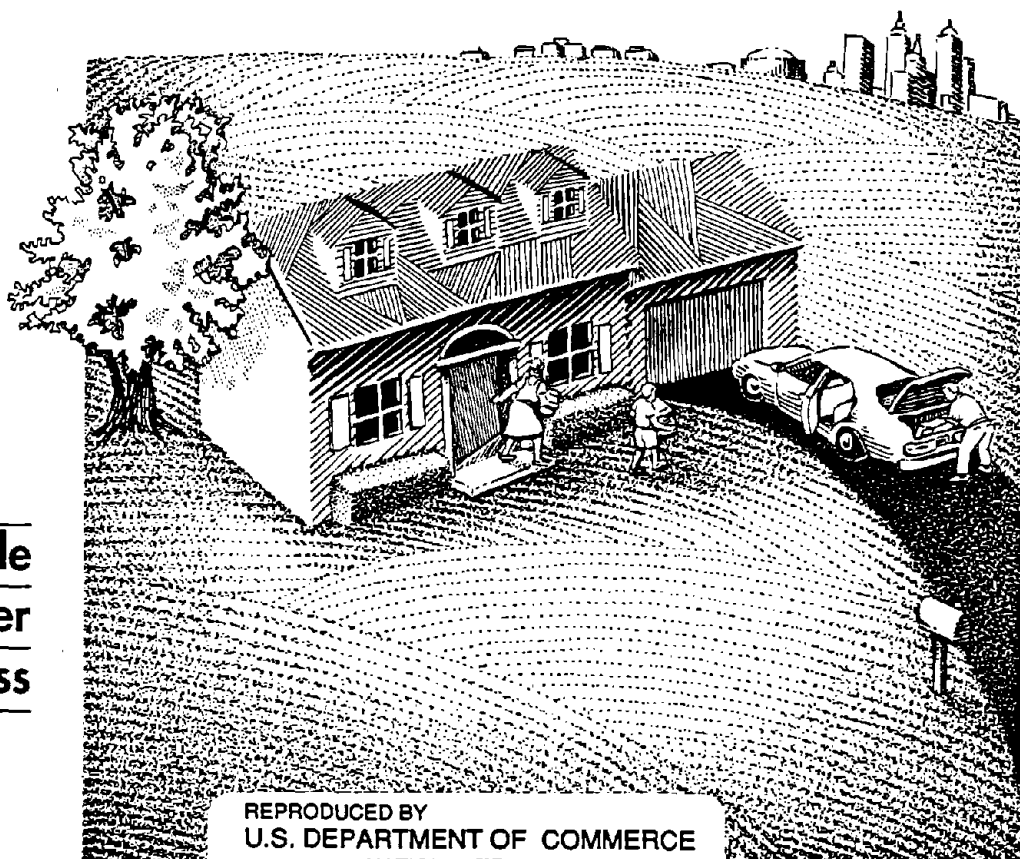




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Are You Ready?



Your guide
to disaster
preparedness

REPRODUCED BY
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SPRINGFIELD, VA 22161

FEDERAL EMERGENCY MANAGEMENT AGENCY



Are You Ready?

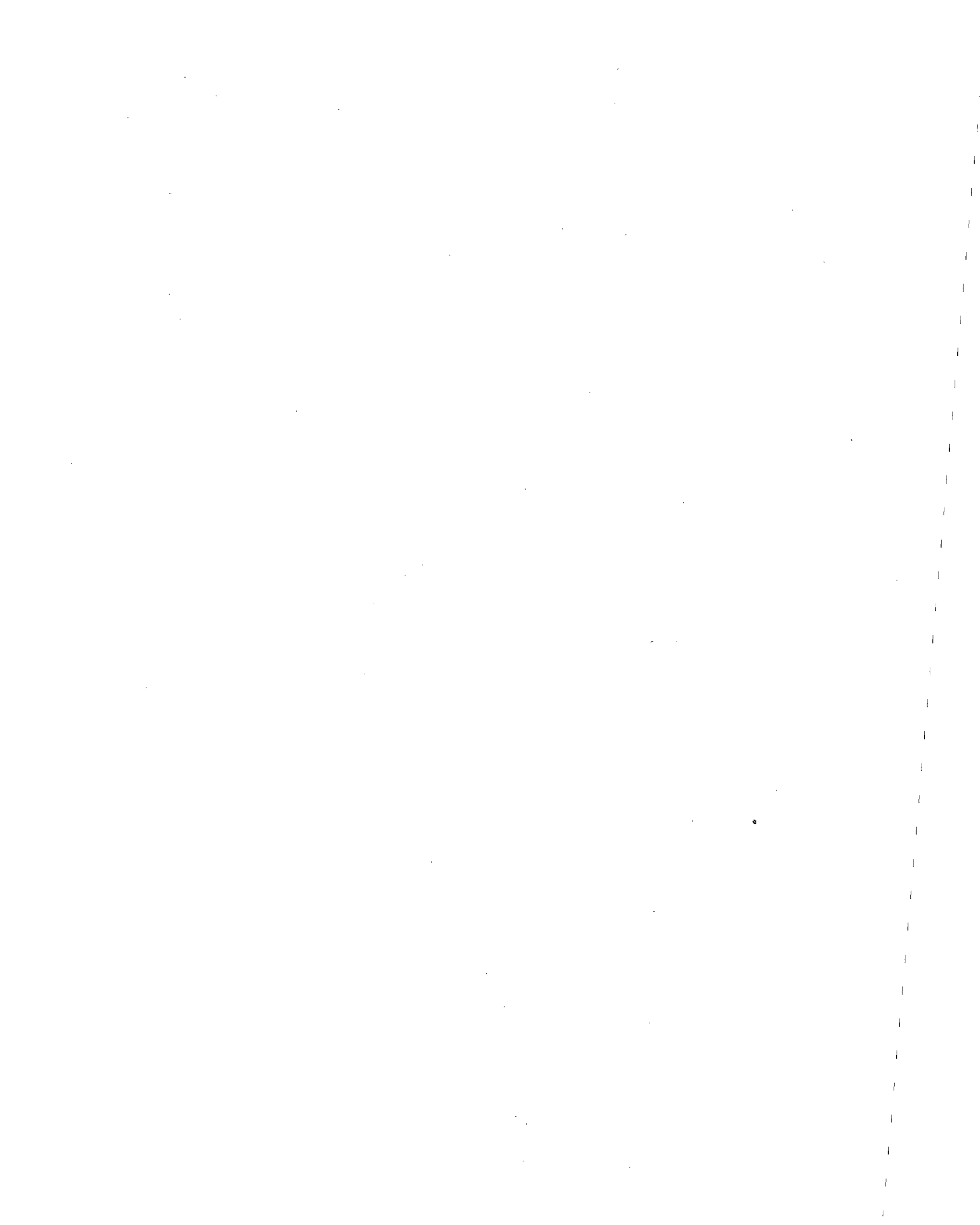
Your guide to disaster preparedness

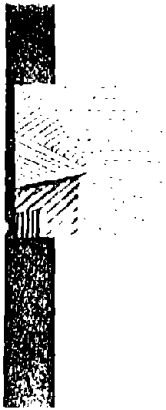


FEDERAL EMERGENCY MANAGEMENT AGENCY
WASHINGTON, D.C. 20472

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Why prepare for disaster?

Every day, millions of people wake up, go to work, take kids to school, farm their land or go to ball games. But every so often, the unexpected will happen: an earthquake, a fire, a chemical spill on the highway or some other disaster. Routines change drastically, and people are suddenly aware of how fragile their lives can be.

Some disasters make national headlines, but most disasters that seriously affect cities, towns and rural communities do not get this kind of publicity — even though hundreds of thousands of lives are disrupted every year. And each disaster has lasting effects — people are seriously injured, sometimes killed, and property damage runs into the billions of dollars.

Families which are prepared can reduce the fear, panic, inconvenience and losses that surround a disaster. They can be ready to evacuate their homes, make their stays in public shelters more comfortable and know how to take care of their basic medical needs. They can even save each other's lives.

If a disaster threatens your community, local government and disaster-relief organizations will try to help you. But you need to be prepared as well. Local officials may be overwhelmed after a major disaster, and emergency response personnel may not be able to reach you right away. What you do to prepare *can* make a difference. After most disasters, you and your family should be ready to be self-sufficient for at least three days — this may mean providing for your own shelter, first aid, food, water and sanitation.

This guide can help. It was developed by the Federal Emergency Management Agency (FEMA), the agency responsible for the nation's civil defense and for helping states prepare for emergencies. This handbook will help you learn basic steps to take in case of natural disasters (such as floods or tornadoes), man-made disasters (such as a nuclear power plant incident or industrial fire) and national security emergencies (such as an attack on the country).



Share this handbook with your family. In order to be self-reliant during the initial stages of a disaster, everyone, including children, needs to cooperate and help each other out. Teach children where to go, what to expect and how to behave in case of a disaster — preparing does not have to be a scary experience.

This guide focuses on the physical hazards of disasters, but you should not ignore the emotional effect of losing a home, treasured possessions or a loved one. Disaster victims can become irritable, fatigued, hyperactive, angry and withdrawn. Children and older adults are especially vulnerable to disaster's psychological effects. Many older people find it particularly difficult to rebuild their lives, and children's fears can be long-lasting. Don't be afraid to seek help and take care of the emotional consequences of a disaster.

What you should do

First, contact your local civil defense or emergency management office to find out what disasters could strike your community. You may be aware of some of them, but

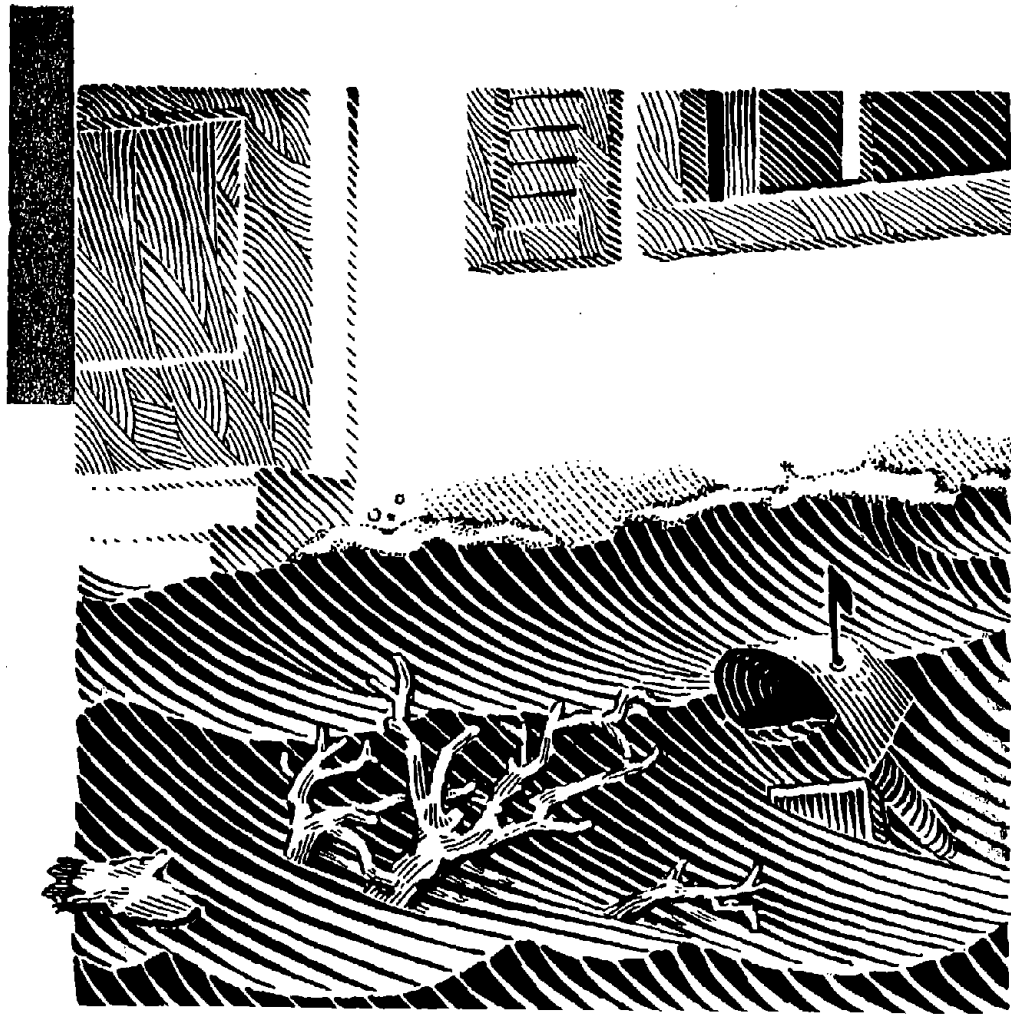
others may surprise you. Then, refer to the appropriate chapters in this handbook. Each chapter covers specific hazards, describing preventive measures and emergency steps to take once the disaster is underway.

Next, review the *Evacuation, Shelter and Emergency Planning and Checklists* chapters. The information in these chapters applies to most disasters and emergencies and will be useful in case you do not find a separate chapter on a specific hazard.

Use this handbook as your foundation for disaster preparedness and safety. Some of the recommended actions are general and will be supplemented by specific instructions from your local government. Since special conditions exist in every community, emergency instructions issued by local governments may be slightly different from those described in this guide. If so, follow local instructions.

Each chapter ends with a list of publications you can get to find out more about disaster planning. To find out about your community's efforts, contact your state or local emergency management office.

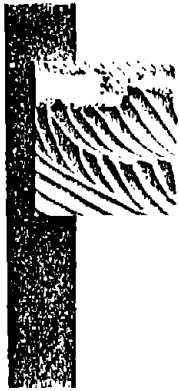




Floods

Floods claim an average of 263 lives every year. Flood waters only one foot deep can sweep you off your feet.

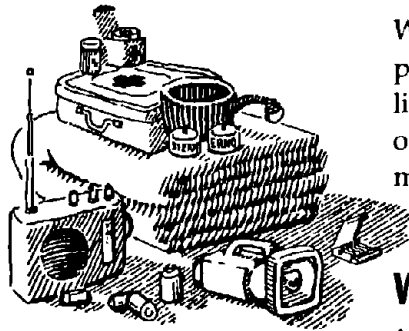




Floods are the most common and widespread of all natural hazards. Some floods develop over a period of days, but *flash floods* can result in raging waters in just a few minutes. Water runs off steeper ground very rapidly, causing natural drainage systems to overflow with rushing flood waters and a deadly cargo of rocks, mud, smashed trees and other debris. *Mudslides* are also a danger created by flood conditions.

Remember — even very small streams, gullies, creeks, culverts, dry streambeds or low-lying ground that may appear harmless in dry weather can flood.

Wherever you live, be aware of potential flooding hazards. If you live in a low-lying area, near water or downstream from a dam, you must be prepared for floods.



Keep supplies on hand for emergencies. Remember to stock extra batteries.

What to do before a flood

1. Know the terms that warn of potential flooding conditions, which will be broadcast on radio and television:

- *Flood forecasts* mean rainfall is heavy enough to cause rivers to overflow their banks or melting snow is mixing with rainfall to produce similar effects.
- *Flood warnings* or forecasts of impending floods describe the affected river, lake or tidewater, the severity of flooding (minor, moderate or major) and when and where the flooding will begin.
- *Flash flood watches* mean heavy rains are occurring or expected to occur that may cause sudden flash flooding in specified areas. Be alert to the possible emergency which will require immediate action.
- *Flash flood warnings* are announced when flash flooding is occurring or imminent along certain streams and designated areas. Immediate action to reach a place of safety must be taken by those threatened.

Also contact your local emergency management, civil defense or disaster preparedness office to learn local warning signals: know who will sound the warnings, when they will be sounded, under what circumstances they will be sounded and how you should respond.



2. Keep a stock of food that requires no cooking or refrigeration. Store drinking water in clean, closed containers. Remember, your electric power, gas and water services may be disrupted. Consult the *Checklists* chapter for recommended emergency supplies.

3. Keep a portable, battery-operated radio, emergency cooking equipment and flashlights in working order; stock extra batteries. Have on hand first aid supplies and any medicines your family may need.

4. Find out if you live in a flood-prone area and what the average flood depths in your community are.

- You may need to store materials like sandbags, plywood, plastic sheeting and lumber to protect your house from flood waters and to make quick repairs after a severe storm.
- Contact your insurance agent, community planner or local emergency manager for information.

5. Identify dams in your area. Be aware of what could happen if they fail. Become familiar with local emergency action plans.

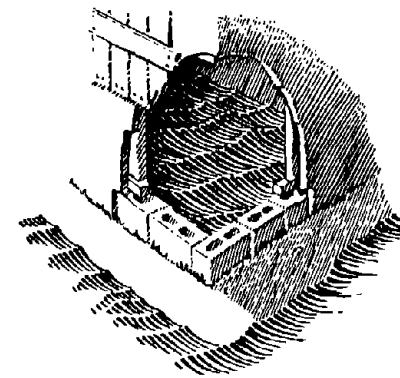
6. Learn your community's flood evacuation routes and where to find shelter. Be prepared for evacuation — see *Evacuation* chapter for important information.

7. Know the elevation of your property in relation to nearby streams and dams so that you will know if the flood elevations forecasted will affect your home and property. Call your local emergency management office for help.


8. Contact your insurance agent or local government to discuss flood insurance coverage. Flood losses are not covered under normal homeowners' insurance policies. Flood insurance is available in some communities through the National Flood Insurance Program. Get coverage early — there is usually a waiting period before it takes effect.

What to do during or after heavy rains

1. In heavy rains, be aware especially of *flash floods*. If you see *any* possibility of a flash flood occurring, move immediately to a safer location. Do not wait for instructions to move.



Do not stack sandbags against the outside walls of your house. Water seeping downward can create pressure, causing your basement to "float" out of the ground.



2. Listen to radio and television for information and instructions from your local government and emergency managers.

3. If local authorities release flood warnings:

- Fill your bathtub with water to ensure that you have an uncontaminated supply in case of a disruption in services.
- In coastal areas, board up windows or protect them with storm shutters or tape to prevent flying, broken glass.

4. Put sandbags or other protection in place, based on anticipated flood depths. Do not stack sandbags around the outside walls of your house to keep water out of your basement. Keep sandbags away from outside walls, to prevent flood waters from reaching your house.

- In cases where deep flooding is likely, it is better to permit the flood waters to flow freely into the basement (or flood the basement yourself with clean water, if you are sure it will be flooded anyway). This will avoid structural damage to the foundation and the house by equalizing the water pressure on the outside of

the basement walls and floors. Contact local civil defense or emergency management authorities for guidance.

5. If you are advised to evacuate:

- Secure your home before leaving. *If you have time* and have not received other instructions from local authorities, bring outdoor belongings — such as garbage cans, garden equipment and furniture — inside the house or tie them down securely. Move essential items and furniture to the upper floors of your house; lock doors and windows.
- Turn off utilities at the main switches or valves. Disconnect electrical appliances, but *do not touch* any electrical equipment if you are wet or standing in water.
- Make sure you have enough fuel in your car — during emergencies, filling stations may not be operating — and follow recommended evacuation routes. Do not try to find shortcuts on your own; they may be blocked.
- Leave early enough to avoid being marooned by flooded roads. Be on the alert for washed-out roadways and bridges; many roads parallel

streams and other drainage channels and may be swept away or covered by flood waters.

- Leave a note on your house to advise authorities that you have evacuated.
 - For more important information, see *Evacuation* chapter.
6. If you must travel during heavy rains or floods:
- Watch for and avoid mud slides, broken sewers or water mains, loose or downed electric wires and falling or fallen objects.
 - Stay away from natural streams and drainage channels during and after rainstorms, especially in areas known to flood. Watch out for areas where rivers or streams may flood suddenly.
 - Do not drive into flooded areas. If flood waters rise around your car, abandon it and move to higher ground, if you can do so safely. You and your vehicle will be quickly swept away as flood waters rise.
 - Under no circumstances should you try to swim or dive into the water. The currents are deadly!
 - Stay away from flooded areas — even if it seems safe, the water may still be rising. Never try to cross a flowing stream on foot.

What to do after a flood

1. Do not visit disaster areas, unless you are authorized to do so.
2. If you have flood insurance, notify your agent that you have a loss.
3. Tune in to radio and television for advice and instructions on where to obtain medical care and where to get assistance for such necessities as housing, clothes, food and other assistance. Outreach programs will help you cope with the stress of being flooded.
4. Do not enter your home if flood waters are over the first floor; you cannot tell whether the building is safe to enter.
5. Use battery-powered lanterns or flashlights (not oil or gas lanterns or torches) to examine buildings. But if you think the building has a gas leak, do not use any kind of light. The light itself could trigger an explosion!
6. Flooding may have swollen doors tight. When the entrance must be forced because of swollen doors, accumulated mud or bulged floors, try to enter through a window or other opening.

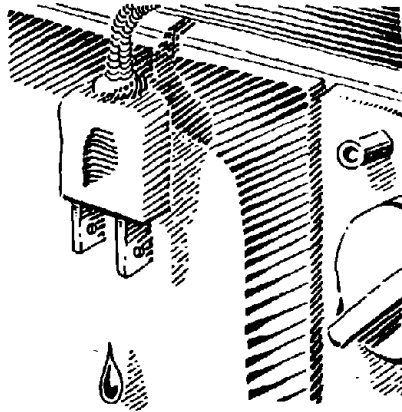


If your car stalls in a flooded area, abandon it! You and your car could be swept away.



