

Guide to Earthquake Preparedness

Sofia, Bulgaria



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Table of Contents

Introduction.....	3
Before an Earthquake: Be prepared.....	3
Family Disaster Plan.....	4
During an Earthquake: Stay alert.....	4
After an Earthquake: Be smart.....	6
Children at School during an Earthquake.....	7
Disaster Supplies Kit.....	8
Remember.....	10
Family Disaster Plan Checklist.....	11
Earthquake Hazard Hunt.....	12

Introduction: Guide to Earthquake Preparedness

Bulgaria is located in a seismically active area of the world, making it susceptible to earthquakes. The most recent earthquake in Sofia over 5 on the Richter scale (5.24) was in 1917. There were two deadly quakes here in the 1800s, both with a magnitude approaching 7. To the south, neighboring Turkey lies on the North Anatolian fault line and is considered to be the third most seismically active country in the world. There are on average 10 earthquakes with a magnitude greater than 2.0 every day in Turkey. The fault line has produced seven earthquakes with magnitudes greater than 7.0 since 1939. Experts agree that within the next 20 to 25 years a devastating earthquake will hit near Istanbul.

This guide is designed to provide advice on how to prepare for such an event, as well as how to effectively deal with its aftermath. If you would like further information or clarification regarding earthquake readiness, please examine the following websites:

<http://www.fema.gov/hazard/earthquake/index.shtm>

<http://earthquake.usgs.gov/earthquakes/world/index.php?region=Bulgaria>

<http://www.redcross.org/find-help/disaster-recovery>

When selecting a residence, please take care to identify properly built housing that will resist the effects of seismic activity. Consider the following:

- Have your building and foundation inspected by an experienced structural engineer. Have any deep plaster cracks in ceilings and foundations checked and repaired. Whenever possible, do not live, work, or go to school on top of a fault line, on alluvial soil, or another soft base near a fault line.
- If you reside on the upper floors of a building, you are at a greater risk because there is more sway during an earthquake.

Before an Earthquake: Be Prepared

Preparation is the key. Consider this – in 2003 there was an earthquake in Bam, Iran that measured 6.6 on the Richter scale followed by an equivalent event in California later in the year. There were an estimated 30,000 deaths in Iran, while only two fatalities occurred in California. After a disaster, local officials and relief workers will not be able to reach everyone immediately. Therefore, be prepared to cope with the emergency until help arrives. The best way to cope with such an

event is to make preparations in advance. Here are things to do *before* an earthquake strikes:

- Earthquake proof your home by securing heavy objects and breakables. Place these items on lower shelves. Securely fasten shelves to walls. Brace or anchor high or top-heavy objects.
- Secure all computers, electronics and stereo equipment. Computers can be fastened to a desk with L-shaped braces and a strong adhesive material. If electronics and stereo equipment are inside a cabinet with doors, child-safety locks can help.
- Store bottled goods, glass, china, and other breakables in low and/or latched cabinets. Secure items with adhesive material, such as poster putty, to help prevent them from falling. Poster putty is sold at most office supply stores.
- Anchor overhead lighting fixtures securely to ceilings. Do not hang heavy items or glass over your bed.
- Learn how to turn off your electricity, gas and water at main switches and valves and store any necessary tools to do so nearby.
- Keep a pair of sturdy shoes near your bed at all times. Many injuries occur after the earthquake. The majority of these injuries are caused from stepping on broken glass.
- Plug battery back-up night-lights in your home. Have flashlights and fire extinguishers, and a first aid kit readily accessible.
- Create a family disaster plan. Teach children what earthquakes are and what to expect. Additionally, find out about disaster plans at the school or any other places that you and your families regularly visit.
- Plan for an earthquake to occur in the middle of the night on the coldest day of the year. Plan on there being no lights, no electricity and no telephone communications.

Family Disaster Plan

Meet with your family to create a *Family Disaster Plan*. The following issues should be discussed and planned for:

Assume:

- The earthquake will occur in the middle of the night on the coldest day of the year
- The lights will be out and the streets will be impassable.
- Telephones will not function.

