary agencies that are part of the emergency preparedness, response, recovery and mitigation community.

The triangle depicted in the program logo is the international symbol of emergency preparedness. The jagged line evokes the maple leaf, Canada's internationally recognized symbol. The amber yellow colour represents caution and warning.

**SAFE GUARD** is an Office of Critical Infrastructure Protection and Emergency Preparedness program.