GeoNote 10

EARTHQUAKE SAFETY

Earthquakes constitute a dynamic part of the regional geologic history of the West. Our inadequate understanding of their occurrence in time, place, and intensity make this geologic hazard always a potential threat to life and property. Although some areas of Idaho are less seismically active than others, most Idahoans can expect to feel a tremor every several years and to experience a large earthquake at least once in their lifetime. These expectations, though not alarming, nevertheless mean that we cannot ignore our safety in the earthquake setting here in Idaho.

To live safely in earthquake country, we should know what to do if such a calamity were to strike. The following discussion reviews the universal rules of earthquake safety, provides a check-list of Do's and Don'ts after a quake, and presents those measures we can take today to protect ourselves, our families, and our property from harm.

When The Shaking Starts

Stay Calm

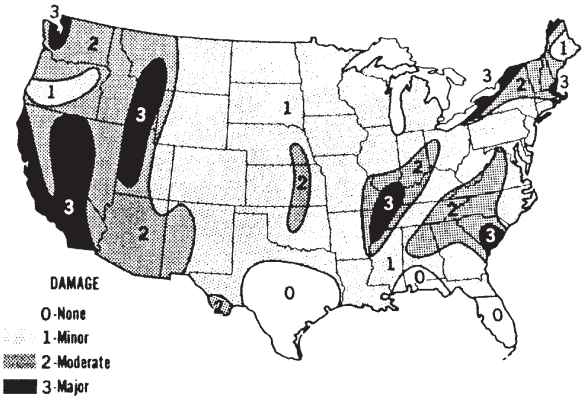
As in any emergency, it is important to stay calm. Yet, we must admit that no amount of preparation can eliminate fears that naturally arise with sudden and threatening events. Self-control is what's expected here. Knowing in advance about earthquakes and the safety measures you can take will help you gain control of those fears. Your life and your property will depend on clear thinking.

Stay Put

If you are inside a building, stay there. Move away from windows and outside walls. Safe places are along interior walls or hallways and near inside corners. To be safest, you should stand in an interior doorway or huddle under a sturdy table, desk, or bed.

If you are in a moving car, stop as quickly as safety and traffic conditions permit but stay in your car. Don't stop on a bridge or highway overpass or near where these and other structures, such as buildings, can endanger you by collapsing. A car is a great shock absorber and may bounce around during an earthquake, but you should be safe in it.

If you are outside, staying put may not be the best advice. Depending on your location and circumstances, you must decide the safest place to be. Move away from buildings, walls, and power poles and lines. Even the wide-open spaces can be dangerous. In the country, move away from cliffs, steep rock slopes, dams, irrigation structures, and canals.



Seismic risk map for the conterminous United States, from *Earthquake History of the United States* (courtesy of the National Geophysical Data Center, NOAA).

Do Not Rush Outside

If you are in a crowded place, don't rush for the exit—people have been trampled when caught in a panicking crowd. Stairways may be hazardous owing to structural damage or the rush of people. The exits themselves may be jammed with people. Avoid elevators—when they lose electrical power, you'll be stranded. As already advised, remain calm and stay put in a safe place.

The greatest danger from falling objects will be just outside building entrances and close to outer walls. If you must leave a building, choose your exit carefully.

When The Shaking Stops

Your Response—the Do's and Don'ts

- Check and treat for injuries; reassure children.
- Wear shoes for protection from debris or broken glass.
- Use a flashlight when checking for gas leaks or fire hazards. Do not use a lighted match. Do not use electrical switches or appliances if gas leaks are suspected because the initial spark from turning on electricity can ignite gas from broken lines.
- Check gas, water, and electrical lines and appliances for damage. If you smell gas or see a broken line, shut off the main valve.
- Never touch downed power lines or objects touched by downed lines. If possible, switch the power off.
- Shut off your home's electrical power if you suspect damage to wiring.
- Check water supplies. If the water supply is disrupted, you can use water from water heaters, toilet tanks, melted ice cubes, and canned fruits and vegetables. Don't drink the water from toilet tanks if a disinfectant chemical has been added to the water.
- Do not use the telephone except for emergency calls.

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- Immediately clean up broken glass and spilled medicines, drugs, pesticides, or other potentially harmful materials.
- Check to see that sewage lines in the house are intact before flushing the toilet.
- Turn on your battery-operated radio or car radio for damage reports and information. Do not spread rumors.
- Confine pets and livestock if walls or fences are down.
- Be prepared for aftershocks. Use extreme caution when entering damaged buildings—an aftershock can bring them down.

Home Preparedness: Planning Ahead

- Prepare a family plan for responding to an earthquake and conduct a drill. Discuss with your children what to do if they are at school or away from home and you are at work. Arrange a plan for reuniting the family depending upon the circumstances.
- Make yourself and family members familiar with the shutoffs for water, electric, and gas lines to the house.
- Store and maintain these emergency items:
  - First aid kit
  - Container of drinking water (at least a gallon per person)
  - Foodstuffs (2-week supply)
  - Eating utensils (manual can opener, plastic spoons, paper cups, etc.).
  - Flashlight and batteries
  - Radio and batteries
  - Fire extinguisher
- Look through the home for unsafe objects that could overturn or topple: bookcases, china cabinets, appliances, mirrors, light fixtures, pots, etc. It has been estimated that one-third of property loss in earthquakes is to building contents.

House Preparedness: Structural Improvements

To make your house an even safer haven, you should inspect the structure and, if necessary, undertake a few important improvements. Some can be easily done by a handy person; others may require professional services.

- Anchor or brace large unstable objects such as water heaters, large cabinets, bookcases, etc.
- Install secure cabinet latches or locks.
- Check the foundation for soundness; numerous or large cracks may indicate weakness. Inspect for sill bolts and install if sill is not attached to the foundation. Cripple walls in the crawl space should be sheathed with plywood for shear strength.
- Check lateral support for carports, porches, and post and beam construction. In many cases inexpensive metal connectors from hardware stores can be simply installed.
- Chimneys and masonry work are vulnerable to earthquake motion. Check to see that the chimney is reinforced and that deteriorated masonry is repaired.
- Assess your homesite for overhanging trees, unstable slopes, and untied landscaping walls. Check the structure and location of outbuildings, especially those necessary for maintaining water, sewer, and power facilities. Because earthquake-resistant structures also share many design considerations with high wind and snow loads, you may do yourself a double service of protection in Idaho.

More Information

American Red Cross, 1982, *Safety and Survival in an Earthquake:* Southern California Division, Los Angeles Chapter, American Red Cross, Los Angeles, California, 44 p.

Nichols, D.M. and Buchanan-Banks, J.M., 1974, *Seismic Hazards and Land-Use Planning:* U.S. Geological Survey Circular 690, Reston, VA, 33 p.

Sunset Magazine, 1982, *Getting Ready for a Big Quake:* Menlo Park, California, March 1982, p. 104-113.

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