As part of your Family Disaster Plan:

- Teach how to call for assistance, especially if the telephones are not working. Know how to use the emergency radio system.
- Identify two exit routes from each room.
- Decide on what each person would do in each room for safety.
- Decide on a meeting place inside your home, outside your home, and outside your neighborhood. Discuss what to do until it is safe to reunite.
- Learn how to use your fire extinguisher.
- Ensure fire extinguishers and smoke detectors are in good working order.
- Twice a year, replace batteries in flashlights and update First Aid and Disaster Supply kits. When day light savings time begins and ends are good times to complete this task.
- Install a few battery-powered night-lights in your home.
- Know where and how to turn your gas off. Never light matches or smoke after an earthquake.
- Discuss what you would do in the event of an evacuation.
- Create a plan to take care of your pets.
- Place jugs of water in the freezer. These will help keep your food cold in the event of a loss of electricity as well as provide clean water to drink.
- Make a waterproof package with copies of important documents and keep it in the office or in your Disaster Supply Kit.
- Once a month, have your children randomly, day or night, call an earthquake drill. Remember – when they call the drill:
 1. Stop what you are doing.
 2. Drop to the floor or the most secure place you can find.
 3. Roll into a ball, covering your head and torso with your arms and hold the position until the earthquake (drill) is over.
- As part of your drill, consider variations, to include: “aftershocks” or finding a flashlight while blindfolded.
- Practice your plan.

During an Earthquake: Stay Alert and Calm

When a major earthquake occurs, you will likely experience shaking that starts gently and within a second or two becomes violent enough to knock you off your feet. Intense shaking may occur for many seconds, making it difficult to move from one room to another. The noise level may be high because of shattering glass, creaking walls, rumbling earth, etc. The first and most important action is to **remain calm**.

Don't ...

- Panic and start running.
- Run outdoors if inside.
- Use the elevator.
- Rush to the doorway if in a crowded place.

Do...

- Stay cool, calm, and listen to instructions or act as you've practiced.
- Remember – The single highest cause of injury is from inside walls collapsing. Stop, drop and hold. Roll into a ball and cover your head.
- Stand or crouch in a strong supported doorway, the inside corner of the house/apartment, or under a sturdy table or desk. If near a bathroom, get inside the bathtub and protect yourself with a floor rug to protect your face. Remember - falling non-structural objects cause 50% of deaths and injuries.
- Get out of the way of falling objects (bookcases, cabinets), windows, and other glass items.
- Be careful standing in doorways -- the door may slam shut and crush your fingers. Do not stand in doorways of brick or masonry buildings.
- Be careful exiting buildings. It is risky to leave a building even if it is groaning or plaster is falling because you expose yourself to falling debris and shattered glass. The points of greatest dangers are just outside doorways and close to exterior walls. However, *if the building is collapsing, get out!*
- If outside, move into a clear area, away from trees, signs, buildings, or downed electrical wires and poles.
- If driving, pull over to the side of the road and remain in car until earthquake is over. Do not drive over bridges or over downed power lines. Never seek cover beneath a highway overpass.

After an Earthquake: Be Smart

Don't...

- Use the telephone unless absolutely necessary.
- Touch downed power lines.

Do...

- Expect aftershocks that may cause additional damage.
- Be aware of objects falling from shelves.
- Check for injuries to yourself and others. Remember don't move anyone that is seriously injured, unless they are in grave danger.
- Wear protective clothing and sturdy, thick-soled shoes. Remember - 20% of injuries are to the feet and legs as the result of broken glass. Make certain you have a pair of shoes under your bed.
- Shut off water and electricity if lines are damaged
- Check for gas leaks. If you smell gas, shut it off at the meter.
- Use a portable or car radio for information.
- Check to see that sewage lines are intact before using the toilet. Plug drains to prevent sewage back up.
- Check water and food supplies.
- Clean up spilled flammable liquids, gasoline, and medicines.
- If trapped, make noise to attract attention. Carrying a whistle is a good idea.
- Render assistance. Remember - only 10% of rescues are technical in nature (rescue teams, etc). The remaining 90% are from family members and community volunteers.
- Remember - 17% of earthquake-related injuries occur after the shaking stops.
- Enrolled American citizens – know who your wardens are. If you have not enrolled with the Embassy, the time to do it is before a crisis. To register, go to <http://step.state.gov/step>

Fire is a common post-earthquake threat. Many lives can be lost after an earthquake due to firestorms fanned by high winds. Fires can be significantly reduced by:

- Pre-earthquake planning.
- Fire-resistant building materials.