7. Check with local civil defense or emergency management authorities before using any water. Water sources may have been contaminated by the flood. Wells should be pumped out and the water tested by authorities before drinking.

8. Do not consume food that has come into contact with flood waters.



After a flood, have experts check appliances. Never handle live electrical equipment in wet areas!

9. Do not handle live electrical equipment in wet areas. Have an expert check all equipment before returning it to service.

10. Ask the gas company to check your home for leaks and to turn the gas back on.

11. If your basement has flooded, pump it out gradually (about one-third of the water per day) to avoid damage. The walls may collapse and the floor may buckle if the basement is pumped out while the surrounding ground is still waterlogged.

12. Report broken utility lines to authorities.

13. Watch out for poisonous snakes in previously flooded areas.

For more information

Contact your local civil defense or emergency management office or the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publications. (Single copy requests only.)

Flood Emergency and Residential Repair Handbook (FIA-13). This publication provides home owners, residential contractors, and local government officials with procedures for dealing with flood hazards and damages to homes and their contents.

Design Manual for Retrofitting Flood-Prone Residential Structures (FEMA-114). This manual provides technical guidance and economic information on retrofitting existing non-elevated residential structures. Techniques to be investigated include use of floodshields, watertight membranes, protective levees/floodwalls, elevation-in-place, and relocation. The feasibility of each technique, as affected by site conditions, construction type and flooding characteristics is addressed.

Elevated Residential Structures (FEMA-54). This manual contains increased information on floodplain management techniques and regulations; improvements in construction materials and practices; structure elevation techniques in coastal areas, and other relevant literature. This is a revised edition of a manual of the same title published in 1976 by the Federal Insurance Administration.



Answers to Questions About the National Flood Insurance Program (FIA-2). A question and answer booklet containing information about the National Flood Insurance Program.

Emergency Preparedness Checklist (L-154). Also available in Braille and recorded versions. This pamphlet provides general information for personal and family preparedness for a variety of natural and man made disasters.

For a detailed flood plain map of your community, contact the Federal Emergency Management Agency, Flood Map Distribution Center, 6930 (A-F) San Tomas Road, Baltimore, MD 21227-6227.

The following are available by writing the National Weather Service, 1325 East West Highway, Silver Spring, MD 20910, (301) 427-7622.

Flash Flood (wallet card), #77014.
In Spanish, #77015.

Floods, Flash Floods, and Warnings, #81010.





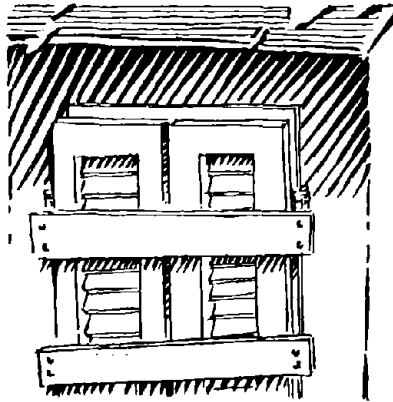
Hurricanes

More people are moving to coastal areas of the United States, and more than 73 million people live within 50 miles of a hurricane-prone coast.

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Hurricanes, also known as typhoons, are severe tropical storms with heavy rains and intense winds which blow in a large circle around a center "eye." If the eye, or storm center, passes directly overhead, there will be a lull in the wind lasting from a few minutes to half an hour. At the other side of the "eye," the winds will return rapidly to hurricane force and blow from the opposite direction.



When your area receives a hurricane warning, cover small and large windows with boards, storm shutters or heavy tape.

Hurricane winds can reach well over 100 miles per hour and create a huge dome of water called a storm surge with high waves that flood the coastline. Hurricanes can also produce tornadoes and cause severe flash flooding. Every Atlantic and Gulf coastal state in the country, as well as the coastal areas of Hawaii and the Caribbean islands, are threatened by hurricanes. Hurricane season extends from the beginning of June through November.

What to do before a hurricane

1. Know the advisories issued by forecasters, which describe the location, strength and movement of the hurricane:
 - A *hurricane watch* is set up when hurricane conditions pose a possible threat to your area. It does not necessarily mean a hurricane will strike.
 - A *hurricane warning* means hurricane conditions are expected in your area within 24 hours. Areas subject to storm surge and flooding may be evacuated on the advice of your local authorities. The warnings also may include an assessment of flood danger, small craft warnings, gale warnings for the storm's periphery and recommended emergency procedures from local authorities.
2. Explore the need for flood insurance by talking to your insurance agent or local government. Much of the damage caused by hurricanes comes from flooding. If you need coverage, purchase insurance well in advance — there is normally a five-day waiting period before a policy becomes effective.

3. Be prepared for possible evacuation; review the *Evacuation* chapter for important information.

What to do during a hurricane threat

1. Listen for hurricane warnings, updates and preparedness instructions on radio or television newscasts.

2. When your area receives a hurricane warning, you should:

- Follow the instructions issued by local officials.
- Cover small and large windows with boards, storm shutters or heavy tape. Wind-thrown debris and wind pressure can break windows.
- Secure outdoor objects or bring them indoors.
- Fuel your car. Service stations may be closed after the storm, especially if the electricity is out.
- Ready a "family safety kit" containing first-aid items, special medication, important papers, blankets, cooking equipment and a portable radio with extra batteries. See *Checklists* chapters for important information.

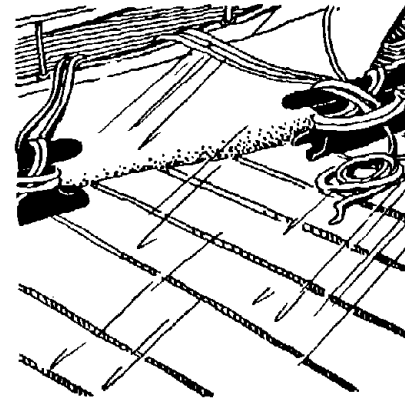
- Secure several days' supply of water, food and clothing for everyone in the family. Water is especially important — after a storm, water systems may be contaminated or damaged by the storm. Fill the bathtub to ensure a supply of safe water. Refer to the *Shelter* and *Checklists* chapters for important information.

- Stay away from coastal areas, river banks and streams until all potential flooding is past.

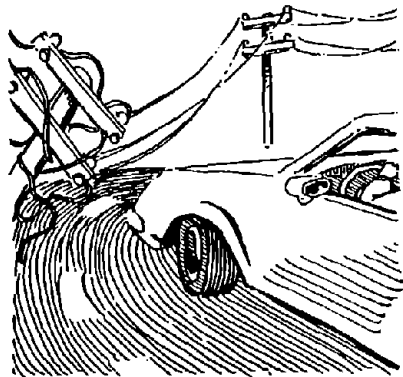
3. If you have a boat and your area receives a hurricane watch, moor it securely and then return to a safe place on land before the storm arrives.

4. Be prepared to evacuate if:

- Local authorities announce an evacuation.
- You live in a mobile home or temporary structure — they are particularly hazardous during hurricanes.
- You live on the coast, on a flood plain or near a river or inland waterway.



If you have a boat and your area receives a hurricane watch, moor it securely then go to a safe place on land.



After a hurricane, avoid loose or dangling power lines and report them immediately to the power company, police or fire department.

5. When you are advised to evacuate or decide to do so on your own:

- Travel with care, whether you are walking or driving.
- Leave early enough to avoid being marooned by such hazards as flooded roads and fallen trees.
- See *Evacuation* chapter for important information.

6. If authorities do not recommend evacuation, stay indoors during the hurricane and stay away from windows. Do not be fooled if there is a lull, it could be the eye of the storm and winds will pick up again. Listen to the radio or television for information.

7. Avoid using the phone except for urgent emergencies. Local authorities need first priority on telephone lines.

What to do after a hurricane

1. Remain in your shelter, until informed by local authorities that it is safe to leave.
2. Keep tuned to your local radio or television stations for advice and instructions from your local government about:

- Medical help.
- Emergency housing, clothing or food assistance.
- Ways to help yourself and your community recover.

3. Stay away from disaster areas — sightseers should not interrupt crucial rescue and recovery work.

4. Drive only when necessary, and be especially careful. The streets will be filled with debris and downed power lines. Roads may be undermined and collapse under the weight of a car.

5. Avoid loose or dangling power wires and report them immediately to the power company, police or fire department.

6. Report broken gas, sewer or water mains.

7. Prevent fires. Municipal water pressure may be low, making fire fighting more difficult.

8. Check refrigerated food for spoilage. Follow instructions from the local health department or agricultural extension agency.

9. Stay away from river banks and streams until all potential flooding is passed.



For more information

Contact your local civil defense or emergency management office or the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publications. (Single copy requests only.)

Big Bird Gets Ready For Hurricane Kit. This kit is designed to help children understand and prepare for possible hurricanes.

Coping with Children's Reactions to Hurricanes and Other Disasters (FEMA-184) Spanish Edition (FEMA-185). This pamphlet is designed to help parents deal with children's fears and anxiety following a disaster.

Hurricane Awareness-Action Guidelines for Senior Citizens. Provides hurricane safety tips with the needs of seniors in mind.

Hurricane-Safety Tips for Hurricanes (L-105). Leaflet providing information on hurricane preparedness and warnings.

Emergency Preparedness Checklist (L-154). Also available in Braille and recorded versions. This pamphlet provides general information for personal and family preparedness for a variety of natural and man made disasters.

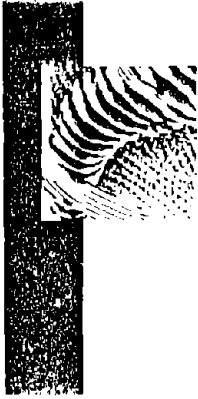
The following are available by writing to the National Weather Service, 1325 East West Highway, Silver Spring, MD 20910, (301) 427-7622

Survival in a Hurricane (wallet card), #70027. (Spanish version #85006.)

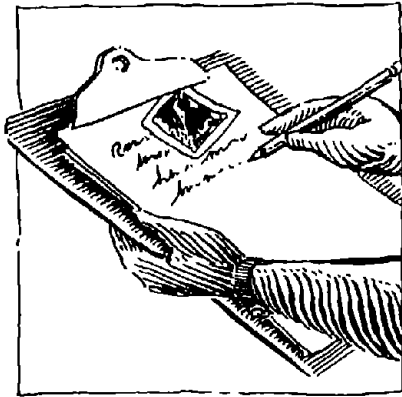


Tornadoes

Tornadoes occur in all 50 states, but the Midwest and Southeast are the most vulnerable.



Tornadoes are nature's most violent storms and can leave an area devastated in seconds. A tornado appears as a rotating, funnel-shaped cloud, striking the ground with whirling winds of up to 200 miles per hour or more. A tornado spins like a top and may sound like an airplane or train. Although tornadoes normally travel for up to 10 miles before they subside, 200-mile "tornado tracks" have been reported. Tornadoes can strike at any time of year and often accompany hurricanes. They occur most frequently during April, May and June.



Before a tornado strikes, make an inventory of your household possessions that includes written lists and photographs.

What to do before a tornado strikes

1. Know the terms used to describe tornado threats:

- A *tornado watch* means tornadoes, severe thunderstorms, or both, are possible. Stay tuned to radio and television reports in your area. Keep watch on the sky.
- A *tornado warning* means tornadoes have been sighted. You should take shelter immediately.

2. If you see any revolving, funnel-shaped clouds, report them immediately by telephone to your local police department or sheriff's office or dial 911.

3. Know the locations of designated shelter areas in public facilities, such as schools, public buildings and shopping centers.

4. Have emergency supplies on hand during tornado season. See the *Checklists* chapter for recommendations.

5. Be sure everyone in your household knows in advance where to go and what to do in case of a tornado warning.

6. If you live in a single-family house in a tornado-prone area, reinforce an interior room to use as a shelter — the basement, storm cellar or a closet on the lower level of your house.

7. Make an inventory of your household furnishings and other possessions. Supplement the written inventory with photographs. Keep inventories and photos in a safe deposit box or some other safe place away from the premises.



What to do during a tornado

1. Whenever severe thunderstorms threaten your area, listen to radio and television newscasts for the latest information and instructions.

2. When a tornado has been sighted, stay away from windows, doors and outside walls. Protect your head from falling objects or flying debris. Take cover immediately, wherever you are:

- In a house or small building, go to the basement or storm cellar. If there is no basement, go to an interior part of the structure on the lower level (closets, interior hallways). In either case, get under something sturdy (such as a heavy table) and stay there until the danger has passed.
- In a school, nursing home, hospital, factory or shopping center, go to predesignated shelter areas. Interior hallways on the lowest floor are usually safest. Stay away from windows and open spaces. Cooperate with the staff and authorities — they have had training about how to deal with emergencies.

- In a high-rise building, go to small, interior rooms or hallways on the lowest floor possible.
 - In a vehicle, trailer or mobile home, get out immediately and go to a more substantial structure.
 - If there is no shelter nearby, lie flat in the nearest ditch, ravine or culvert with your hands shielding your head.
3. Do not attempt to flee from a tornado in a car or other vehicle. They are no match for the swift, erratic movement of these storms.

What to do after a tornado

1. Use great caution when entering a building damaged from high winds. When entering or cleaning a tornado-damaged building, be sure that walls, ceiling and roof are in place and that the structure rests firmly on the foundation.
2. Look out for broken glass and downed power lines.



When a tornado has been sighted, take cover. Whether you are in a basement, storm cellar or building interior, get under something sturdy, such as a table.



If you are outside when a tornado hits and there is no shelter nearby, lie flat in the nearest ditch with your hands shielding your head.

3. Check for injuries. Do not attempt to move seriously injured persons unless they are in immediate danger of further injury. Call for help immediately.

- If the victim is unconscious or has head or facial injuries and you are reasonably sure there has been no spinal cord injury, raise the person's head and shoulders slightly. Be sure the head and upper back are supported, and clear the airway so that he or she will not choke.
- Maintain body temperature with blankets. Be sure the victim does not become overheated.
- Never try to feed liquids to an unconscious person.

Lightning

Lightning is a serious hazard during thunderstorms and tornadoes. Take these special precautions if you are threatened by lightning.

1. When a thunderstorm threatens, get inside a home or large building or inside an all-metal vehicle (not a convertible).
2. Inside a home, avoid using the telephone, except for emergencies.

3. If outside, with no time to reach a safe building or an automobile follow these rules:

- Do not stand underneath a natural lightning rod such as a tall, isolated tree in an open area.
- Avoid projecting above the surrounding landscape, as you would do if you were standing on a hilltop, in an open field, on the beach or fishing from a small boat.
- Get out of and away from open water.
- Get away from tractors and other metal farm equipment.
- Get off of and away from motorcycles, scooters, golf carts and bicycles. Put down golf clubs.
- Stay away from wire fences, clotheslines, metal pipes, rails and other metallic paths which could carry lightning to you from some distance away.
- Avoid standing in small isolated sheds or other small structures in open areas.
- In a forest, seek shelter in a low area under a thick growth of small trees. In open areas, go to a low place such as a ravine or valley. Be alert for flash floods.



- If you are isolated in a level field or prairie and you feel your hair stand on end (which shows that lightning is about to strike), drop to your knees and bend forward putting your hands on your knees. Do not lie flat on the ground.

For more information

Contact your local civil defense or emergency management office or the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publications. (Single copy requests only.)

Tornado Protection (TR-83B). Booklet about selecting and designing safe areas in buildings to resist high winds.

Emergency Preparedness Checklist (L-154). Also available in Braille or recorded versions. This pamphlet provides general information for personal and family preparedness for a variety of natural and man made disasters.

The following publications are available by writing the National Weather Service, 1325 East West Highway, Silver Spring, MD 20910, (301) 427-7622.

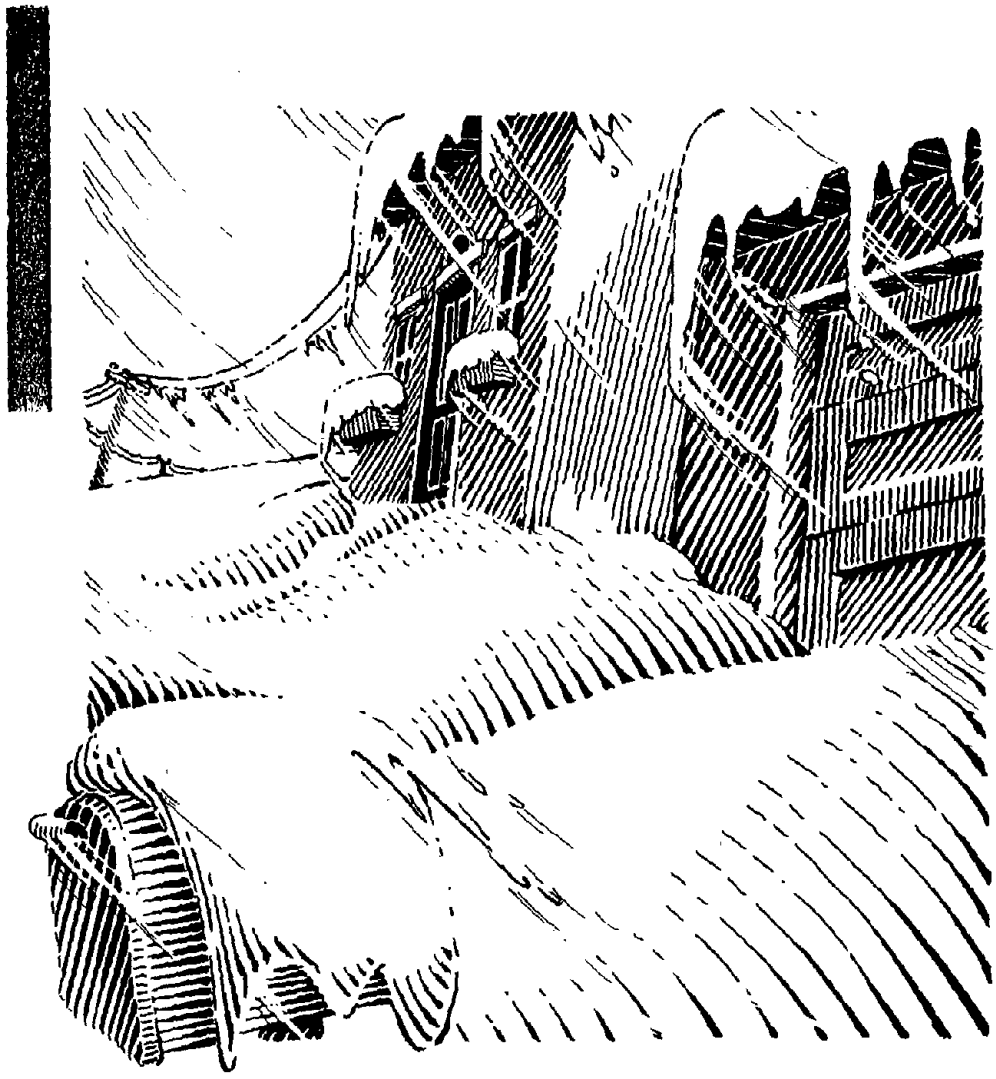
Tornado Safety, #82001.

Tornado Safety Tips (wallet card in Spanish), #85005.

Lightning Safety (wallet card), #76018.

Thunderstorms and Lightning, #83001.

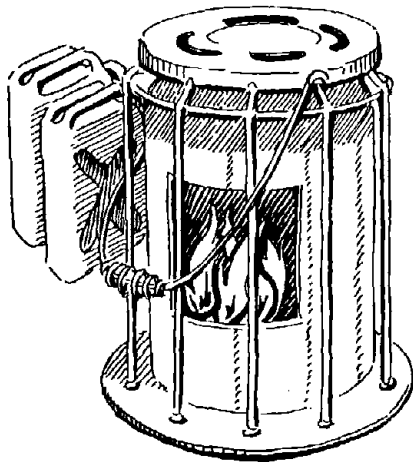




Winter Storms and Extreme Cold

From 1970 to 1980, about 450 people died every year due to excessive cold. Deaths from winter storms are on the rise.

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Have emergency heating equipment and fuel available, so you can keep at least one room of your house warm.

Snowfall may seem romantic, but it can be dangerous. Heavy snowfall and extreme cold can immobilize an entire region. Even areas which normally experience mild winters can be hit with a major snow storm or extreme cold. The results can range from isolation due to power outages and blocked roads to the havoc of cars trying to maneuver on ice-covered highways. Whatever the case, winter storms usually involve human suffering. You should protect yourself and your family from the many hazards of winter weather — blizzards, heavy snow, freezing rain and sleet.

What to do before winter storm conditions

1. Know the terms used to forecast winter weather conditions:

- A *travelers' advisory* is issued when enough ice and snow are expected to hinder travel but the anticipated conditions are not serious enough to require warnings.

