

ShakeAlert® and Recommendations for Protective Actions

The ShakeAlert Earthquake Early Warning System, developed by the U.S. Geological Survey (USGS) and its partners, is now operational in California, Oregon, and Washington. It detects significant earthquakes quickly so alerts could be delivered to people before they feel shaking. Even though an alert may be received only seconds before shaking arrives, those seconds matter. ShakeAlert EEW can save lives and reduce injuries by giving people time to take a protective action when they receive an alert on their phone or from an automated system like a public address system at a school.

• What should I do if I feel shaking or receive an alert?

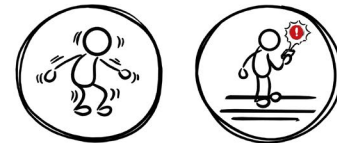
When you get an alert, immediately **Drop, Cover, and Hold On (DCHO)**. *Do not wait to feel shaking!*

- **DROP** where you are onto your hands and knees. This position protects you from being knocked down and allows you to stay low and crawl to shelter if it is nearby.
- **COVER** your head and neck with both arms and hands. If a sturdy table or desk is nearby, crawl underneath it for shelter. If no shelter is nearby, crawl next to an interior wall (away from windows, hanging objects, and tall furniture).
- **HOLD ON** to your shelter until shaking stops. Be prepared to move with it if it shifts.
















DCHO is the best protective action in most but not all situations. It is important to be situationally aware and to adapt to your environment. If dropping in place would be unsafe due to nearby hazards, for example, move to a safer location first. More information about how to protect yourself in various settings, such as if you are driving or in bed when you receive an alert, can be found on the Earthquake Country Alliance website: earthquakecountry.org/step5.

• Why is DCHO the recommended protective action?

DCHO has been supported through years of research of common causes of earthquake injuries and fatalities in the United States. Studies of injuries caused by earthquakes on the West Coast show that most earthquake-related injuries result from falling objects, flying glass, or people trying to move more than a few feet during the shaking. The main source of injury is moving during shaking. DCHO is also recommended by the State Emergency Management Agencies, the Great ShakeOut Earthquake Drills, and FEMA, the federal agency most responsible for providing guidance on public safety in emergencies.



If you **FEEL SHAKING** or **GET AN ALERT...**

When possible:	 DROP!	 COVER!	 HOLD ON!
Using a cane?	 DROP!	 COVER!	 HOLD ON!
Using a walker?	 LOCK!	 COVER!	 HOLD ON!
Using a wheelchair?	 LOCK!	 COVER!	 HOLD ON!
In a bed?	 TURN!	 COVER!	 HOLD ON!

I am concerned that my building might collapse during an earthquake. Should I evacuate the building when I feel shaking or get an alert?

Building evacuation is not recommended as a protective action. Very few serious injuries caused by earthquakes in the United States are associated with building collapse. But multiple studies have shown that exiting a building during an earthquake increases the chance of death and injury due to falls or being struck by falling debris.

- 10.4% of people who attempted to move during the 1994 Northridge, California earthquake reported injuries, whereas only 6.1% of people who remained in place reported injury.
- Falls were the leading cause of hospitalized injuries during the 2001 Nisqually, Washington earthquake and were most often associated with movement from a building.
- People were twice as likely to be injured while moving during the 1989 Loma Prieta, California earthquake, with a large portion of injuries occurring while people were exiting or moving away from buildings.

Because ShakeAlert EEW may provide only seconds of warning, people are unlikely to be fully evacuated from buildings before strong earthquake shaking occurs.

ShakeAlert EEW was not intended to be a replacement for other sound seismic risk reduction measures. Seismic retrofitting and updated building codes that address mitigation of unsafe buildings are still a critical component of earthquake safety.

Earthquake Risk Reduction Strategies

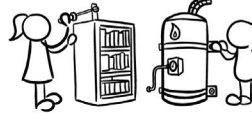
ShakeAlert™ Earthquake Early Warning is just one tool for mitigating earthquake impacts and staying safe!



Develop a Family Emergency Plan



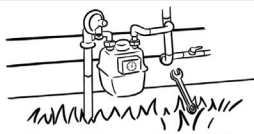
Prepare and Organize Disaster Supplies



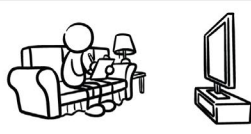
Secure Top-Heavy Furniture and Water Heaters to Wall Studs



Regularly Practice Drop-Cover-Hold On or Other Situational Alternatives



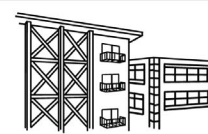
Know How to Turn Off Gas Valves in the Event of a Gas Leak



Catalog Belongings and Protect Yourself Financially with Earthquake Insurance



Encourage Mitigation Policy Measures



Strengthen Homes and Buildings with Seismic Retrofits

We cannot predict or prevent an earthquake, but earthquake early warning, personal preparedness, and earthquake mitigation can save lives, reduce damage, and speed recovery.

To learn more about ShakeAlert EEW and how to stay safe during an earthquake, visit ShakeAlert.org and follow [@USGS_ShakeAlert](https://twitter.com/USGS_ShakeAlert) on Twitter.