- Inspecting and recharging fire extinguishers every year.

Children at School during an Earthquake

If an earthquake should strike during the day, children may be stranded at the schools. Each school should have water, food, blankets, and first aid kits to take care of students until an authorized person picks them up or other transportation can be arranged.

Parents should talk with school officials and discuss their earthquake plan. History has shown us that the school telephone system will be overwhelmed following such an event. Often schools will come to an agreement with parents that they will contact them if needed. If the school does not contact the parent, then they can assume everything is fine. This type of understanding between parents and school personnel will help ensure the telephone lines are available for emergency calls.

Disaster Supplies Kit

A *Disaster Supplies Kit* with the following items will be helpful in the event of an emergency:

- **Water:** at least a **three-day** supply of water **per person** (*two quarts for drinking, two quarts for each person in your household for food preparation/sanitation*).
- **Food:** Store at least a **three-day** supply of **non-perishable food**. Select foods that require no refrigeration, preparation, or cooking, and little or no water. Select food items that are compact and lightweight, i.e. ready-to-eat canned meats, fruits, vegetables, juices, etc. Don't forget food staples and baby food if necessary.
- **First Aid Kit:** Assemble one kit for your home and one for each car, including:

Sterile adhesive bandages various sizes
 Assorted sizes of safety pins
 Soap/cleansing agent
 Tweezers
 Latex gloves (2 pairs)
 Needles and thread
 Sunscreen
 Scissors
 2-inch sterile gauze pads (4-6)
 4-inch sterile gauze pads (4-6)

Moistened towelettes
 Antiseptic
 Triangular bandages (3)
 Thermometer
 Non-prescription drugs
 Tongue blades (2)
 2-inch sterile roller bandages (3 rolls)
 3-inch sterile roller bandages (3 rolls)
 Tube of petroleum jelly or other lubricant
 Tape/Duct Tape

- **Clothing & Bedding:** Include at least one complete change of clothing and footwear per person, in addition to:

Sturdy shoes or work boots
Rain gear
Blankets or sleeping bags

Hat and gloves
Thermal underwear
Sunglasses

- **Tools and Other Items**

Mess kits/plastic cups, plates, & utensils
Matches in a waterproof container
Shut-off wrench (to turn off gas & water)
Signal flare
Duct tape
Map of the area (for locating shelters)
Compass
Battery-operated radio and extra batteries
Flashlight and extra batteries
Cash or traveler's checks, change
Non-electric can-opener

Utility knife
Earthquake Readiness Guide
Small fire extinguisher
Paper and pencil
Whistle
Plastic storage containers
Aluminum foil
Pliers
Plastic sheeting

- **Toiletries**

Toilet paper, towelettes
Soap, liquid detergent
Feminine supplies
Personal hygiene items
Medicine dropper

Plastic bucket with tight lid
Disinfectant
Household chlorine bleach
Plastic garbage bags, ties (for personal sanitation use)

- **Special Items:** for family members with special needs, such as seniors or infants

Formula
Diapers
Bottles
Powdered milk
Medications
Heart and high blood pressure medication

Insulin
Prescription drugs
Denture needs
Contact lenses and supplies
Extra eyeglasses

- **Important Family Documents:** Keep these records in a *waterproof and portable* container:

- Wills, insurance policies, contracts, deeds, stocks and bonds
- Passports, social security cards, immunization records
- Bank account numbers
- Credit card account numbers and companies
- Inventory of valuable household goods, important telephone numbers
- Family records (birth, marriage, death certificates)
- Cash (remember...no electricity...no ATMs)

Remember

- › Store your kit in a convenient place known to all family members. Keep a smaller version of the Disaster Supplies Kit in the trunk of your car.
- › Keep items in airtight plastic bags.
- › Change your stored water supply every six months so it stays fresh.
- › Replace your stored food every six months.
- › Re-think your kit and family needs at least once a year.
- › Replace batteries, update clothes, etc.
- › Ask your physician or pharmacist about storing prescription medications.
- › Keep your kit in an easy-to-carry container (e.g. camping backpack, duffel bag)