- *Freezing rain* is forecast when expected rain is likely to freeze as soon as it strikes the ground, creating a coating of ice on roads and walkways.
- *Sleet* consists of small particles of ice mixed with rain. Sleet accumulation causes roads to freeze over or become slippery.
- A *winter storm warning* means that heavy snow, sleet or freezing rain are expected. A *winter storm watch* means that severe winter weather is possible.
- A *blizzard warning* means that heavy snow and winds of 35 miles per hour or more are expected. A *severe blizzard warning* means that very heavy snow is expected with winds over 45 miles per hour and temperatures below 10 degrees. Visibility can be so poor that you will not be able to see for more than a few yards.

2. Be prepared *before* a storm occurs:

- Keep a battery-powered radio and flashlights in working order; stock extra batteries.
- Store food that can be prepared without an electric or gas stove.
- Stock emergency water and cooking supplies.

- Have candles and matches available in case of a power outage.
3. Be prepared for the possibility of isolation in your home.
- Make sure you have sufficient heating fuel; regular supplies may be curtailed by storm conditions.
 - Have available some kind of emergency heating equipment and fuel (a kerosene heater, a gas fireplace or a wood burning stove or fireplace) so you can keep at least one room of your house warm enough to be livable. If your furnace is controlled by a thermostat and your electricity is cut off by a storm, you will need emergency heat.
 - If you have a fireplace, store a good supply of dry, seasoned wood.
 - Keep fire extinguishers on hand, and make sure your family knows how to use them and knows basic fire prevention rules.
 - See the *Checklists* chapter for more information.
4. Keep your car "winterized" with antifreeze. Carry a "winter car kit" that includes a windshield scraper, flashlight, tow chain or

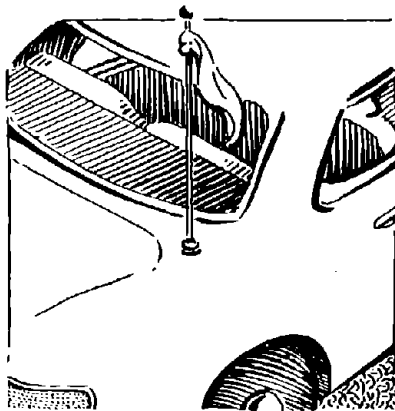
rope, shovel, tire chains, a blanket, a bag of sand or salt, a fluorescent distress flag and an emergency flare, in case you are trapped in a winter storm. Keep extra mittens, hats and outerwear in the car.

What to do during a winter storm

1. Listen to the radio or television for updates on the weather condition. With early warning you may avoid being caught in a storm or be better prepared to cope with it.
2. Dress for the season:
 - Many layers of thin clothing are warmer than single layers of thick clothing.
 - Mittens are warmer than gloves.
 - Wear a hat; most body heat is lost through the top of the head.
 - Cover your mouth with scarves to protect lungs from directly inhaling the extremely cold air.
3. Overexertion can bring on a heart attack — a major cause of death during and after winter storms. If shovelling snow isn't critical, don't do it. If you must shovel snow, don't overexert yourself.



A winter car kit includes such emergency needs as a windshield scraper, flashlight, tow chain, shovel, blankets and salt.



If a blizzard traps you in your car, set your lights to flashing and hang a piece of cloth or a distress flag from the radio aerial or window.

4. If you are isolated at home:

- Use heating fuel sparingly.
- Conserve fuel by keeping your house cooler than usual or by temporarily "closing off" heat to some rooms.
- Whenever fuel heating devices are used (such as kerosene heaters), maintain adequate ventilation to avoid build-up of potentially toxic fumes. Be sure to use only the proper fuel recommended by the manufacturer, and follow operating instructions.

5. If you must travel, take public transportation whenever possible. If you must use a car, take winter driving seriously. Travel by daylight, and keep others informed of your schedule. Drive with extreme caution; never try to save time by driving fast or using back-road shortcuts.

6. If a blizzard traps you in your car:

- Pull off the highway; stay calm and remain in your vehicle where rescuers are most likely to find you.

- Set your directional lights to "flashing" and hang a cloth or distress flag from the radio aerial or window.
- If you run the engine to keep warm, create ventilation by cracking open a window. This will protect passengers from possible carbon monoxide poisoning. Periodically clear away snow from the exhaust pipe.
- Exercise to maintain body heat, but avoid overexertion.
- Never let everyone in the car sleep at one time. One person should look out for rescue crews.
- Be careful not to use up battery power. Balance electrical energy needs — the use of lights, heat and radio — with supply.
- At night, turn on the inside dome light, so work crews can spot you.

7. If you are in a remote rural or wilderness area, spread a large cloth over the snow, to attract attention of rescue personnel who may be surveying the area by airplane. Once the blizzard passes, you may need to leave the car and proceed on foot.



For more information

Contact your local civil defense or emergency management office or the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publications. (Single copy requests only.)

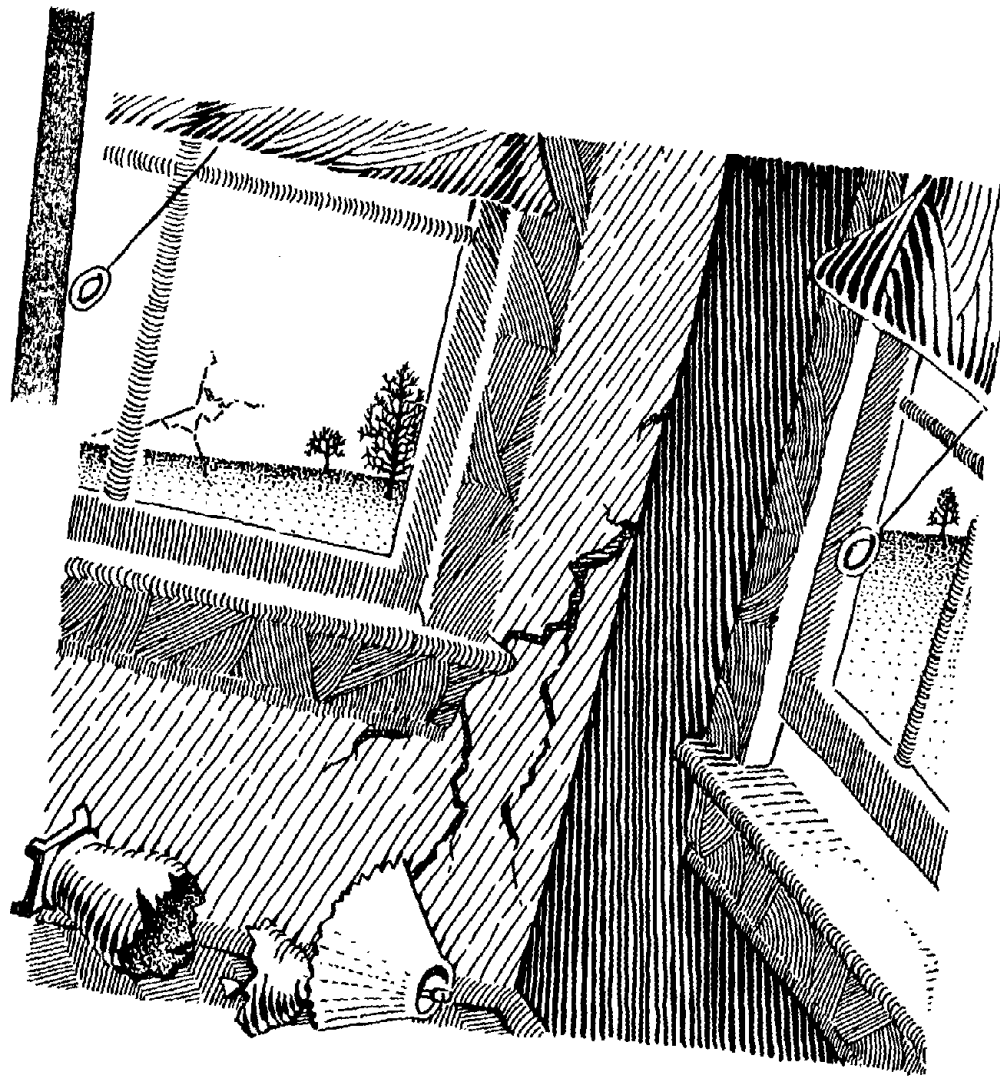
Safety Tips for Winter Storms (L-96). Provides safety tips to protect potential victims of winter storms.

Can Your Home Pass the Winter Survival Test? This publication provides safety check lists for heating systems, pipes and water heaters, wiring, kitchens and emergency supplies to insure your home is prepared for winter.

Emergency Preparedness Checklist (L-154). Also available in Braille or recorded versions. This pamphlet provides general information for personal and family preparedness for a variety of natural and man made disasters.

The following publications are available by writing the National Weather Service, 1325 East West Highway, Silver Spring, MD 20910, (301) 427-7622.

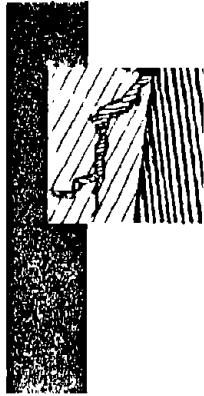
Winter Storms, #79018. Riding Out Winter Storms (wallet card), #80003.



Earthquakes

In 1988, 25,000 people died in a 6.9 magnitude earthquake in Armenia. In 1989, 63 people died in a 7.1 magnitude earthquake in the San Francisco Bay area. Not one structure built to the latest seismic safety codes collapsed.

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An earthquake is a sudden shaking of the earth, caused by the breaking and shifting of rock beneath the earth's surface. Earthquakes can cause buildings and bridges to collapse, down telephone and power lines and result in fires, explosions and landslides. Earthquakes can also cause huge ocean waves, called tsunamis, which travel long distances over water until they crash into coastal areas.

Earthquake injuries are usually caused by building collapse or damage; flying glass from broken windows; overturned furniture; and fires from broken chimneys and ruptured gas and electrical lines. Injuries may also be caused by collapsing bridges and elevated roadways.

Scientists cannot precisely predict when earthquakes will occur. Seventy million people in 39 states are at high risk. Recent earthquakes have occurred most often in states west of the Rocky Mountains, although, historically, the most violent earthquakes occur in the eastern U.S. All states are at some risk from this hazard.



During an earthquake, take cover under a desk, table or bench and hold on. Stay away from windows and anything that could fall on you.

What to do before an earthquake

1. Check for hazards that could make your house more dangerous during an earthquake:

- Defective electrical wiring, leaky gas and inflexible utility connections are very dangerous. Bolt down water heaters and gas appliances.
- Know where and how to shut off electricity, gas and water at main switches and valves. Check with your local utilities for instructions.
- Place large or heavy objects on lower shelves. Securely fasten shelves to walls. Brace or anchor high or top-heavy objects.
- Bottled foods, glass, china and other breakables should be stored in low shelves or cabinets that can fasten shut.
- Overhead lighting fixtures should be anchored solidly in place. A little extra wire is usually all that is necessary.
- Deep plaster cracks in ceilings and foundations should be investigated and repaired by experts, especially if they are signs of structural defects.
- Be sure the house is firmly anchored to its foundation.

2. Hold occasional earthquake drills so each member of your family knows what to do during an earthquake.

- Locate safe spots in each room — under sturdy tables or desks or in strong, supported doorways. Reinforce this information by physically placing yourself and your family in these locations.
- Identify danger zones in each room — near windows where glass can shatter or near bookcases or other furniture that may fall over, for example. During an earthquake, each family member should move away from these danger zones.

3. Gather emergency supplies and prepare for evacuation if earthquake damage is severe. See *Evacuation* and *Checklists* chapters for help.

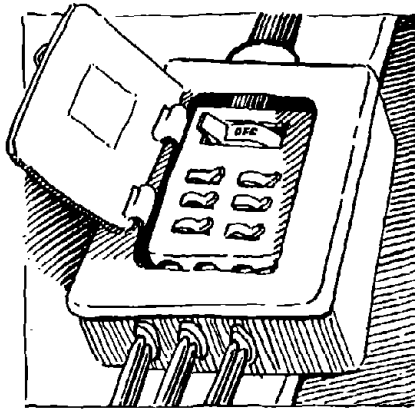
4. Develop a family plan for reuniting after an earthquake. Establish an out-of-state telephone contact and leave notes for other family members if you must relocate.

5. Review insurance to determine coverage for earthquake damage. Some damage may be covered

even without specific earthquake insurance. Protect important home and business papers.

What to do during an earthquake

1. Keep calm, and stay where you are. Most injuries during an earthquake occur when people decide to enter or exit buildings.
2. If you are **indoors**, take cover under a desk, table or bench, against an inside wall or wood-framed doorway, and hold on. Stay away from glass, windows, outside doors or walls and anything that could fall and hurt you, such as lighting, furniture or fixtures.
3. If you are **outdoors**, stay there. Move away from buildings, street lights and utility wires.
4. If you are in a crowded **public place**, do not rush for a doorway — other people will have the same idea. Take cover, and move away from display shelves containing objects that may fall.
5. In a **high-rise building**, get under a desk, away from windows and outside walls. Stay in the



Know where and how to shut off electricity, gas and water at main switches and valves.

building on the same floor. Do not be surprised if the electricity goes out or if sprinkler systems or elevator or fire alarms go on — this often happens. Do not use elevators!

6. If you are in a moving vehicle, stop as quickly as safety permits, and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses or utility wires. Then proceed cautiously, avoiding bridges or other elevated structures which might have been damaged by the quake — or could be damaged further by aftershocks.

7. Be prepared for aftershocks, which have been known to occur from less than one minute after the initial shock to more than one year later. Most aftershocks occur 24 to 48 hours later. These secondary shockwaves are usually less violent than the main quake but can be strong enough to do additional damage to weakened structures.

8. Do not use candles, matches or open flames either during or after the earthquake because of possible gas leaks.

9. If you live near coastal waters, be aware of possible tsunamis, also known as tidal waves. When local authorities issue a tsunami warn-

ing, assume that a series of dangerous waves is on the way. Stay away from the beach. See the *Tsunami* chapter for more information.

What to do after an earthquake

1. Check for injuries. Do not attempt to move seriously injured persons unless they are in immediate danger of further injury. Call for help immediately.

- If the victim is unconscious or has head or facial injuries and you are reasonably certain there is no spinal cord injury, raise the person's head and shoulders slightly. Be sure the head and upper back are supported, and clear the airway so that he or she will not choke.
- Maintain body temperature with blankets. Be sure the victim does not become overheated.
- Never try to feed liquids to an unconscious person.

2. Stay out of severely damaged buildings. Return to your home only when authorities have said it is safe.



3. Wear sturdy shoes in areas covered with fallen debris and broken glass.

4. If possible, clean up spilled medicines, bleaches, gasoline and other flammable liquids inside buildings. Evacuate the building if gasoline fumes are heavy and the building is not well ventilated.

5. Visually inspect utility lines, chimneys and appliances for damage.

- If you smell gas, open windows and shut off the main gas valve. Leave the building immediately and report the leak to the gas company. Never search for gas leaks with a match! Stay out of the building until the authorities say that it is safe to reenter.
- Do not use electrical switches or appliances if gas leaks are suspected. One spark can ignite gas from broken lines.
- Switch off all electrical power at the main box.
- If you can see that water pipes are damaged, shut off the water supply at the main valve.
- Do not switch on gas or electricity until the power company has checked your home.

- After the initial stage of the emergency has passed, find out from local emergency officials whether sewage lines are intact before flushing toilets. Plug all bathtub and sink drains to prevent sewage backup.
- Check chimneys for cracks and damage. The initial check should be made from a distance. Approach chimneys with great caution. Have a professional inspect the chimney for internal damage that could lead to fire.

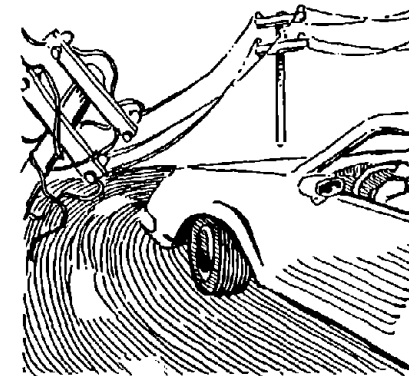
6. Check food and water supplies. If water is cut off, use water from water heaters.

7. Check the contents of closets and cupboards. Open doors cautiously. Beware of objects that may tumble off shelves.

8. Stay off the telephone, except to report an emergency.

9. Turn on your battery-operated radio (or plug in your radio or television if you still have electricity) to get the latest emergency information.

10. Stay off the streets, but if you must go out, travel with care. Watch for hazards created by the earthquake, such as fallen objects,



If you must go out after an earthquake, travel with care. Watch for downed electrical wires and other hazards.



downed electrical wires, or undermined or cracked bridges, roads and sidewalks.

11. Stay away from damaged areas, unless your assistance has been specifically requested by police, fire or relief organizations.

Volcanoes

Volcanoes are eruptions from the earth's interior which can cause violent explosions of gases and rock. Eruptions can cause lava flows, mudslides, avalanches, falling ash and floods. Active volcanoes in the U.S. are found mainly in Hawaii, Alaska and the Pacific Northwest.

Fresh volcanic ash, made of pulverized rock, can be harsh, acid, gritty, glassy and smelly. While not immediately dangerous to most adults, the combination of acidic gas and ash which may be present within miles of the eruption could cause lung damage to small infants, very old people or those suffering from severe respiratory illnesses.



Besides following basic emergency procedures, found in the *Evacuation* and *Shelter* chapters, keep these guidelines in mind:

1. Do not visit the volcano site; you could be killed by a sudden explosion. Public officials may designate safe viewing sites.
2. If ash is being expelled, avoid areas downwind from the volcano. A building offers good shelter from volcanic ash but not from lava flows and rock debris.
3. Be aware of flying rocks and mudflows. The danger from a mudflow increases as you approach a stream channel and decreases as you move away from a stream channel toward higher ground. Mudflows can move faster than you can walk or run. Look upstream before crossing a bridge, and do not cross if the mudflow is approaching.
4. If ash is falling, stay indoors until the ash has settled.
5. During an ashfall, close doors, windows and all ventilation in the house.

Remove ash from flat or low pitched roofs and rain gutter to prevent thick accumulation.



6. Avoid driving in heavy dust conditions unless absolutely required. If you do drive in dense dust, keep speed down to 35 mph or slower.

For more information

Contact your local civil defense or emergency management office or the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publications. (Single copy requests only.)

Earthquake Safety Checklist (FEMA-46). This checklist provides safety tips to prepare for, respond to, and react in the immediate aftermath, of an earthquake.

Earthquakes (L-111). Pamphlet providing safety tips for potential victims of earthquakes.

Preparedness in High-Rise Buildings (FEMA-76). This publication provides safety tips and precautions for high-rise dwellers to take during and after an earthquake.

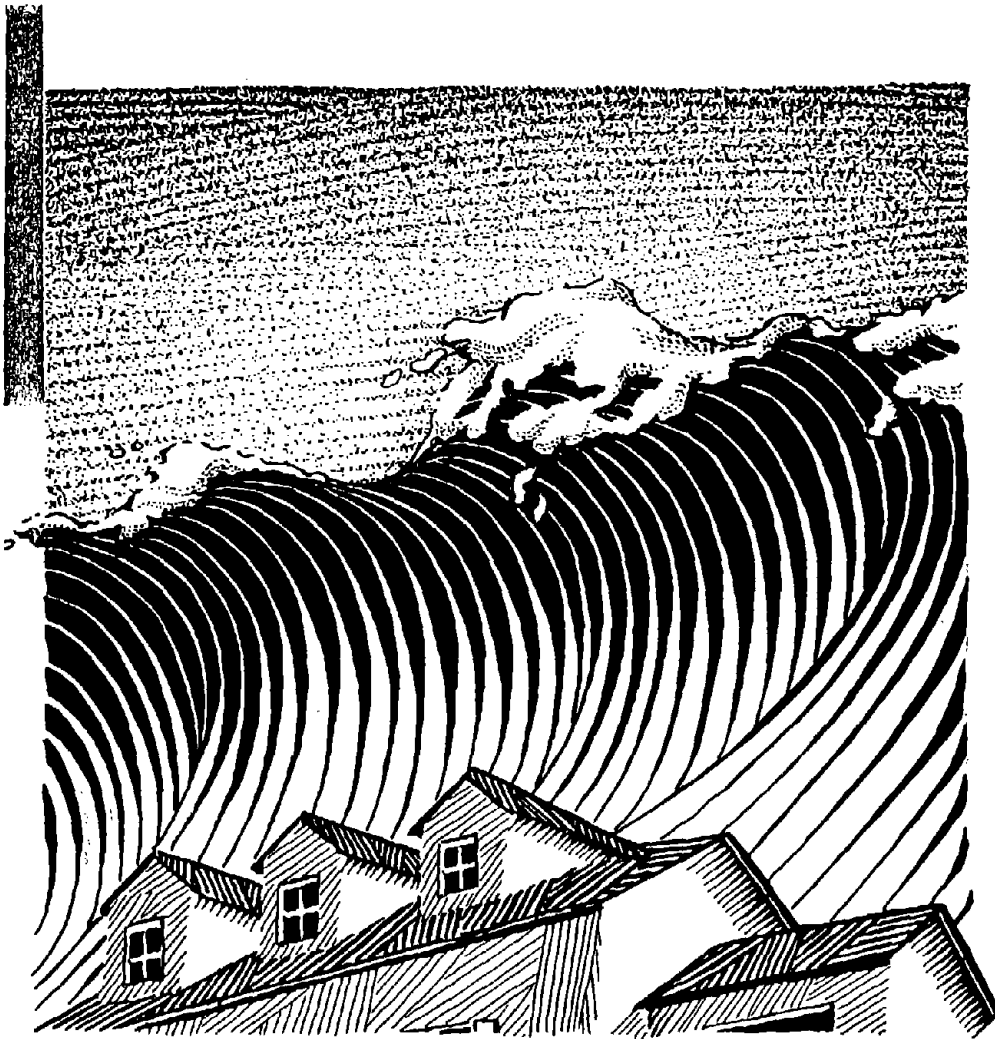
Learning to Live in Earthquake Country — Preparedness in Apartments and Mobile Homes (L-143). Leaflet providing safety tips and information on how to best prepare for an earthquake.

Family Earthquake Safety Home Hazard Hunt and Drill (FEMA-113). This booklet concentrates on identifying home hazards and practicing what to do if an earthquake occurs.

Coping with Children's Reactions to Hurricanes and Other Disasters (FEMA-184) Spanish Edition (FEMA-185). This pamphlet is designed to help parents deal with children's fears and anxiety following a disaster.

Emergency Preparedness Checklist (L-154). Also available in Braille or recorded versions. This pamphlet provides general information for personal and family preparedness for a variety of natural and man made disasters.

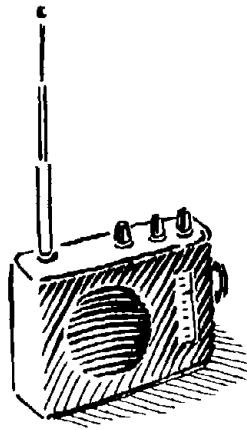
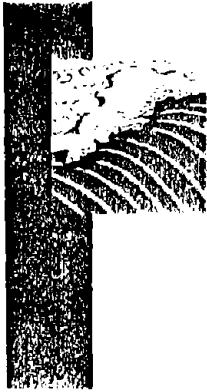
For additional information contact the U.S. Geological Survey Earthquake Information Center Reston, VA 22092



Tsunamis

Since 1945, more people have been killed as a result of tsunamis than as a direct result of an earthquake's ground-shaking.

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If you hear a tsunami warning, listen to the radio or television for more information. Follow the instructions of your local authorities.

A tsunami (pronounced soo-namí-ee), sometimes called a tidal wave, is actually a series of enormous waves created by an underwater disturbance or earthquake. Tsunamis can move hundreds of miles per hour in the open ocean and smash into land with waves more than 100 feet high. In this century, more than 200 tsunamis have been recorded in the Pacific Ocean alone.

All tsunamis are potentially dangerous, even though they may not damage every coastline they strike — some waves in the series are less hazardous than others. Tsunamis can strike anywhere along most of the U.S. coastline. The most destructive tsunamis have occurred along the coasts of California, Oregon, Washington, Alaska and Hawaii.

How to prepare for a tsunami

1. Heed tsunami warnings — they mean a tsunami exists. Listen to radio or television for information and follow instructions of your local authorities.

2. Earthquakes can cause tsunamis. If you live near the open coast and you hear or feel that a strong earthquake has occurred, be ready to protect yourself.

3. Advance warning of tsunamis sometimes comes in the form of a noticeable rise or fall in the normal depth of coastal water. This is nature's tsunami warning and should be heeded.

4. A small tsunami at one beach can be a giant wave a few miles away. Do not let the modest size of one wave allow you to forget how dangerous tsunamis are. The next wave may be bigger.

5. Prepare ahead for possible evacuation. See *Evacuation* and *Checklists* chapters for information.

What to do if a tsunami threatens your area

1. If you are advised to evacuate, do so immediately.

2. Stay away from the area until local authorities say it is safe. Do not be fooled into thinking that the danger is over when a single wave

has come and gone — a tsunami is not a single wave but a series of waves.

3. Do not remain in low-lying coastal areas after an earthquake.
4. Do not go to the shoreline to watch for a tsunami. When you can see the wave, it is too late to escape it.
5. Sooner or later, tsunamis hit every coastline in the Pacific. Warnings especially apply to you if you live in any Pacific coastal area.

For more information

Contact your local civil defense or emergency management office or the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publications. (Single copy requests only.)

Emergency Preparedness Checklist (L-154). Also available in Braille or recorded versions. This pamphlet provides general information for personal and family preparedness for a variety of natural and man made disasters.

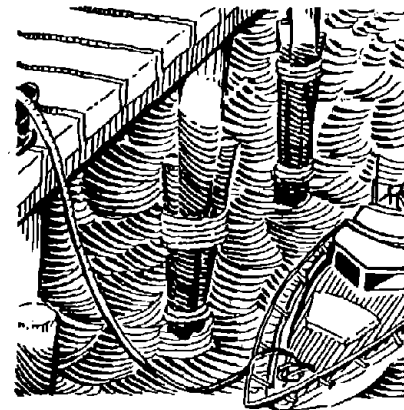
Additional information can be obtained from:

Pacific Tsunami Warning Center, Ewa Beach, Hawaii, (808) 689-8207

Pacific Tsunami Warning Center, Palmer, Alaska, (907) 745-4212

Operated by The National Weather Service of the National Oceanic and Atmospheric Administration, U.S. Dept. of Commerce

These warning centers are operated by the National Weather Service of the National Oceanic and Atmospheric Administration and the U.S. Department of Commerce.



A noticeable rise or fall in the normal depth of coastal waters is nature's tsunami warning. Respond immediately!

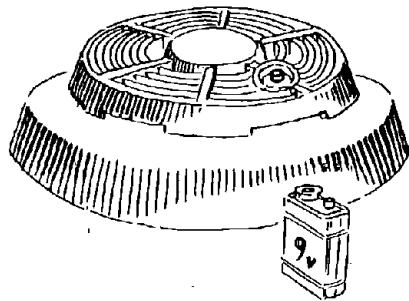




Fire

Since 1900, more Americans have died in fires than have been killed in all of the wars during the same period. Residential fires are the leading cause of accidental death for children under the age of five.

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Working smoke detectors double your chances of survival. Clean them regularly, and replace batteries once a year.

Fire safety and prevention are important for everyday emergencies, but they are crucial during disasters. Every year 6,000 Americans die in fires, and more than 100,000 people are injured. Most fire deaths occur in the home, and many could have been prevented. As smoke detectors and other fire prevention steps have become more common in recent years, the deaths and injuries from fires have decreased significantly.

To understand the importance of fire prevention, be aware of the basic characteristics of fire. Fire spreads quickly, and you have no time to grab valuables or make a phone call. In two minutes a room can become life-threatening. In five minutes your house can be engulfed in flames. A fire's heat is more dangerous than the flames — inhaling the super-hot air can scar your lungs. Fire produces poisonous gases that make you disoriented and drowsy. Instead of being awakened by a fire, you may fall into a deeper sleep.

Fire safety and how to prevent fire

1. Install smoke detectors in your house or apartment. Working smoke detectors double your chance of surviving a fire.
 - Place smoke detectors on every level of your house: outside bedrooms on the ceiling or high on the wall, at the top of open stairways or at the bottom of enclosed stairs and near (but not in) the kitchen.
 - Clean smoke detectors regularly and replace batteries once a year.
2. With your family, plan two escape routes from every room in the house.
 - Make sure that the windows you plan to use for escape are not nailed or painted shut.
 - Practice escaping from rooms with your eyes closed, since during a fire, the house will be filled with thick, black smoke.
 - Establish a common place for the family to meet after escape.
3. Clean out storage areas. Don't let trash (such as old newspapers and magazines) accumulate.

4. Check electrical wiring:

- Inspect extension cords for frayed or exposed wires or loose plugs.
- Do not overload extension cords or outlets; if you need to plug in two or three appliances, get a UL-approved unit with built-in circuit breakers to prevent sparks and short circuits.

5. *Never* use gasoline, benzine, naphtha or similar liquids indoors.

- Store them in approved containers and well-ventilated storage areas.
- Never smoke near these flammable liquids.
- After use, safely discard all rags or materials soaked in flammable material.

6. Check heating sources. Many home fires are started by faulty furnaces or stoves, cracked or rusted furnace parts and chimneys with creosote build-up. Make sure your home heating source is clean and in working order. Call professionals for help.

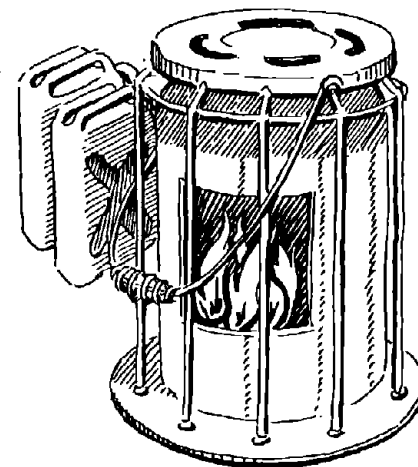
7. Alternative heating sources, such as wood, coal and kerosene burning stoves, should be used carefully. Make sure that:

- There is proper ventilation to the outside.
- Adequate space is left around heater.
- The floor and nearby walls are properly insulated.
- You use only the type of fuel designated for your unit and follow manufacturers' instructions.
- You store ashes in a metal container outside and away from any buildings.
- You keep walls, furniture, drapery and any flammable items away from open flame. Always keep a screen in front of the fireplace.

8. Make sure that home insulation is not in contact with electrical wiring.

9. Know where your gas meter and central electrical panels are so you can shut them off in an emergency. If you shut off your gas line, allow only a gas company representative to turn it on again to make sure it is done properly.

10. Ask your local fire department if they will inspect your house for fire safety and prevention.



Use alternative heating sources carefully. Use only the correct fuel for your unit and follow manufacturers' instructions.



11. If you live in wildland areas — on remote hillsides, in valleys, prairies or forests where flammable vegetation is abundant — your house could be a target for wild-fire. Be prepared for these intense fires, triggered by lightning or accidents, that sweep through wild-land areas:



Smother oil and grease fires in the kitchen with baking soda or salt, or put a lid over the flame, if it is burning in a pan.

- Call local fire authorities and get information about wildfires in your area. Find out whether they can inspect your house and property for potential hazards.
- If you are building a house in or near wildland areas, make sure that the builders or architects are aware of wildfire safety considerations. This may be your only opportunity to take appropriate measures to protect your house.
- Be prepared to evacuate. See *Evacuation* chapter for detailed information about evacuation procedures.

What to do in case of fire

1. To put out a small fire, take away its air or fuel or cool it with water or fire extinguishing chemicals.

2. Never use water on an electrical fire. Use only a fire extinguisher.

3. Oil and grease fires occur primarily in the kitchen. Smother the flames with baking soda or salt or put a lid over the flame, if it is burning in a pan.

4. Small fires can be controlled with water or fire extinguishers, but do not try to put out a fire which is getting out of control. Get everyone out of the house and call the fire department immediately.

5. If your clothes catch on fire, stop, drop and roll until the fire is extinguished. Running only makes the fire burn faster.

6. Sleep with your door closed. If you wake up to the sound of a smoke detector, feel the door before you open it.

- If the door is cool, leave immediately. Be prepared to bend low or crawl; smoke and heat rise, and the air is clearer and cooler near the floor.

- If the door is hot, escape through a window. If you cannot escape, hang a white or light-colored sheet outside the window, alerting fire fighters to your presence.



What to do after a fire

1. If you are the homeowner, see that holes in the house are covered against rain and that entry to your home can be secured. The fire department can assist you.
2. If you are a tenant, contact the landlord. It is the property owner's responsibility to prevent further loss or damage to the site. Secure your personal belongings either within the building or by moving them to another location.
3. Contact your insurance agent about estimates and loss coverage.
4. Contact your local disaster relief service, such as the American Red Cross or Salvation Army, if you need temporary housing, food, eyeglasses or medicines which were destroyed in the fire.
5. Do not enter a fire-damaged building unless authorities have given you permission.
6. When entering a building, be watchful for signs of heat or smoke — they may signify smoldering remains of a fire.
7. Have an electrician check your household wiring before the current is turned back on. Do not at-

tempt to reconnect any utilities yourself. Leave this to the fire department and other authorities.

8. Beware of structural damage. Roofs and floors may be weakened and need repair.

9. Discard food, beverages and medicines that have been exposed to heat, smoke or soot.


10. Refrigerators or freezers left closed will hold their temperature for a short time. However, do not attempt to refreeze food that has thawed.

11. Beginning immediately after the fire, collect receipts for any money you spend. These receipts are important for both insurance and income tax claims.

12. If you have a safe or strong box, do not try to open it. A safe or fire proof box can hold intense heat for several hours. If the door is opened before the box has cooled, the entering air combined with the high internal temperature may cause the contents to burst into flames.



In a fire, crawl to your escape. Smoke and heat rise, and the air near the floor is cooler and clearer.



13. Do not throw away any damaged goods until an official inventory has been taken. All damages are taken into consideration when developing your insurance claim.

14. If a building inspector says the residence is unsafe and you must leave your home:

- Contact local police, who will watch the property during your absence.
- Take with you identification; medicines, glasses or hearing aids; and valuables, such as credit cards, checkbooks, insurance policies, bank papers, jewelry and the like.
- Notify friends, relatives, police and fire departments, your insurance agent, the mortgage company, utility companies, delivery services, employers, schools and the post office of your whereabouts.

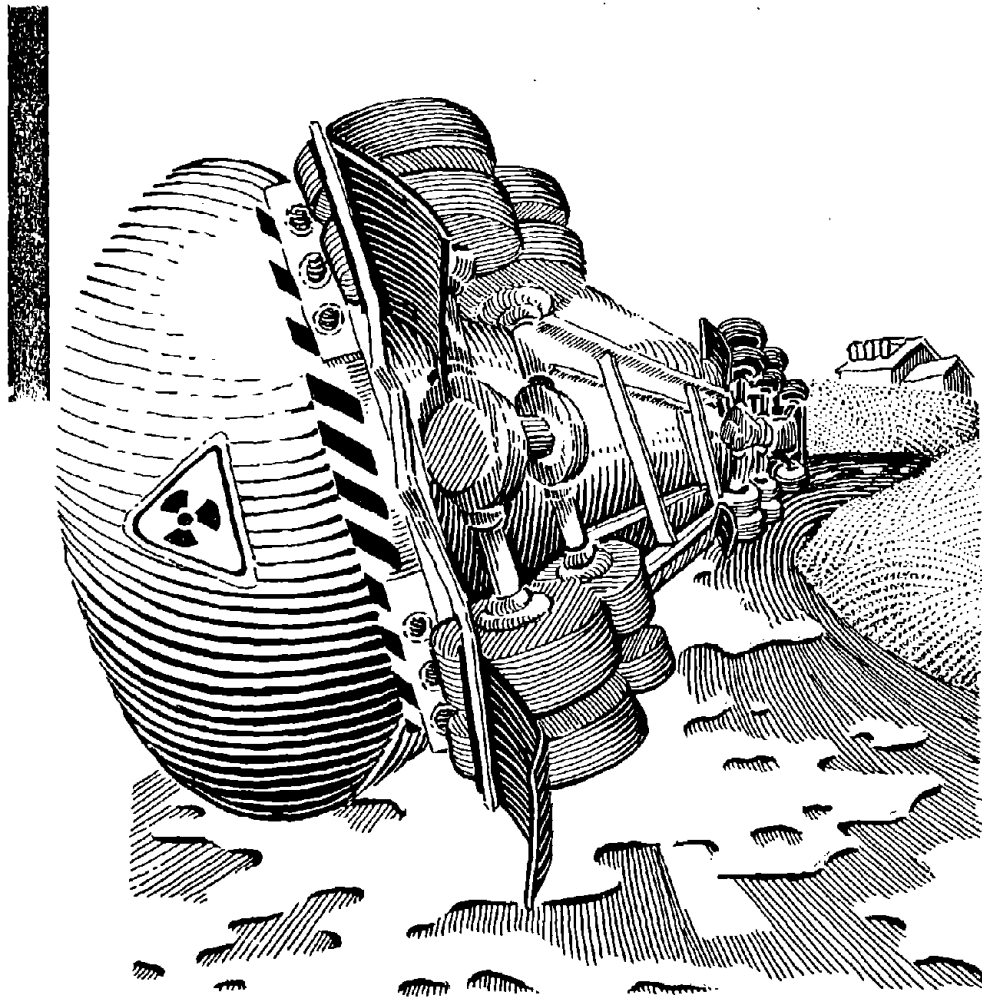
For more information

Contact your local fire department or the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publications. (Single copy requests only.)

An Ounce of Prevention (FA-76). This booklet demonstrates how smoke detectors and automatic sprinklers protect lives at minimum expense.

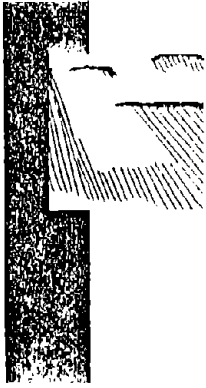
Winter-Fire Safety Tips for the Home (L-97). Describes safety tips for the home on room heating, fireplaces, furnace-heating, kitchen stoves, and other places where winter fire could occur.

Emergency Preparedness Checklist (L-154). Also available in Braille or recorded versions. This pamphlet provides general information for personal and family preparedness for a variety of natural and man made disasters.



Hazardous Materials Incidents

The Chemical Manufacturers Association estimates that in an average year, one out of every three trains and one out of every 10 trucks is carrying hazardous materials.



From industrial chemicals and toxic waste to household detergents and air fresheners, hazardous materials are part of our everyday lives. Affecting urban, suburban and rural areas, hazardous materials incidents can range from a chemical spill on a highway to groundwater contamination by naturally occurring methane gas.

Hazardous materials are substances or materials which, because of their chemical, physical or biological nature, pose a potential risk to life, health or property if they are released. Potential hazards can occur during any stage of hazardous materials use: production, storage, transportation, use and disposal.

Production and storage does not occur only in chemical plants: Your local service station's supply of gasoline or diesel fuel can be hazardous, and hospitals regularly store radioactive and flammable materials as well as other hazardous substances used in medical treatments.

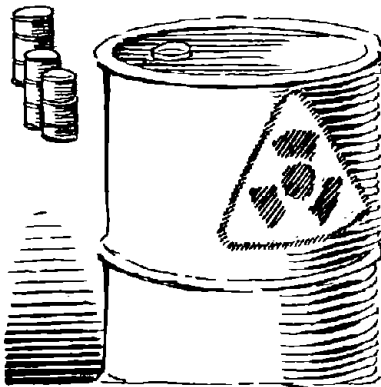
Hazardous materials are transported daily in this country by air, water, road, rail and pipeline. Of the 1.5 billion tons of hazardous

materials transported each year, more than half moves by trucks along the nation's highways.

The U.S. Environmental Protection Agency reports that as of July 1990, hazardous waste is disposed at 30,000 hazardous materials waste sites in the country. More than 1,000 of these sites are on a national priority list for cleanup.

Fortunately, federal legislation enables communities to become aware of possible hazardous material incidents and prepare for them. Legislative provisions enable local-level planners to work with industry to identify and reduce risks from toxic chemicals and, if necessary, seek corrective action. Individuals also have the opportunity to identify and alter potentially hazardous conditions in their communities.

The more you know about potential chemical hazards in your area, the better equipped you and your local government can be to make wise decisions about how hazardous materials and possible incidents will be managed.



Hazardous materials are much more common than you may think. In addition to places like chemical plants, hospitals and service stations regularly store hazardous substances.



For more information about household hazardous materials, see the information box at the end of this chapter.

Preparing for a hazardous materials incident

1. Know local warning and notification methods used in the event of a hazardous materials incident. These could include:

- *Warning sirens or horns.* These outdoor warning systems may not be heard if you are indoors or inside vehicles.
- *Emergency Broadcast System (EBS).* The radio and television EBS disseminates community emergency information.
- *"All-call" telephoning.* This method uses an automated system to ring up area telephones and provide a recorded emergency message when telephones are answered.
- *Announcements over cable television.* In some communities, cable systems are equipped to allow emergency response forces to relay announcements over cable television stations.

- *Residential route alert.* Motor vehicles equipped with public address systems travel predesignated routes to notify people of an emergency situation.

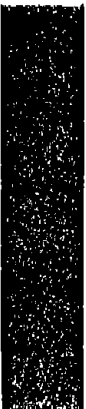
2. Contact your Local Emergency Planning Committee (LEPC) to find out precise information about where reportable quantities of extremely hazardous substances are stored and where they are used.

- Ask your local LEPC or emergency management office about community plans for responding to a hazardous materials accident at a plant or other facility, or a transportation accident involving hazardous materials.
- Contact your police and fire departments about emergency procedures.

3. Use this information to evaluate the risk to your family; determine how close you are to freeways, railroads or factories which may carry, generate or dump toxic waste.



"Residential route alerts" may warn of local hazardous materials incidents in your community.



4. Coordinate a neighborhood tour of any local industry's manufacture and storage of hazardous materials. Include interested neighbors, local officials and the media.

5. Talk to local officials to find out whether existing regulations are enforced. This can reduce the likelihood of a serious accident.

6. An accident may force you and your family to evacuate *immediately* for a few hours or several days. Be prepared for this possibility — see the *Evacuation* and *Checklists* chapters for important information.

What to do in case of a hazardous materials incident

1. If you witness a hazardous materials accident, spill or leak, call 911, your local emergency notification number or the fire department as soon as possible.

2. If you hear a warning signal, turn on your radio or television for further information from emergency response personnel. Follow all instructions carefully.

3. Stay away from the incident site in order to minimize your chances of contamination.

4. If you are caught outside during an incident, try to stay upstream, uphill and upwind — hazardous materials can quickly be transported by water and wind.


- In general, try to go at least one-half mile (10 city blocks) from the danger area; for many incidents you will need to go much further.
- Follow local authorities' instructions.

5. If you are in a motor vehicle, close off ventilation and shut your windows. This will reduce possibility for contamination or inhaling the hazardous material.

6. If you are asked to evacuate, do so immediately.

- Before leaving your home or office, close all windows, shut vents and turn off attic fans to minimize contamination.
- See *Evacuation* chapter for more important information.

7. In certain circumstances, you will be requested to stay indoors, rather than evacuate. This is called *in-place sheltering*.

- Strictly follow all instructions given by emergency authorities.
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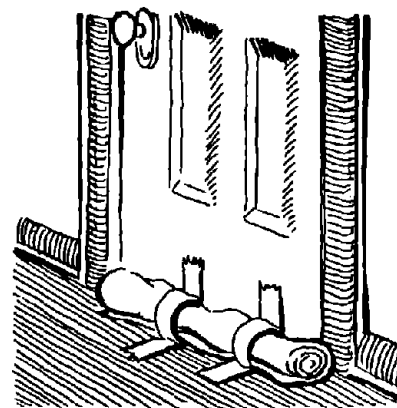
- To reduce the possibility of toxic vapors entering your home, seal all entry routes as efficiently as possible. Close and lock the windows and doors. Seal gaps under doorways and windows with wet towels and duct tape or similar thick tape.
- Seal any gaps around window air conditioning units, bathroom and kitchen exhaust fan grilles and stove and dryer vents with tape and plastic sheeting, wax paper or aluminum wrap.
- Close all fireplace dampers.
- Close as many internal doors as possible in homes or other buildings.
- If local authorities warn of an outdoor explosion, close all drapes, curtains and shades. Stay away from windows to prevent injury from breaking glass.
- Turn off all ventilation systems, including furnaces, air conditioners, vents and fans.
- Building superintendents should set all ventilation systems to 100 percent recirculation so that no outside air is drawn into the structure. Where this is not possible, ventilation systems should be turned off.

- If you suspect that gas or vapors have entered the building, take shallow breaths through a cloth or towel.
- Remain in protected, interior areas of the building where toxic vapors are reduced, and keep your radio with you.

8. Avoid contact with any spilled liquid materials, airborne mist or condensed solid chemical deposit. Keep your body fully covered and wear gloves, socks and shoes — although these measures may offer minimal protection.

9. Avoid eating or drinking any food or water which may be contaminated.

10. If you learn that you will be sheltered indoors, quickly fill up your bathtub or large containers and turn off the intake valve to your home.

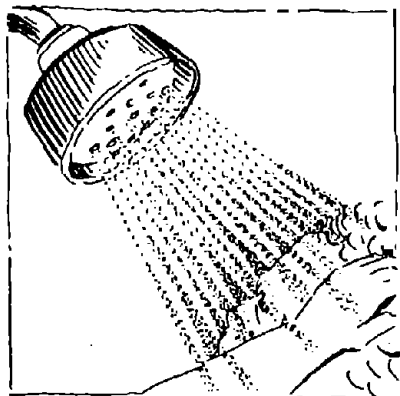


If you are instructed to stay indoors during an incident, seal gaps under doorways and windows with wet towels and duct tape or similar thick tape.



What to do after an incident

1. Do not return home until local authorities say it is safe.
2. Upon returning to your home, open windows, vents and turn on fans to provide ventilation.
3. A person or item that has been exposed to a hazardous chemical may be contaminated and could contaminate other people or items. If you have come in contact with or been exposed to hazardous chemicals, you should:



Unless local authorities tell you that the chemical is water reactive and you are instructed to do otherwise, shower thoroughly after exposure to a hazardous chemical.

- Follow decontamination instructions from your local authorities. (Depending on the chemical, you may be advised to take a thorough shower. Or, you may be advised to stay away from water and follow another procedure.)
- Seek medical treatment for unusual symptoms that may be related to the hazardous materials release.
- If medical help is not immediately available and you believe you may be contaminated, remove all of your clothing and shower thoroughly (unless local authorities say the chemical is water reactive and advise you to do otherwise). Change into

fresh, loose, warm clothing and seek medical help as soon as possible.

- Place exposed clothing and shoes in tightly sealed containers without allowing them to contact other materials, and call local authorities to find out about proper disposal.
 - Advise everyone who comes in contact with you that you may have been exposed to a toxic substance.
4. Find out from local authorities how to clean up your land and property.
 5. Report any lingering vapors or other hazards to your local emergency services office.



For more information

Contact your local fire department, Local Emergency Planning Committee (LEPC), state emergency response commissioner, state emergency management agency or the Federal Emergency Management Agency, Technological Hazards Division, Federal Center Plaza, 500 C Street, SW, Washington, D.C. 20472, (202) 646-2861.

In addition, write to the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publications. (Single copy publications only.)

Emergency Preparedness Checklist (L-154). Also available in Braille or recorded versions. This pamphlet provides general information for personal and family preparedness for a variety of natural and man made disasters.

To obtain the following Home Study Course write to:

Home Study Program,
Administrative Office
Emergency Management Institute
16825 South Seton Avenue
Emmitsburg, MD 21727

Hazardous Materials; A Citizen's Orientation Home Study Course (L-167). This pamphlet is used to enroll in a home study course that covers the sources and potential hazards associated with hazardous materials.

Other publications are available from the following sources:

Hazardous Waste From Homes. An introduction to the household hazardous waste problem with advice on disposal of common types of products. Available from

Enterprise for Education, 1320A Santa Monica Mall, Santa Monica, CA 90401.
Cost: \$2.75 plus \$1.50 postage and handling.

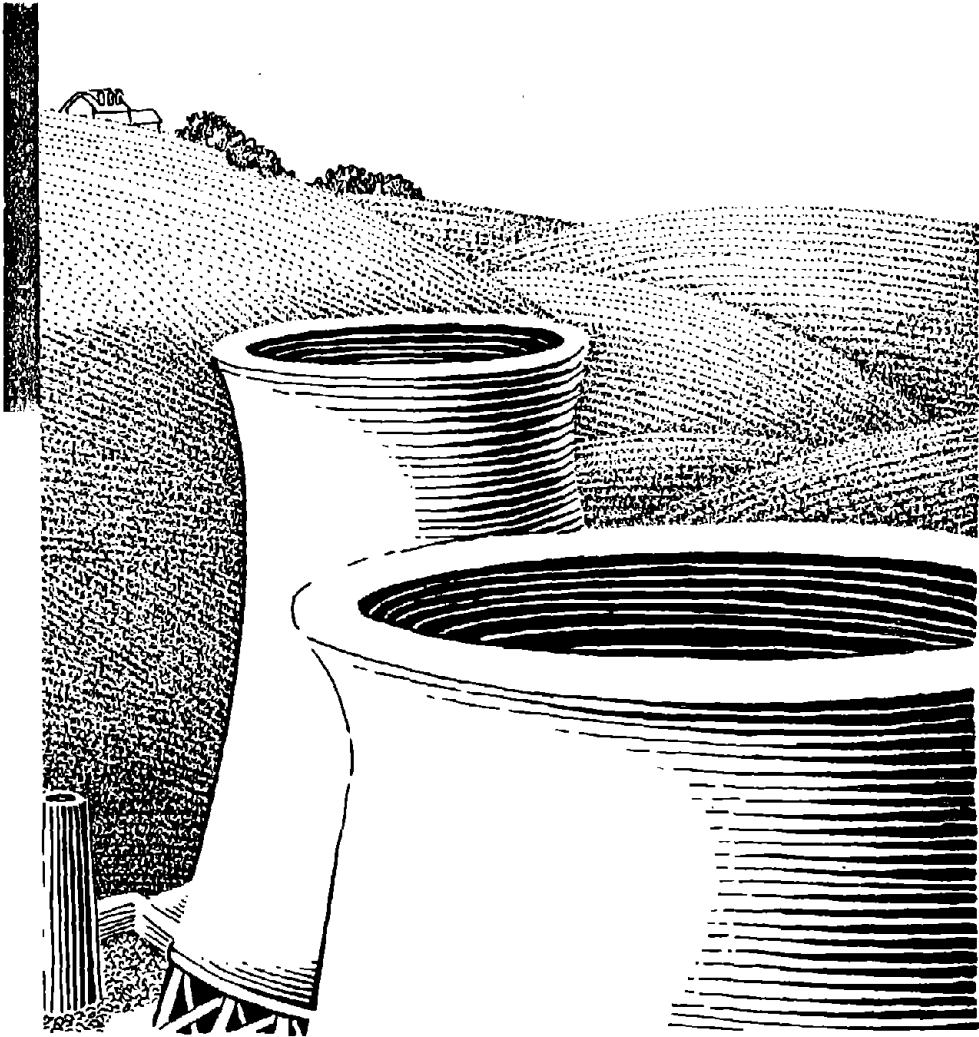
Household Hazardous Waste Wheel. Shows chemical ingredients, alternatives, hazardous properties, and disposal options for common household products in handy format. Available from Environmental Hazards Management Institute (EHMI), P.O. Box 932, 10 Newmarket Road, Durham, NH 03824. (603) 868-1496. Cost: \$2.75 for 1-9; discount in quantity.

Water Sense Wheel. Reviews sensory clues of the presence of contaminants in drinking water, Federal standards, health effects, and chemical-specific water treatment options. Available from Environmental Hazards Management Institute (EHMI), P.O. Box 932, 10 Newmarket Road, Durham, NH 03824. (603) 868-1496. Cost: \$2.75 for 1-9; discount in quantity.

Additional information may be available by contacting:

U.S. Environmental Protection Agency
Superfund Response/NRT
401 M Street, SW
Washington, D.C. 20460
(202) 475-8600 or (202) 479-2449 in the Washington, D.C. area

Chemical Manufacturers Association
2501 M Street, N.W.
Washington D.C., 20037
(202) 887-1100



Nuclear Power Plant Accidents

No one has ever been killed or injured by a radiation accident at a commercial nuclear power plant in the U.S., even though these plants have been generating commercial power for over 30 years.

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Nuclear power plants operate in most states in the country and in 1990, provided 20 percent of the nation's power. Nearly three million Americans live within 10 miles of an operating nuclear power plant. Though the construction and operation of these facilities are closely monitored and regulated by the Nuclear Regulatory Commission, accidents at these plants are possible. An accident could result in dangerous levels of radiation that could affect the health and safety of the public living near the nuclear power plant.

Local and state governments, Federal agencies and the electric utilities have developed emergency response plans for use in the event of a nuclear power plant accident. These plans define two "emergency planning zones." One covers an area within a ten-mile radius of the plant where it is possible that people could be harmed by direct radiation exposure. The second zone covers a broader area, usually up to a 50-mile radius from the plant, where accidentally released radioactive materials could contaminate water supplies, food crops and livestock.

Understanding radiation

Atoms are the building blocks of all material. If an atom is unstable — meaning it contains excess energy — it emits radiation.

Each of us is exposed to radiation from radioactive materials that exist in nature, including the sun and earth. Small traces of radiation are even present in food and water. Radiation is also released from man-made sources such as x-ray machines, television sets and microwave ovens. Nuclear power plants use the heat generated from nuclear fission in a contained environment to convert water to steam, which powers generators to produce electricity.

In general, radiation has a cumulative effect. The longer a person is exposed to radiation, the greater the risk. A high exposure to radiation can cause serious illness or death. Studies show that any negative health effects that might be caused by low-level exposure to radiation cannot be distinguished from those caused by other environmental hazards.

If an accident at a nuclear power plant were to release radiation in your area, local authorities would

activate warning sirens. They would also instruct you how to protect yourself through the Emergency Broadcast System (EBS) on local television and radio stations.

In general, there are three ways to minimize radiation exposure to your body: distance, shielding and time.

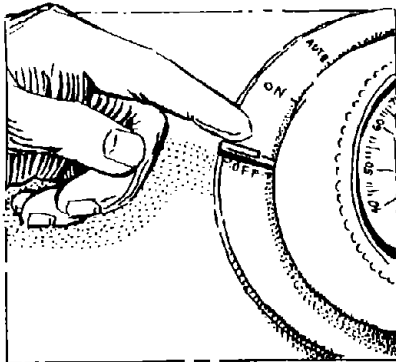
- **Distance.** The more distance between you and the source of the radiation, the better. In a serious nuclear power plant accident, local authorities will call for an evacuation — to increase the distance between you and the radiation.
- **Shielding.** Like distance, the more heavy, dense material between you and the source of the radiation, the better. This is why local authorities could advise you to remain indoors if an accident occurs at a nearby nuclear power plant. In some cases, the walls in your home would be sufficient shielding to protect you.
- **Time.** Most radioactivity loses its strength fairly quickly. In a nuclear power plant accident, local authorities will monitor

any release of radiation and determine when the threat has passed.

How to prepare for a nuclear power plant accident

1. Know the terms used to describe a nuclear emergency:

- *Notification of unusual event* means a small problem has occurred at the plant. No radiation leak is expected. Federal, state and county officials will be told right away. No action on your part will be necessary.
- *Alert* means a small problem has occurred, and small amounts of radiation could leak inside the plant. This will not affect you. Federal, state and county officials will stand by. You should not have to do anything.
- A *site area emergency* is a more serious problem. Small amounts of radiation could leak from the plant. If necessary, state and county officials will act to assure public safety. Area sirens may be sounded. Listen to your radio or television for safety information.



If you are instructed to remain indoors, close doors and windows and turn off vents, air conditioning and other air intakes.

- A *general emergency* is the most serious problem. Radiation could leak outside the plant and off the plant site. The sirens will sound. Tune to your local radio or television station for reports. State and county officials will act to assure public safety. Be prepared to follow their instructions promptly.

2. Learn your community's warning system. Nuclear power plants are required to install sirens and other warning systems to cover a ten-mile area around the plant.

- Find out when the sirens will be tested next and what they sound like.
- The next time a test is conducted in your area, determine whether you can hear them from your home.

3. Obtain public emergency information materials from the power company that operates your local nuclear power plant or from your local emergency services office. If you live within 10 miles of the power plant, you should receive these materials every year from the power company or your state or local government.

4. Learn the emergency plans for schools, day care centers, nursing homes and other places where members of your family might be. Learn where people would go in case of evacuation. Stay tuned to your EBS stations for further updates.

5. Be prepared to evacuate:

- Gather in advance clothing, a battery-powered radio and personal items to take with you.
- Consider your transportation options. If you do not own or drive a car, call your local emergency management office and ask for more information.
- See the *Evacuation and Checklists* chapters for important details.

What to do in a nuclear power plant emergency

1. Keep calm. Not all incidents result in the release of radiation. The incident could be contained inside the plant and pose no danger to the public.



2. Stay tuned to local radio or television stations. Local authorities will provide specific information and instructions.

- The advice given will depend on the nature of the emergency, how quickly it is evolving and how much radiation, if any, is likely to be released.
- Local instructions should take precedence over any advice given in this handbook.
- Review the public information materials you received from the power company or government officials.

3. Evacuate if you are advised to do so.

- Close and lock home doors and windows.
- Keep car windows and vents closed; use recirculating air.
- Listen to radio broadcasts for evacuation routes and other instructions.
- See the *Evacuation* chapter for important details.

4. If you are not advised to evacuate, remain indoors.

- Close doors and windows.

- Turn off the air conditioner, ventilation fans, furnace and other air intakes.
- Go to a basement or other underground area if possible.
- Keep a battery-powered radio with you at all times.
- If you must go outdoors, cover your nose and mouth with a handkerchief.

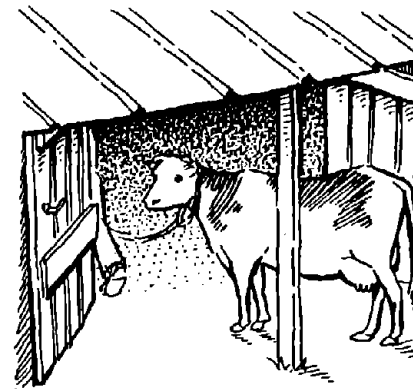
5. Shelter livestock and give them stored feed, if you are advised to do so by local authorities.

6. Do not use the telephone unless absolutely necessary. All lines will be needed for emergency calls.

7. If you have just been outdoors, take a thorough shower.

- Change your clothes and shoes.
- Put the items you were wearing in a plastic bag.
- Seal the bag and store it out of the way.

8. Put food in covered containers or in the refrigerator. Food not previously in covered containers should be washed first.



Shelter livestock and give them stored feed, if you are advised to do so by local authorities.

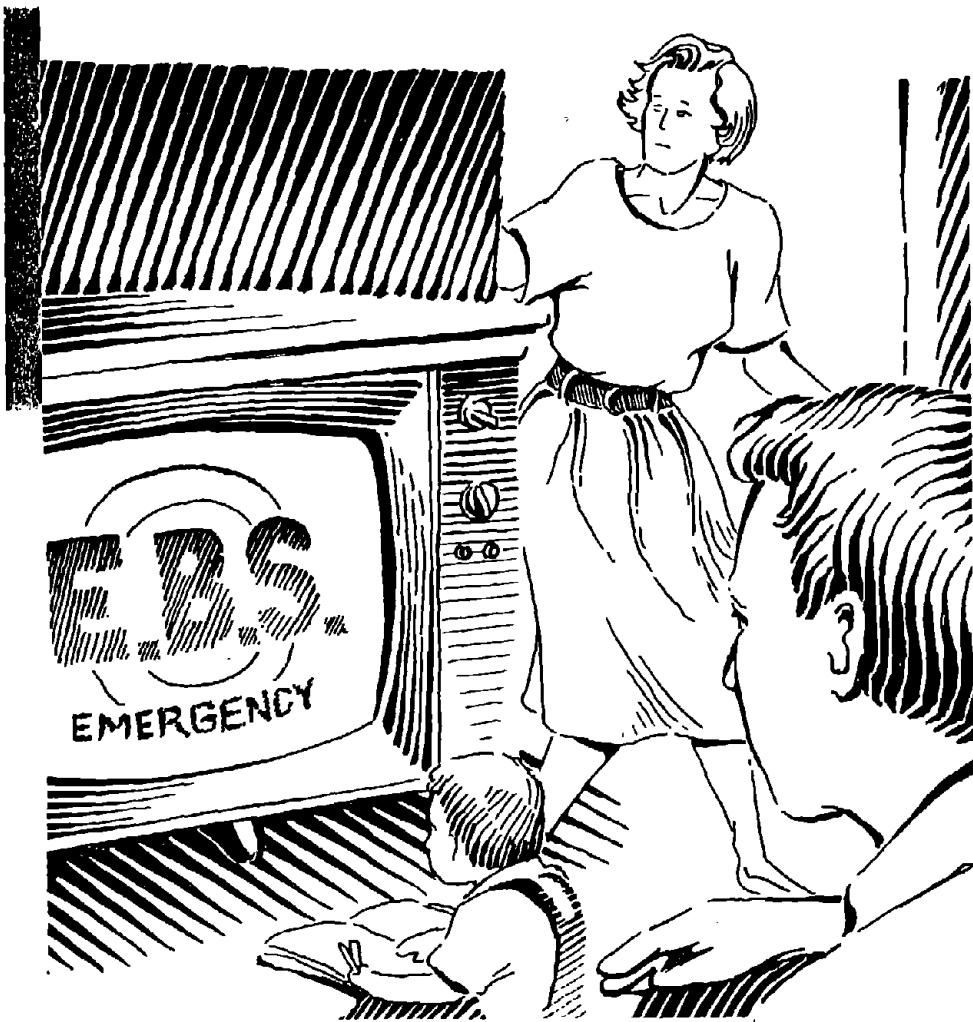


For more information

Contact your local civil defense or emergency management office or the Field Operations Branch, Technological Hazards Division, Federal Emergency Management Agency, 500 C Street, SW, Washington D.C. 20472.

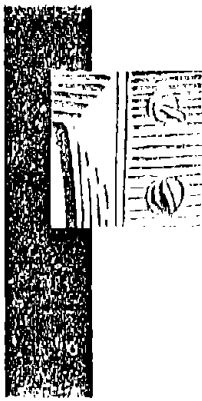
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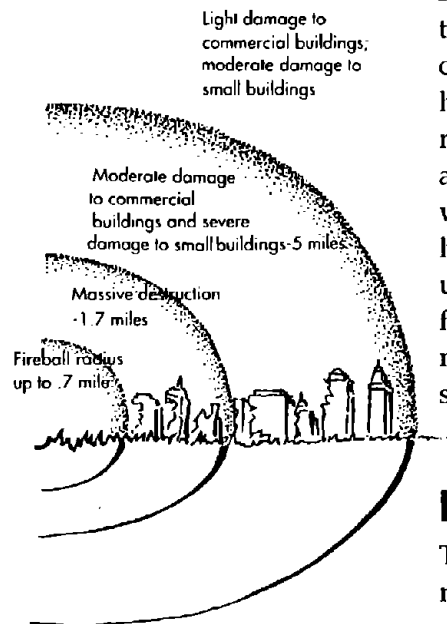
National Emergencies

National public opinion surveys show that Americans recognize that having information about what to do in a national emergency contributes to survival more than any other element of civil defense.



In addition to the natural and technological hazards described in this publication, Americans face other dangers which could have far greater consequences. These are threats to the country's national security — such as a nuclear or conventional weapons attack — posed by other governments or extremist groups.

Is the United States at risk? Unfortunately, the answer is yes. No one can predict the future or control how other countries or leaders might use their weapons. As long as nuclear, chemical and biological weapons exist, there is a chance, however unlikely, that they will be used some day. There is no need for undue alarm. But there is a need for awareness and an understanding of security threats.



While the level of devastation depends on many factors, the damage from the direct effects of a one megaton nuclear surface burst can reach up to eight miles.

Nuclear weapons

The number of countries with nuclear weapons capabilities is growing. And the very existence of nuclear weapons around the world poses the greatest threat of all. Dangers could emerge from a strategic attack on the United States, a nuclear war between two other countries, an accidental

launching of a nuclear warhead or a major accident at a nuclear weapons storage facility.

Understanding the effects of nuclear weapons — knowing what could happen and how to respond — is critical to survival. Millions of people who would otherwise die or be seriously injured in a major nationwide attack could save themselves if they take steps now to prepare and learn what to do if a nuclear weapon is detonated.

Direct weapon effects: protection

Nuclear weapons produce deadly direct effects — blinding light, intense heat and thermal radiation that causes fires, nuclear radiation and a blast wave similar to a tidal wave of air. The level of devastation depends on the size and type of weapon, the weather, terrain and height of explosion. These direct effects can extend miles from the point of impact, known as "ground zero."

There is no way of knowing how much warning time there would be before an attack. A surprise attack on the U.S. remains possible,



though very unlikely. Military analysts believe a nuclear threat would most likely follow a period of rising international tensions. U.S. intelligence would be able to detect in advance whether an enemy was planning an attack. In such cases, people would have time to evacuate potential target areas and go elsewhere. Although blast shelters can protect people from the direct effects of a nuclear detonation, there are virtually none in the U.S.

If there were a threat of a nuclear attack, people living near potential targets could be advised to evacuate or they could decide on their own to evacuate to areas not considered likely targets. The federal government works with states and communities to develop evacuation plans for areas considered potential nuclear targets.

In general, potential nuclear targets include:

- Strategic missile sites and military bases
- Centers of government like Washington, D.C. and state capitals
- Important transportation and communication centers

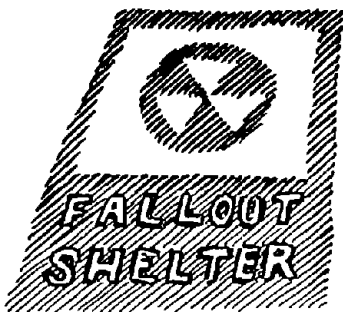
- Manufacturing and industrial sites of military importance
- Petroleum refineries, electrical power plants, chemical industries and major ports and airfields.

Radioactive fallout

A nuclear detonation near or on the ground sucks up large quantities of earth and other debris which form what is known as a "mushroom cloud." These particles become radioactive and fall back to earth as radioactive fallout.

The amount and distribution of radioactive fallout would depend on the size and type of weapon and the weather, especially the wind. Large, heavy particles can fall back to earth within a few minutes or hours. Smaller particles can be carried by winds for hundreds of miles and remain in the air for weeks, or even months, before falling back to earth.

In general, fallout radiation has a cumulative effect. The longer a person is exposed to radiation, the greater the risk. The effects of radiation are usually more severe on the very young, the elderly and



Designated public fallout shelters include churches, subways, mines and caves. Some are marked with a yellow and black fallout shelter sign.

people not in good health. Healthy people can be exposed to small daily doses of radiation over extended periods of time without incurring serious illness, although there may be delayed consequences.

Early symptoms of radiation sickness include: lack of appetite, nausea, vomiting, fatigue, weakness and headache. Later, the person may have a sore mouth, loss of hair, bleeding gums, internal bleeding and diarrhea. Not everyone who gets radiation sickness experiences all these symptoms, and some people exposed to radiation may not experience any symptoms for several days, months or years.

A person cannot "catch" radiation sickness from someone else. Like injury from poison or a burn, radiation sickness is not contagious. Someone with radiation sickness cannot make anyone else radioactive.

Protection from radioactive fallout

Following a nuclear attack or a single nuclear blast, many areas of our country could escape fallout

altogether or experience non-life-threatening levels of radiation. However, there is no way of predicting what areas of the country would be threatened by fallout or to what degree. No locality in the U.S. can be considered free from at least the risk of receiving deadly levels of radiation from drifting fallout in the event of a nuclear detonation.

Though people can see fallout — it looks like sand or a fine dust — they cannot see the radiation given off by fallout particles. Radiation detection instruments are needed to determine the level of radiation and the degree of threat it poses. State and local governments are responsible for maintaining a supply of radiation detection equipment. These instruments are also available through private companies.

Protection from radioactive fallout requires taking shelter. There are three factors to consider.

The first factor is **shielding**. The more heavy, dense materials — such as thick walls, concrete, bricks, books and earth — between you and the fallout particles, the better.



The second factor is **distance**. The more distance between you and the fallout, the better. An underground area, such as a home or large building basement, offers more protection than the first floor of a building.

The third factor is **time**. Fallout radiation loses its intensity fairly rapidly. In time, people would be able to leave fallout shelters. Generally, radioactive fallout would pose the greatest threat to people during the first two weeks after a nuclear detonation.

A fallout shelter does not need to be a special type of building. It can be any space in a house or public building with walls and roof that are thick and dense enough to absorb the radiation given off by the fallout particles from outside. A fallout shelter is not the same as a blast shelter. Both types of shelters provide protection from radiation, but a blast shelter can also resist the blast effects of a nearby nuclear explosion.

In nearly every community, government authorities have identified places that could provide fallout protection. Designated public fallout shelters include buildings,

churches, subways, tunnels, mines and caves. Some shelters are marked with a yellow and black fallout shelter sign, others are not. These shelters are not stocked with food, water or other emergency supplies — you should be prepared to provide your own.

See the *Shelter* chapter for important information about building temporary fallout shelters and shelter living. Remember that even temporary shelters offer at least some protection from radioactive fallout.

Electromagnetic pulse

In addition to other effects, a nuclear weapon detonated in or above the earth's atmosphere can create an electromagnetic pulse (EMP) — a high density electrical field. EMP acts like a stroke of lightning but is stronger, faster and briefer.

Although EMP cannot harm people, it can damage many electronic devices connected to power sources or antennas. EMP can damage communications systems, computers, electrical appliances and automobile or aircraft ignition





systems. The damage could range from a minor interruption to actual burnout of components. Most electronic equipment within 1,000 miles of a high-altitude nuclear detonation could be affected. Battery-powered radios with short antennas generally would not be affected.

How to prepare for a nuclear attack

1. Learn the warning signals used in your community. Make sure you know what the signals are, what they mean, how they will be used, and what you should do when you hear them. Two standard emergency signals have been adopted by most communities:

- *Attention or alert signal* — a three- to five-minute steady blast on sirens, whistles, horns or other devices. In most places, this signal means that the local government is planning to broadcast important information. If you hear the attention or alert signal, turn on a local radio or television station and stay tuned for news bulletins.

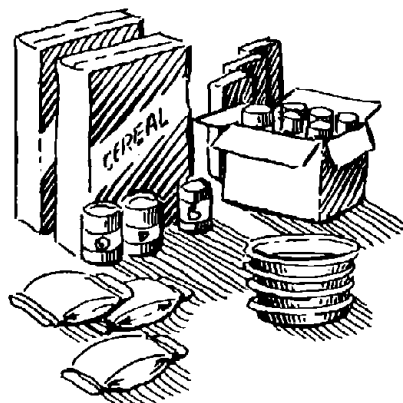
- *Attack warning signal* — a three- to five-minute wavering sound on sirens or a series of short blasts for three to five minutes. This signal would be used only for an enemy attack.
- In most communities, warning sirens are tested regularly. Become familiar with the test pattern over time, normally a 90-second blast or a 90-second rising and falling tone.

2. Check with your local emergency services office to learn whether you live or work near a potential target.

3. Learn where public fallout shelters are located. Ask your local authorities about plans to shelter citizens and whether any provisions have been made for food, water and other emergency needs. See *Shelter* chapter for important information.

4. Learn how to build a temporary fallout shelter. Even if you do not live near a potential nuclear target, you could be threatened by radioactive fallout. See *Shelter* chapter for important information.

5. Learn about your community's evacuation plans. Such plans include routes, relocation sites and



Gather food, water and emergency supplies to prepare for evacuation or a shelter stay. The more you take, the better.



transportation options for people who do not own cars or have special needs. See *Evacuation* chapter for more information.

6. Gather food, water and emergency supplies to prepare for evacuation or a shelter stay. The more the better.

- Foods should be nonperishable goods such as canned or sealed-package items that do not require refrigeration or preparation.
- Store water in sealed, unbreakable containers. You would need at least one gallon of water a day, per person.
- See the *Checklists* chapter for a list of supplies.

7. Write for other emergency preparedness booklets that you may need, such as shelter designs and first aid manuals. Publications are listed at the end of this chapter.

What to do in case of a nuclear attack

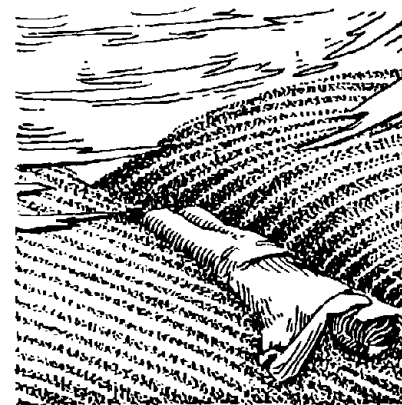
1. Although it is very unlikely, your first warning of an enemy attack may be the flash of a nuclear explosion. Or there could be a flash after a warning has been

given, while you are on your way to shelter. Do not look at the flash. The flash or fireball can blind you from as far away as 10 or 12 miles.


2. If you hear the attack warning signal, take cover immediately, preferably below ground level.

- Stay there, unless instructed otherwise.
- If you are caught outdoors, take cover behind anything that might offer protection. Lie flat on the ground and cover your head.
- If the explosion is some distance away, it could take 30 seconds or more for the blast wave to hit.

3. Protect yourself from radioactive fallout. If you are close enough to see the brilliant flash of a nuclear weapon, the fallout will arrive in about 20 minutes. Take shelter, even if you are many miles from ground zero — radioactive fallout can be carried by the winds for hundreds of miles before falling back to earth. Remember the three protection factors: *shielding, distance and time.*



If you hear an attack warning signal and are outdoors, take cover behind anything that might offer protection. Lie flat and cover your head.



4. Keep a battery-powered radio with you, and listen for official information. Follow the instructions given. Local instructions should always take precedence.

Terrorism and chemical warfare

More countries today are producing chemical weapons than ever before. The U.S. government is prepared to assist the public in the unlikely event of a chemical or biological attack — decontamination and containment procedures would begin as soon as possible.

Violence has become an increasingly common vehicle for political change.

Although terrorist threats are often unforeseeable, people can prepare for the possibility of some acts of terrorism, including explosions or the possible use of chemical, biological or nuclear devices to cause disruption, confusion and fear.

In case of other terrorist acts, such as assassinations, kidnapping or holding hostages, you must rely on local, state and federal authorities

for guidance on how to respond. However, none of these emergencies are ever likely to affect you in your home. If you should happen to be in the immediate area of an act of terrorism, remember what you have learned about how to cope with other emergencies.

To prepare for possible terrorist acts, consult:

- The *Earthquakes* and *Fire* chapters for information pertinent to explosions and fires in buildings.
- The *Hazardous Materials* chapter for information on protecting yourself from chemical devices used by terrorists.
- The *Checklists* chapter for measures to take against contaminated food and water in the event of terrorist use of biological agents.

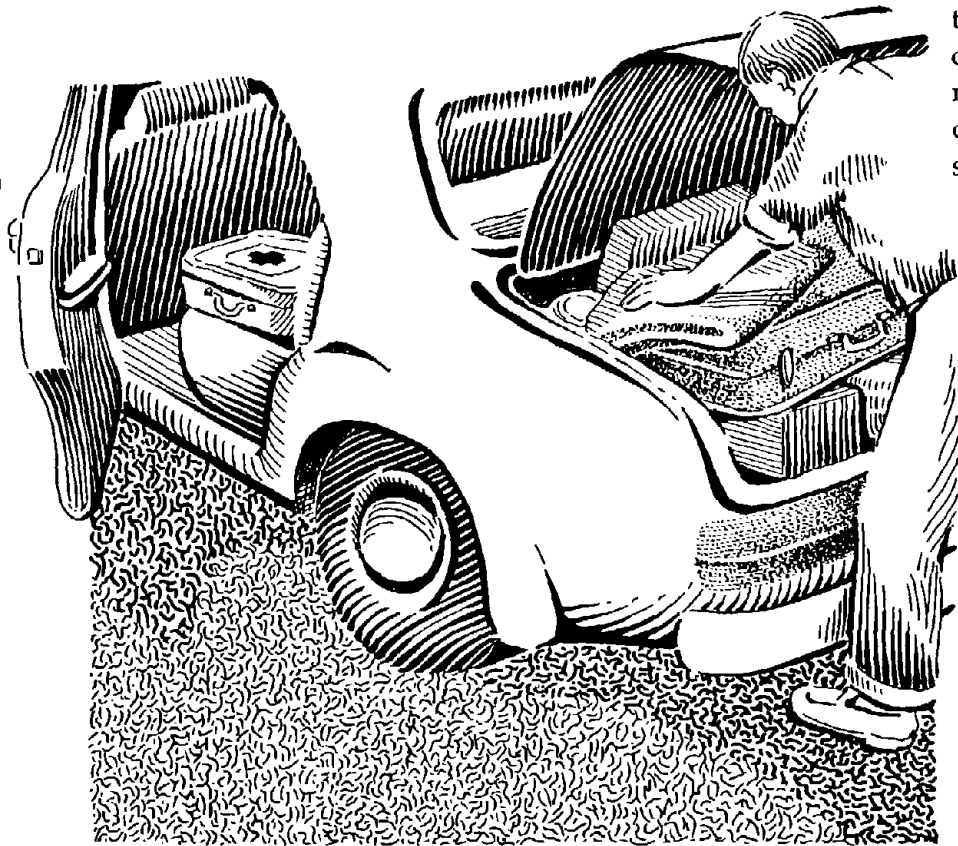
For more information

Contact your local civil defense or emergency management office or the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publication. (Single copy requests only.)

Planning for Survival (H-20). This handbook provides information about the effects of nuclear detonation and protective actions that can be taken by the public.

To obtain the following Home Study Course write to: FEMA Home Study Program, Administrative Office, Emergency Management Institute, 16825 South Seton Avenue, Emmitsburg, MD 21727.

Preparedness Planning for a Nuclear Crisis — Home Study Course (L-149). This pamphlet is used to enroll in a home study course that covers the effects of nuclear weapons, evacuation and sheltering, preparing and stocking a fallout shelter, and how to develop emergency plans to improve the chances of surviving a nuclear attack.



Evacuation

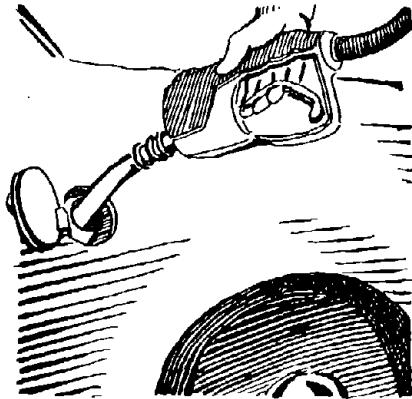
The largest peacetime evacuation occurred during Hurricane Elena in 1985 when 1.5 million people evacuated coastline areas in the Gulf states.

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People are forced to evacuate more often than you may realize. Hundreds of times each year, transportation or industrial accidents release harmful substances, forcing thousands of people to leave their homes and go to a safer area. Fires and floods cause evacuation even more frequently. And almost every year, people in cities and communities along the Gulf and Atlantic coasts evacuate in the face of approaching hurricanes.



Keep fuel in your car at all times. During emergencies, filling stations may be closed.

As a result, local evacuation planning has been in progress for several years in many parts of the country. Specific evacuation plans vary by area and by disaster, so contact your local emergency management or civil defense office for your community's plans.

In the event of rising international tensions, government authorities could evacuate people to areas not considered likely targets for nuclear attack. For example, this could occur during a crisis buildup if U.S. intelligence detected a readying of an enemy's nuclear systems, evacuation of its cities, movement of officials to shelter or protection of industrial sites. The Federal government is responsible

for working with state and local governments to develop large-scale evacuation plans for areas considered potential nuclear targets.

How much time you will have to evacuate

The amount of time you will have to evacuate your home or community depends on the disaster. Sometimes, you may have days to prepare: Hurricanes can be detected early, and in case of the possibility of a nuclear attack, rising international tensions would signal that preparations were necessary. However, in many more common disasters, such as a hazardous materials spill, you may have only moments to leave. This means you must prepare yourself *now*, because once you need to evacuate, it may be too late to collect even the most basic necessities.

Evacuation periods

Evacuation periods can last for hours or several days. For part, or all, of this time, you may be responsible for your own food, clothing and other supplies until help arrives or utilities are repaired. In



some cases, you may need to take care of yourself without outside help for an average time of 72 hours, or three days. In event of a nuclear attack, families should be prepared to be self-sufficient for at least two weeks, while living in a shelter. Some mass shelters, such as those operated by the Red Cross, will be prepared to feed you.

Advance planning for evacuation

1. Use the *Checklists* chapter to gather emergency supplies for you and your family in case of evacuation. Collect these crucial materials, especially food and water, well in advance of disaster — once you are told to evacuate, you may have only minutes to leave.

2. Review possible evacuation procedures with your family so that everyone understands what to do and where to meet if you are separated.

- Ask a friend or relative outside your area to be the “checkpoint” so that everyone in the family can call that person to say they are safe.

- Find out where children will be sent if they are in school when an evacuation is announced.

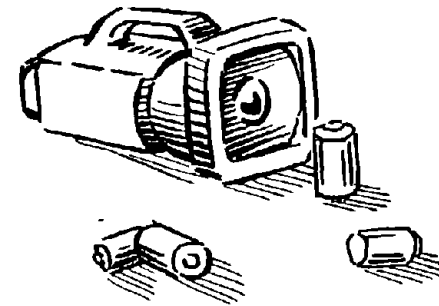
3. Plan now where you would go if you had to evacuate.

- Consider the homes of relatives or friends who live nearby but outside the potential disaster area.
- Contact the local emergency management or civil defense office for community evacuation plans. Review public information to identify reception centers and shelter areas. These may be schools, churches, national guard armories or other public buildings.

4. Keep fuel in your car at all times. During emergencies, filling stations may be closed. Never store extra fuel in the garage.

5. If you do not have a car or other vehicle, make transportation arrangements with friends, neighbors or your local emergency management office.

6. Know where and how to shut off electricity, gas and water at main switches and valves. Make sure you have the tools you would need to do this (usually pipe and



Flashlights and batteries are important emergency supplies. But if you suspect a gas leak in your home, do not use a flashlight. The light itself could cause an explosion.



crescent or adjustable wrenches). Check with your local utilities for instructions.

What to do when you are told to evacuate

1. If there is time, secure your house.

- Unplug appliances.
- Turn off natural gas, propane or other fuel valves where they enter the house. In a flood hazard area, store propane tanks or secure them safely to the structure.
- Turn off the main water valve.
- Take any actions needed to prevent damage to water pipes by freezing weather, if this is a threat.
- Securely close and lock all doors, windows and garage.
- Place a sign on the front door or window to notify authorities that your house or apartment has been evacuated and no one remains inside. If possible, leave a number where you can be reached.

2. Follow recommended evacuation routes. Do not take shortcuts! They may be blocked.

3. Listen to the radio for emergency shelter information.

4. Carry a family safety kit. See the *Checklists* chapter for important information.

Returning home

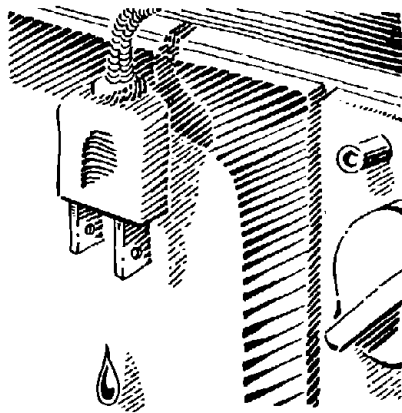
1. Do not return to the emergency site until local authorities say it is safe.

2. Continue listening to the radio for information and instructions.

3. Use extreme caution when entering or working in buildings — structures may have been damaged or weakened. Beware of poisonous snakes in flooded structures and debris.

4. Do not take lanterns, torches or any kind of flame into a damaged building. There may be leaking gas or other flammable materials present. Use battery-operated flashlights for light. But if you suspect a gas leak, do not use any kind of light! The light itself could cause an explosion.

5. If you smell leaking gas, turn off the main gas valve at the meter.



If any appliances are wet, turn off the main electrical power switch before you unplug them.



- Do not turn on lights — they can produce sparks that will ignite the gas.
- Leave the house immediately and notify the gas company or the police.
- Do not reenter the house until an authorized person tells you it is safe to do so.

6. Notify the power company or fire department if you see fallen or damaged electrical wires.

7. If any of your appliances are wet, turn off the main electrical power switch in your home before you unplug them. Dry out appliances, wall switches and sockets before you plug them in again — call utility companies for guidance.

8. Check food and water supplies for contamination and spoilage before using them. Follow specific instructions from your local health department or agriculture extension agency.

9. Wear sturdy shoes when walking through debris or broken glass, and use heavy gloves when removing debris.

10. Do not visit the disaster area unless authorities have given you permission.

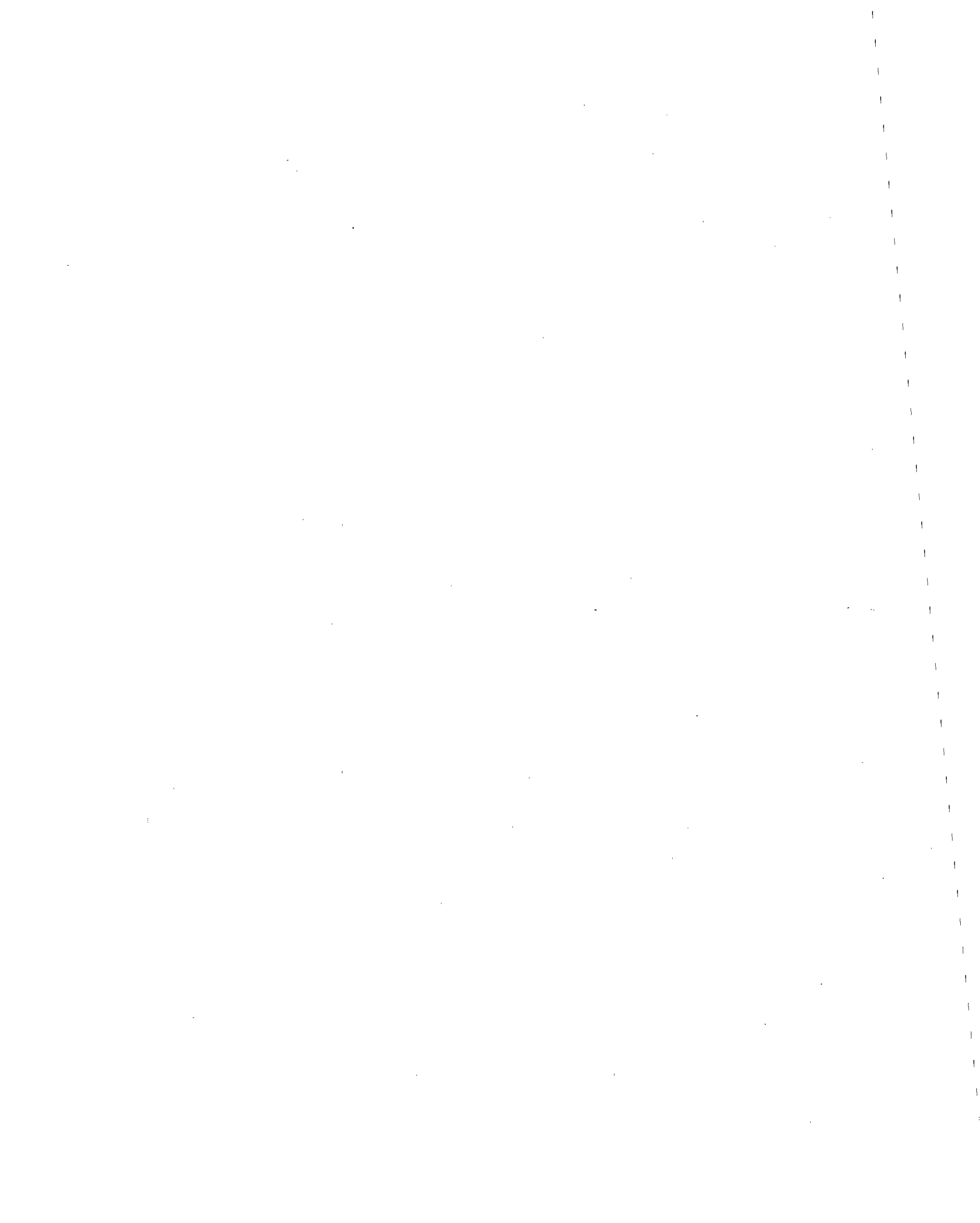
11. After the emergency has passed, telephone or telegraph your family and friends to tell them you are safe.

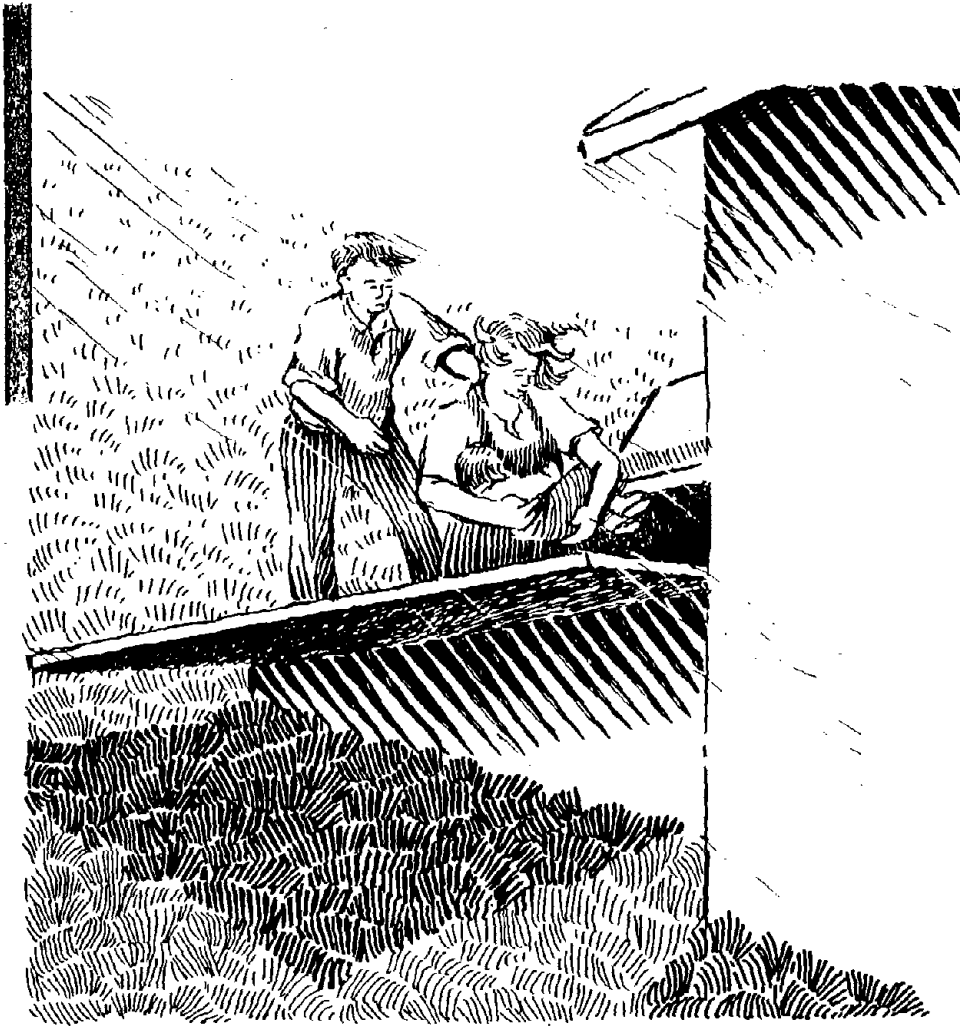
For more information

Contact your local civil defense or emergency management office or the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publications. (Single copy requests only.)

FEMA 183 (September 1989) Hosting in an Emergency. Information for citizens who may be willing to host evacuees in an emergency.

Emergency Preparedness Checklist (L-154). Also available in Braille or recorded versions. This pamphlet provides general information for personal and family preparedness for a variety of natural and man made disasters.

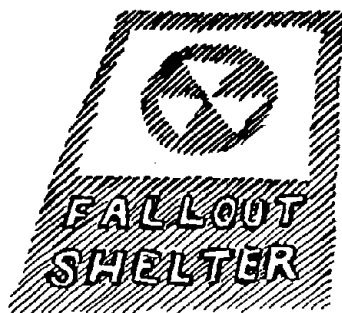
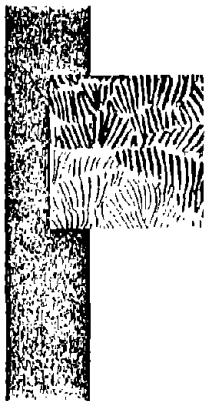




Shelter

In 1989, following Hurricane Hugo and the Loma Prieta earthquake, the American Red Cross provided 200,000 beds in 806 shelters. Volunteer organizations served over 13 million meals.

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Designated public fallout shelters include churches, subways, mines and caves. Some are marked with a yellow and black fallout shelter sign.

During any disaster or emergency, there is a possibility that you and your family will need to take shelter. This may mean staying inside your home after a hazardous materials spill or living in a basement shelter after a nuclear blast. Often during some emergencies, local authorities and the Red Cross may house people in public shelters: schools, municipal buildings, churches and many other structures.

Public shelters may not offer food, water, medicine or in some cases, even basic sanitary facilities. You should collect the emergency supplies listed in the *Checklists* chapter, so your family will have a more comfortable stay in either a home or public shelter during any emergency.

As you learn about the various threats that may arise in your area — from hazardous materials incidents to hurricanes — find out from your local civil defense or emergency management office what kind of shelter facilities are available and what you might need to do on your own.

Shelter from nuclear attack

Taking shelter during a nuclear attack is absolutely necessary. There are two kinds of shelters — blast and fallout.

Blast shelters offer some protection against blast pressure, initial radiation, heat and fire. However, even a blast shelter could not withstand a direct hit from a nuclear detonation. If you live in an area which has been identified as a likely target, make plans to evacuate to a safer place in times of nuclear emergency.

Fallout shelters do not need to be a special type of building. They can be any protected space, provided that the walls and roof are thick and dense enough to absorb the radiation given off by fallout particles. The more shielding — heavy dense materials such as concrete, bricks and earth — between you and the fallout particles, the safer you will be.

In addition to shielding, putting physical distance between you and the fallout particles is advised. For example, the center area of a middle floor of a high-rise apartment building offers more protection than an outside wall on the



first floor, because there would be more distance between you and the radioactive fallout. However, in a typical home basement, a below-ground corner offers the best protection because it provides better shielding.

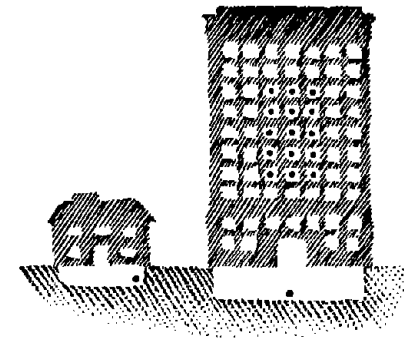
Time is also a factor in protecting yourself from radiation. Fallout decays relatively rapidly, and most people would be able to leave their shelters after a week or two. Remember that any protection, however temporary, is better than none at all.

Planning for shelter before a nuclear attack

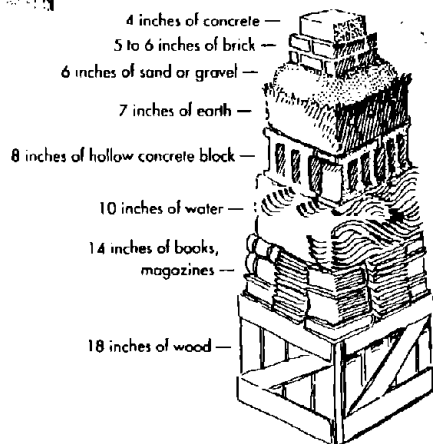
1. Find out what public buildings have been designated as fallout shelters in your community.
 - Call your local civil defense or emergency management office.
 - Look for yellow and black fallout shelter signs on public buildings.
 - If no noticeable or official designations have been made, make your own list of potential shelters near your home, workplace or school, such as basements or the center, windowless area of

middle floors in high-rise buildings as well as subways, tunnels, caves or mines.

- Give your family clear instructions about where fallout shelters are located and what actions to take in case of an attack. See the *National Emergency* chapter for additional information.
2. In many suburban and rural areas, there are few public shelters, so consider building a permanent fallout shelter at home.
 - A basement, or any underground area, is the best place to build a fallout shelter. Often, few major changes are necessary, especially if the structure has two or more stories and its basement — or one corner of it — is below ground.
 - Fallout shelters can be used for storage during non-emergency periods.
 - Specific building plans for home-basement and outdoor-permanent shelters (both fallout and blast) are available. See the information section at the end of this chapter.



Potential fallout shelters include the basements of large or small buildings, or the center, windowless area on middle floors of high-rise buildings.



3. Gather enough food and supplies for each family member for two weeks of shelter living. See the recommendations in the *Checklists* chapter.

Improvising fallout shelters during imminent nuclear attack

1. If an attack is imminent and you have no immediate access to a permanent shelter, improvise a shelter for yourself and your family.

2. The more shielding materials you use, the more protection you will have against fallout radiation. The following shielding materials can be used:

- Concrete bricks, earth and sand are some of the materials that are dense or heavy enough to provide fallout protection.
- House doors, especially heavy outside doors. If you use paneled or hollow core doors, stack them in double layers.
- Dressers, chests, bookcases, trunks, boxes or cartons. Fill them with sand or earth after

they are in position, so they are not too heavy or will not collapse while being carried.

- Piles of books and magazines or stacks of firewood or lumber.
- Flagstone from outside walks and patios.

3. If you build a shelter in your basement, start by setting up a large sturdy table or workbench in the corner that is deepest below ground level.

- Place on the table as much shielding material as it will hold without collapsing.
- Then place as much shielding material *around* the table as you can; then stack up the material as high as the table top.
- Finally, once everyone is inside the shelter, block the opening with additional shielding materials.

4. If you do not have a large table or workbench, or if you think you and your family will need more shelter space, use furniture — such as earth-filled dressers or chests — to form the walls of your shelter as large as you require.

- For the shelter “ceiling” use heavy outside doors or reinforced hollow core doors.



- Pile as much shielding material on top of the doors as they will hold; use reinforcing supports in the middle of the ceiling if you need to prevent sagging and collapse.
- Stack shielding material outside shelter "walls."
- Once everyone is inside the shelter, close off the opening with additional shielding material, while allowing for ventilation.

5. You can also use an existing below-ground storm cellar as an improvised fallout shelter. Additional shielding may be required for adequate protection.

- If the roof of the storm cellar is made of wood or other light material, reinforce it with additional shielding for overhead protection.
- It may be necessary to shore up the roof with lumber or timbers to support the added shielding weight.
- Improve protection by blocking the entrance from the inside with eight-inch concrete blocks or an equivalent thickness of earth, sandbags or bricks after everyone is inside the shelter.

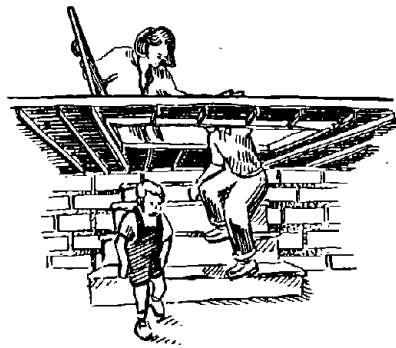
- Raise the outside door of the cellar occasionally to knock off any fallout particles that may have collected on it. Keep particles from entering the cellar.

6. If your home has a crawl space between the first floor and ground underneath and is set on foundation walls (not on pillars), you may be able to improvise shelter protection for your family.

- Gain access to the crawl space through the floor or an outside foundation wall.
- Select the portion of the crawl space area that is under the center of the house, as far away as possible from any outside foundation wall.
- Put shielding material — preferably bricks, blocks or containers filled with sand or earth — around the area, from the ground level up to the first floor, to form the "walls" of the shelter.
- On the floor above (inside the building), place additional shielding materials to form the "roof" of your shelter.
- Use supports to shore up the "roof," if necessary.



If you must take shelter in a hurry, get under something sturdy such as a table.



In general, indoor shelters are preferred. With some adjustments, your basement, crawl space or storm cellar can offer protection against fallout radiation.

- You may want to dig out your shelter area to make it deeper, so you can stand erect or at least sit up in it.

7. If you have no basement, crawl space or other underground shelter areas, as a last resort, you can improvise an outdoor shelter. See the expedient shelter plans at the end of this chapter.

8. If no better fallout protection is available, a boat with an enclosed cabin can be used. However, in addition to other emergency supplies, you will need a broom, bucket or pump-and-hose to wash or sweep off fallout particles that fall on the boat.

- The boat should be anchored or cruised slowly at least 200 feet offshore, in water at least five feet deep. This distance from the shore protects you from radiation released by fallout particles on nearby land. A five-foot water depth allows for sufficient absorption of radiation from particles falling into the water and settling on the bottom.

- Stay inside the boat as much as possible, going outside only to sweep or flush off any particles which have landed on the boat.

9. Make sure all improvised shelters offer enough ventilation — a must for removing carbon dioxide and keeping the inside air from getting too hot. Too much carbon dioxide causes dizziness, shortness of breath and nausea. High heat and humidity can cause collapse and even death.

- Air can go around corners, but dangerous radiation cannot easily do so. Make all air openings indirect to shield out the radiation given off by fallout particles.
- In very hot weather, you will need two ventilation openings: one to bring in fresh air and one at the opposite side to let out the stale air.
- Continuously ventilate the shelter with hand-held fans to reduce heat.

10. Listen for news reports to find out when it is recommended to relocate to a more permanent and protective shelter. Follow all instructions.



Expedient Above-ground Door-Covered Shelter

Build an above-ground shelter only if you cannot find shelter elsewhere and if you cannot build the trench shelter because of poor soil conditions.

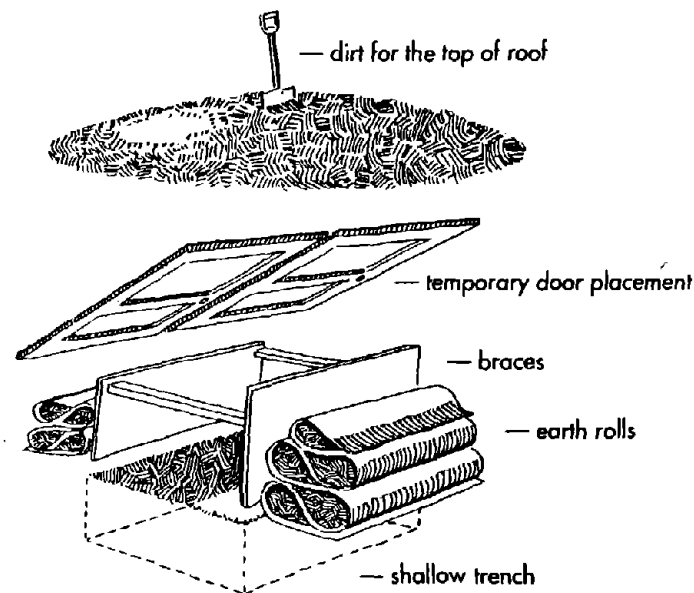
This shelter is designed for two people.

1. Select a site where there is little chance that water will pool or flood.
2. Remove the door knobs. Stake out the dimensions of the shelter by laying the doors side-by-side on the ground. Determine the exact length of the shelter. Allow one door for each person, plus one more door for the entry way at one end.
3. Set the doors up on edge, forming temporary walls to hold earth rolls in place. Brace the doors by placing 36-inch long sticks or boards between the two doors.
4. Dig a shallow trench inside the shelter about 36-inches wide and 14-inches deep. The length is determined by the number of doors you are using. If possible, make the trench up to three feet deep. By making the trench deeper, you can reduce the height of the earth-roll walls.
5. Pile earth rolls against bracketed doors. Make a roll on one side of the shelter, then on the other, to keep the heights equal and the doors from pushing out of their vertical positions.
6. When the earth rolls have reached the heights of about 24 inches on one side and 20 inches on the other, carefully remove the braces and door forms. Then use the doors as forms for the other ends of the shelter to make the earth-roll walls there.

7. Make a door frame for the entryway to the shelter out of four 2 by 4 inch boards nailed together. The frame should be about 22 inches wide.

8. Remove the doors from the end walls. Place the doors side-by-side to form the roof of the shelter.

9. Shovel about 15 inches of dirt on top of the roof doors. Make sure to cover the doors completely. Also pack some dirt about five inches high just inside the entryway to keep water from coming inside the shelter.

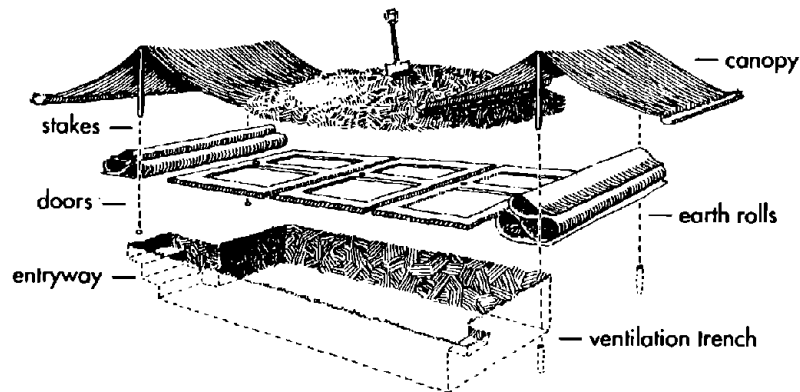


Expedient Door-Covered Trench Shelter

If you do not have access to a public fallout shelter and do not have a basement, crawl space or storm cellar, you can improvise a shelter to get protection from fallout.

This shelter is suitable for good soil conditions. Your site must be clear of tree roots and other obstacles to about four feet deep. The soil should not be too hard, frozen or wet to dig a four-foot deep trench.

Test the soil before you start: Dig a hole about eight inches wide and 10 inches deep. Remove loose dirt, then push your thumb into the soil at the bottom of the hole. If you can't push your thumb in deeper than about one inch, then continue. If you can, this site is not appropriate for a below-ground shelter.



This shelter is designed to hold three people and is three feet wide, three door-widths long and four and-one-half feet deep, with a shallow ventilation trench at one end and an entryway at the other end.

1. Select a reasonably level site. Make sure the site will not be flooded in case of rain. Clear away any brush, grass or weeds that are more than a few inches high from the area where you will dig your trench.
2. Take off all the knobs from the doors. To determine the length of the trench, lay all the doors down side-by-side. The trench should equal this width, *minus eight inches*—to leave a four-inch overlap on either end.
3. Stake out the length of the 36-inch wide rectangular trench according to the width of the doors. Stake out where the entryway will be at one end, and the ventilation trench at the other.
4. Dig out the main trench, the entryway trench and ventilation trench. After you've dug the main trench to a depth of about 18 inches, repeat the soil test. If the earth yields too much, select another site.
5. Continue digging to a 4 1/2 foot depth in the main trench, a 9-inch depth in ventilation trench and then form steps in the entryway trench. Do not allow the main trench to get narrower than three feet—you will need this space once you are in the shelter!

6. Level and smooth out the ground two feet around all sides of the trench, so that the doors will lie flat on the ground over the edges of the trench.

7. Place the doors over the trench, evenly spanning both sides of the trench and leaving a four-inch overlap on the ends.

8. If you have enough sheets, bedspreads, plastic, carpeting or other materials, line the trench wall with them, to create a more livable shelter.

9. Place your earth rolls and sandbags around all sides of the ventilation opening and the entryway.

10. Pile up the dirt about one foot deep over the doors, creating a mound that extends beyond the edges of the doors. Place plastic (or other rainproofing material) over the mound, and pile an additional 12 to 15 inches of dirt on top of this rainproofed roof.

11. Lay boards over the top of the ventilation trench and cover with dirt. Use an earth roll or sandbag to keep this dirt from falling into the trench.

12. Cover the two openings—the ventilation trench and entryway—with a canopy, so that fallout particles and rain do not get into the shelter. In hot weather, do not completely close off these openings. Drive stakes into the ground at either ends of the openings and tie a rope between each pair of stakes and place plastic or canvas over the rope or cord. Tie the corners down.

Earth Rolls and Improvised Sandbags

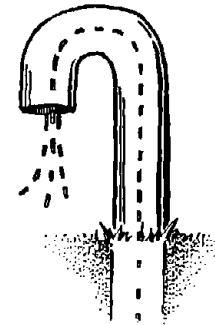
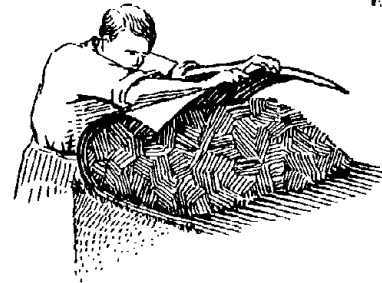
You may need “earth rolls” or improvised sandbags to use as a shielding material for your shelter.

Make earth rolls by folding or rolling dirt in between cloth or plastic material. You can also fill pillowcases, sacks or plastic garbage bags with dirt to make sandbags.


When you make earth rolls, be sure to create a “hook” by leaving some materials uncovered by dirt, then drape the cloth back over the mound. See the earth roll illustrations on the improvised shelter diagrams.

Shelter living during any emergency

1. Stay in your shelter until local authorities tell you it is permissible or advisable to leave. The length of your stay can range from a few days to as long as two weeks.
2. Whether you are in a home or public shelter, water and food may be scarce. Recognize that normal sanitary conditions may be difficult to maintain.



Make sure you allow for adequate ventilation. Air can go around corners, but dangerous levels of radiation cannot, so make all air openings indirect.



3. Smoking should be restricted to well-ventilated areas. Smoking creates a fire hazard and discomfort for non-smokers.

4. Cooperate with shelter managers. Living with many people in a confined space can be difficult and unpleasant.

- Efforts are made by local authorities to place trained shelter managers and, in case of a nuclear power plant accident, radiation monitors in public shelters. These people know how to measure radiation and understand sanitation, ventilation, water and food needs.

5. If you are staying in a shelter due to a nuclear emergency, follow these guidelines.

- All the items you will need for a two-week stay need not be stocked inside the shelter itself but can be stored elsewhere, as long as you move them quickly to the shelter.

- Maintain a 24-hour communications and safety watch. Take turns so that someone is available at all times to watch for fires, listen for important radio information and monitor radiation levels, if instruments are available.

Managing water and food in a shelter during any emergency

1. Keep these water management guidelines in mind:

- Save water for drinking and medical emergencies.

- Water is critical for survival.

Allow people to drink according to their need. Each person's need for drinking water will vary depending on age, physical activity, physical condition and time of year.

- The *average* person should drink between two and two-and-one-half quarts of water or other liquids per day, but many people need more. Under no circumstances should water be rationed so that individuals receive less than one quart each day. It is better to use whatever water is available, in the hope of finding more, than it is to deprive people of what they need for survival.

2. Other than the water you have stored in containers, try other sources which are available in most homes:

- Ice cubes, milk, soft drinks, fruit and vegetable juices.
- Water in the hot water tank (20 to 60 gallons).
- Water in the flush tanks (not the bowls) of home toilets.

3. If local authorities advise it, turn off the main water valves in your home. This prevents water from draining away, in case of break and loss of pressure in the water mains.

- Even with the main valve in your house closed, all the pipes in a house are still full of water.
- To use this water, turn on the faucet at the *highest point* in your house (which lets air into the system). Then draw water, as needed, from the faucet located at the *lowest point* in your house.

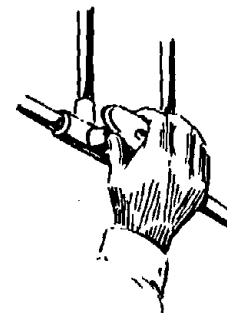
4. First drink water that you know is uncontaminated. If necessary, suspicious water, such as cloudy water from regular faucets or muddy water from a nearby stream or pond, can be used after it has been purified. Put off drinking suspicious water as long as possible, but do not become dehydrated. To purify water:

- Strain the water through paper towels or several thicknesses of clean cloth. This removes most

of the dirt and particles. You can also let the water settle in a container for 24 hours. By this time, most solid particles will sink to the bottom of the container. Filtering is crucial to remove contaminants that may be resistant to chlorination.

- After solid particles have been removed, either boil the water for three to five minutes or add a water-purifying agent to it. Surface water should always be boiled, if possible. Use water purifying tablets, two percent tincture of iodine or liquid chlorine household bleach (if the label lists hypochlorite as its only active ingredient). In general, purification by boiling water is preferred.
- For each gallon of water, use four water purifying tablets or 12 drops of tincture of iodine or eight drops of liquid chlorine bleach. If the water is cloudy, double these amounts.

5. Carefully ration everyone's food except that of children and pregnant women.



Local authorities may advise you to turn off the main water valves in your home.

- Most people in shelter can get along with about half as much food as usual and can survive without food at all for several days, if necessary.

6. It is especially important to be sanitary in the storing, handling and eating of food.

- Keep food in covered containers.
- Keep cooking and eating utensils clean.
- Keep all garbage in a closed container and dispose of it outside the home when it is safe to go outside. If possible, bury it. Avoid letting garbage or trash accumulate inside the shelter, both for fire and sanitation reasons.

Sanitation in a shelter during any emergency

1. In many shelters, people will need to use improvised, emergency toilets if the water supply has been cut off. This kind of toilet consists of any watertight container with a snug-fitting cover.

- Use a garbage container, pail or bucket.

- If the container is small, keep a large container (also with a cover) available for waste disposal.
- If possible, line both containers with plastic bags.
- Every time the emergency toilet is used, pour or sprinkle a small amount of regular household disinfectant, such as creosol or chlorine bleach, into the container to reduce odors and germs.
- After each use, replace the lid.

Leaving the shelter

1. In any emergency, especially a nuclear emergency, stay in the shelter until you are told you may come out.

2. When you are staying in a shelter after a nuclear attack or nuclear power plant accident, listen to your battery-powered radio or shelter manager for all instructions.

- The length of your stay will depend on the intensity of the fallout radiation in your area.
- The Federal government supplies states with special instruments to detect fallout radiation and to measure its intensity.

- Low-cost instruments to detect and measure fallout radiation are not generally made available for home shelter use, but they can be purchased.
- As time passes, radiation levels will decline to a point where you can leave the shelter for short periods of time to perform emergency functions.

For more information

Contact your local civil defense or emergency management office or the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publications. (Single copy requests only.)

FEMA 183 (September 1989). Hosting in an Emergency. Information for citizens who may be willing to host evacuees in an emergency.

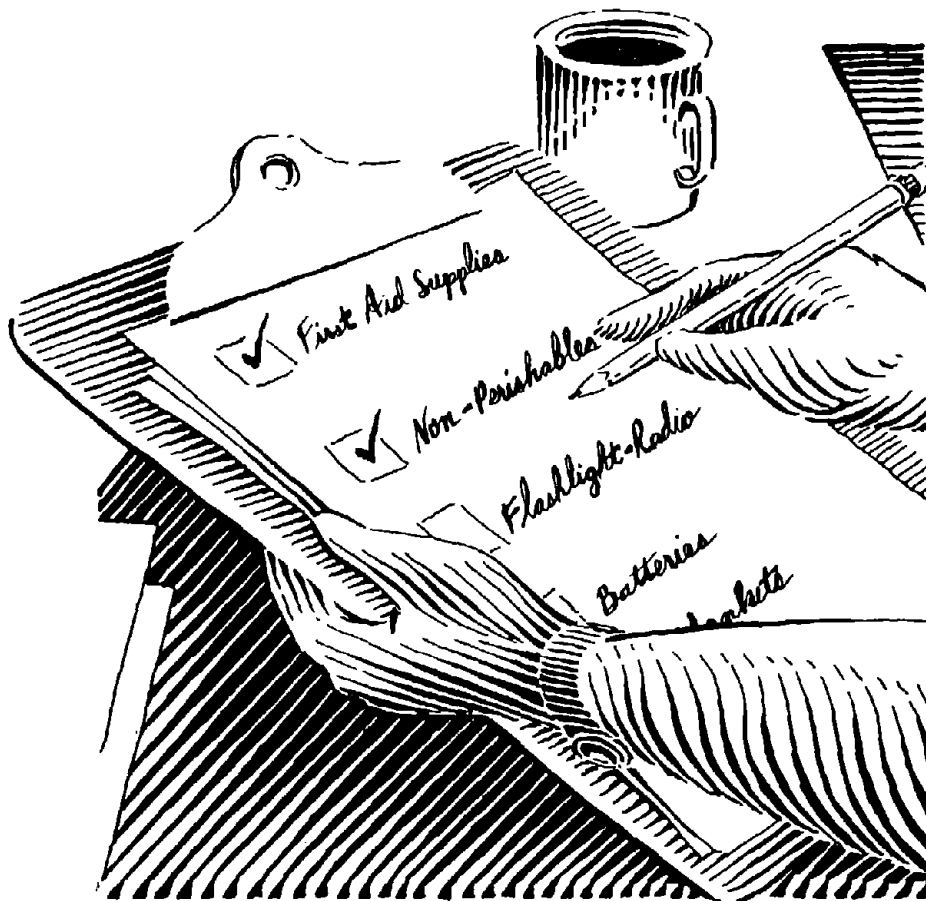
Emergency Preparedness Checklist (L-154). Also available in Braille or recorded versions. This pamphlet provides general information for personal and family preparedness for a variety of natural and man made disasters.

Home Shelter (H-12-1). An outside underground fallout shelter.

Above-ground Home Shelter (H-12-2). An outside above-ground fallout shelter for use in areas with a high water table.

Home Blast Shelter (H-12-3). An outside, underground blast shelter.

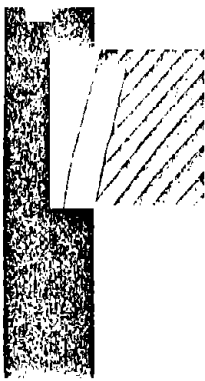
Home Shelter (H-12-4). An outside, underground shelter that provides protection against nuclear fallout radiation and tornados.



Emergency Planning and Checklists

In a 1987 national survey, 26 percent of the people interviewed said that they had experienced some disaster such as a tornado, flood or earthquake in their lifetimes.

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The emergency supplies listed in this chapter will help you and your family prepare for evacuation and stays in-house or in public shelters during emergencies ranging from floods and hurricanes to a nuclear attack.

For any emergency. Make a list of items you can gather only at the last minute, such as prescriptions or medication or eyeglasses. You may have only minutes to leave and be unable to think clearly, so identify where the items usually can be found.

Emergency evacuation. During most serious, non-nuclear emergencies, families may need to be self-reliant for about three days. Using the checklists that follow as guidelines, put together containers or "emergency kits" for each member of your family. The container of your kit should be small enough for an individual member of your family to carry easily. Try using buckets, backpacks or duffel bags.

In-home shelter. Preparing emergency supplies may be crucial if you or your family are forced to stay in your house during an emergency, such as a winter storm. You need to be prepared if utilities are

temporarily cut off or if hazardous conditions prevent you from leaving your house.

Shelter during nuclear attack. In the event of a nuclear attack, families should plan to live in shelters to protect themselves from radioactive fallout. People living near a potential nuclear target would need to evacuate first and then take shelter in an area not considered a likely target. They should have on hand as much water as possible and provide for their own food supplies, for at least two weeks and possibly longer. Take special notice of items in italics that apply only to nuclear attack preparations.

Water, food and utensils

- Water — one gallon of water per person per day, for drinking, cooking, washing and sanitation. Store as much water as possible in non-breakable containers, such as soft drink containers or milk jugs.
- Food — non-perishable, needing little or no cooking; high nutrition-type with little waste.
- Special dietary foods, if needed
- Eating and drinking utensils, non-breakable



- Bottle and can openers
- Water purifying tablets, two percent tincture of iodine or household bleach (hypochlorite-type only)
- A heating source, such as a camp stove or canned heat stove, and extra fuel

Communication, lighting, safety

- Battery-operated radio
- Extra batteries
- Lantern and fuel
- Flashlights, candles
- Fluorescent distress flag
- Matches (in waterproof container)
- Citizen's Band radio
- Fire extinguisher

Clothing and bedding

- One complete change of clothing for each person, appropriate for season and weather conditions
- Sturdy work clothes
- Sturdy shoes
- Extra socks
- Extra underwear
- Outer-wear: rain gear, coats, jackets, boots, ponchos
- Pillows

- A sleeping bag or two blankets per person

Personal Items

- Washcloth and small towel
- Reading and writing materials
- Sewing kit
- Soap, toothbrushes, toothpaste, deodorant
- Small toys for children
- Hair care items
- Insect repellent and insecticide
- Mirror
- Contact lens solution
- Dentures
- Shaving kit
- Sanitary napkins and tampons

Sanitary needs

- Paper towels and toilet paper
- Detergent
- Disinfectant
- Garbage can or bucket with tight-fitting lid (for emergency toilet)
- Plastic garbage bags (for lining toilet)



Baby supplies, if needed

- Clothes
- Diapers
- Milk or formula
- Powders, creams or ointments
- Bottles and nipples
- Food
- Small toys
- Sheets, blankets, rubber pads
- Portable crib

First aid supplies

Keep contents of first aid kit in a waterproof metal or plastic box. Keep medicines tightly capped. Check periodically and replace any medication which has passed its expiration date.

- Adhesive tape rolls, two inches wide.
- Applicator — sterile, cotton tips
- Antacid
- Antibiotic ointments
- Antiseptic solution
- Aspirin or aspirin substitute
- Baking soda
- Bandage — sterile roll, two inches wide
- Bandage — sterile roll, four inches wide
- Bandages — large triangular, 37 inches by 37 inches, by 52 inches

- Bandage — plastic strips, assorted sizes
- Cotton balls
- Diarrhea medication
- Eye medication
- First aid handbook
- Hot water bag
- Ice bag
- Iodine water purification tablets
- Isopropyl alcohol
- Laxatives
- Medical items such as spare eyeglasses, contact lens needs, hearing-aid batteries, etc.
- Medical alert tags, if needed for epilepsy, drug allergies, etc.
- Medicine dropper
- Motion sickness tablets for nausea
- Non-prescription medicines
- Nose drops (water soluble)
- Petroleum jelly
- Plastic bags with fasteners
- Prescription medicines (insulin, heart pills, etc., as needed)
- Safety pins — assorted sizes
- Scissors
- Smelling salts
- Antibacterial soap
- Splints — wooden, 18 inches long
- Table salt
- Toothache remedy
- Thermometer
- Tweezers



Papers and valuables

- Social Security cards
- Birth certificates
- Marriage and death records
- Driver's license
- Cash and credit cards
- Wills
- Insurance policies
- Deeds
- Stocks and bonds
- Savings and checking account books
- Inventory of household goods (photos preferred)
- Small valuables: cameras, watches, jewelry, etc.

Library

- Newspaper or emergency public information articles
- Plans for expedient shelters
- Medical self-help books
- Civil defense manuals
- Survival books
- Other reading materials

Tools and equipment for building a fallout shelter

- *Work gloves*
- *Shovel*
- *Axe*
- *Pick*
- *Saw*
- *Hammer*
- *Knife*
- *Nails, screws, fasteners*
- *Crowbar, pry bars*
- *Bucket*
- *Wire — heavy, medium, light*
- *Rope — heavy, medium, light*
- *Wrenches, screwdrivers, pliers, wire cutters*

Additional items of your own or last-minute necessities



For More Information

Contact your local civil defense or emergency management office or the Federal Emergency Management Agency, P.O. Box 70274, Washington, D.C. 20024, ATTN: Publications, for the following publications. (Single copy requests only.)

FEMA Publications Catalog (FEMA-20).

This catalog lists FEMA publications designed to help citizens plan for and respond to disasters and emergencies of all types.

In Time of Emergency — A Citizen's Handbook (H-14). A shorter version of *Are You Ready? Your Guide to Disaster Preparedness* with information about how families can prepare for disaster.

Emergency Preparedness Checklist (L-154). Also available in Braille or recorded versions. This pamphlet provides general information for personal and family preparedness for a variety of natural and man made disasters.

Coping with Children's Reactions to Hurricanes and Other Disasters (FEMA-184) Spanish Edition (FEMA-185). This pamphlet is designed to help parents deal with children's fears and anxiety following a disaster.

To obtain the following Home Study Courses, write to: FEMA Home Study Program, Administrative Office, Emergency Management Institute, 16825 South Seton Avenue, Emmitsburg, MD 21727.

The EMI Home Study Course Brochure (L-173). This brochure lists all home study courses offered by FEMA's Emergency Management Institute.

Emergency Management, U.S.A. — Home Study Course (L-125). This pamphlet is used to enroll in a home-study course that describes natural and technological hazards and the nuclear attack threat. The course leads the individual through the development of personal emergency preparedness plans and encourages volunteer participation in the emergency management network.

Preparedness Planning for a Nuclear Crisis — Home Study Course (L-149).

This pamphlet is used to enroll in a home study course that covers the effects of nuclear weapons, evacuation and sheltering, preparing and stocking a fallout shelter, and how to develop emergency plans to improve the chances of surviving a nuclear attack.

Radiological Emergency Management — Home Study Course (L-125).

This pamphlet is used to enroll in a home study course covering response strategies to radiological emergencies, radiological transportation accidents, nuclear power plant accidents and nuclear attack.

Hazardous Materials: A Citizens Orientation — Home Study Course (L-167).

A pamphlet providing information and an application to enroll in this home study course.

The following publications are available by writing the National Weather Service, 1325 East West Highway, Silver Spring, MD 20910, (301) 427-7622.

Public's Guide to General Weather Information, #79013.

Dust Storm Driving Safety (wallet card), #82002.

Watch Out Storms Ahead, #82004.

Heat Wave, #85001.