FAMILY DISASTER PREPAREDNESS PLAN

Enter date of completion:

- We held a family meeting to discuss our Family Disaster Plan.
- We identified the safest places in the house, and in each room. (Away from windows, large and heavy objects that can fall, and objects like heaters that can cause fire.)
- We identified exits and alternative exits from our house and building.
- We considered the special provisions we need for pets, people who don't speak the language of the country, elderly, disabled, and small children.
- We have enough water to last us a week (4 liters per person per day), and food for 3 days.
- We know how to turn off our electricity, water and gas.
- We know our out-of-area contact person(s) and phone number(s):
It's: _____
We know where we would reunite
Inside the house: _____
Outside the house: _____
Outside the neighborhood: _____
- We know how to use a fire extinguishers.
- We keep shoes and flashlights by our beds.
- We have a good first aid kit.
- We collected our survival supplies, and made up our earthquake bags. (Flashlight, batteries, radio, first aid kit, change of clothes, cash, whistle, matches, 1 week prescription medication, paper and pencil, important phone numbers.)
- We made our copies of important documents, and key addresses and phone numbers, and keep them in our earthquake bag or with our out-of-area contact.
- We know never to light a match, lighter, or any other flame after an earthquake until we are sure there is no danger of escaping gas anywhere around.
- We're starting to spread the word to everyone we know.
- We know that we will only use the telephone in an emergency after an earthquake, so that the lines will be there for those who need them most. We will get our information from TV and radio.
- We have completed our Earthquake Hazard Hunt and have taken measures to protect ourselves.
- We plan to review our plan again every 6 months.

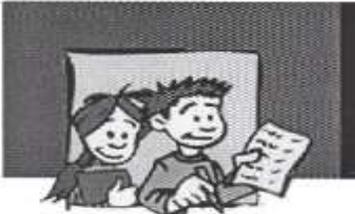
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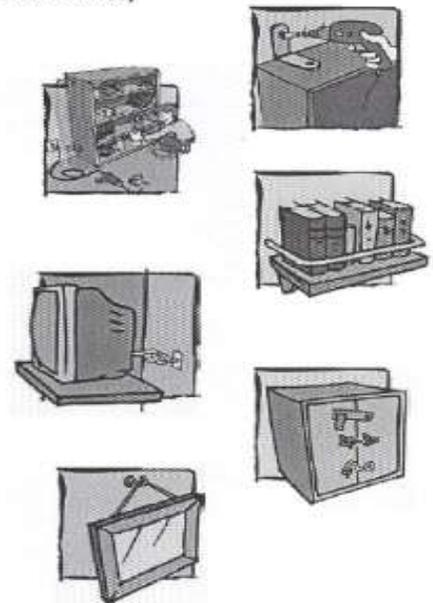


EARTHQUAKE HAZARD HUNT

The Earthquake Hazard Hunt should begin at home, with all family members participating. Imagination, and common sense are all that are needed as you go from room to room and think about what will happen when the earth starts shaking. Check for objects that may slide, fall, and fly where people spend the most time - where they sleep, eat, work and play. Do some detective work! Make a list of what needs to be done and tackle it one by one until it's finished! As you tackle what needs to be done, prioritize the items as follows:

1. Secure life threatening items first (eg. wardrobes in bedroom or things blocking exit)
2. Secure those things that would entail significant economic loss (eg. computer, a/v equipment)
3. Secure those items that will let you live more comfortably (eg. family heirlooms, breakables)

- * Move heavy items below the head level of the shortest family member.
- * Tightly secure furniture to walls (including kitchen cabinets).
- * Make sure white appliances and hot water heaters are secure.
- * Fasten LPG tanks and other gas cylinders to the wall.
- * Make glass that may break into large shards less dangerous (hang long curtains, rearrange furniture, install strengthened glass.)
- * Secure heavy and important electronic items.
- * Secure lighting fixtures to ceiling.
- * Fasten pictures on closed hooks.
- * Check for any hazardous materials (poisons, flammable materials); make sure they are secure.
- * Consider replacing kitchen cabinets latches with ones that will hold shut during a quake.



Hazards we found:

Date corrected:

