

# Times Standard

## **Not My Fault: There are many ways to participate in ShakeOut**

Lori Dengler for the times-Standard

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*Redwood Coast Montessori students include tsunami evacuation drills in their ShakeOut drill each year.*

This Thursday, October 17, California along with the rest of the United States and 51 other countries will participate in the Great ShakeOut. From its regionally modest beginnings in 2008 focused only on Southern California, ShakeOut has become an internationally recognized event to practice DROP, COVER, HOLD ON drills, the best thing to do when the ground begins to shake.

From its inception, ShakeOut aimed to combine a realistic vision of what might happen in a major earthquake with concrete steps that could be taken by individuals, communities, and government to reduce impacts. The original ShakeOut was based on a detailed study of the effects of a magnitude 7.8 earthquake on the San Andreas fault.

The ShakeOut Scenario earthquake (<https://pubs.usgs.gov/circ/1324/>) brought together engineers, seismologists, geologists, and other earthquake professionals to draw the most realistic picture of what would likely happen in an earthquake of this size and location. Using building inventories, they examined not just in general terms but in detail how many structures would collapse or be damaged and what would happen to the road and power infrastructure. The scenario looked even looked at how time of day would affect the

numbers of people killed or injured and estimated the time it would take to clear streets of debris and the cost of rebuilding.

That Scenario pointed out the vulnerabilities in Southern California's built environment – the number of structures built before 1978 that were more vulnerable to earthquake damage and calculated the reduction in both human and economic loss if these structures were retrofitted. Partly in response to the ShakeOut study, the County of Los Angeles passed one of the most stringent retrofit ordinances in the U.S. in October 2015 which requires mandatory retrofit of pre-1978 multi-story multi-occupancy wood-frame buildings with weak lower floors (soft-stories), and concrete buildings with non-ductile structural elements. A number of other cities in the region have followed suit.

The ordinance has identified over 13,500 buildings considered vulnerable under the criteria. Building owners were notified and given a set of time requirements to begin and complete retrofits or file plans to demolish them. Cost of most retrofits falls between \$60,000 and \$130,000, depending on the size of the structure and vulnerabilities.

According to the Los Angeles Building Department, 12,347 buildings were identified with weak soft-stories – such as apartment buildings with garages on the bottom floor – and 95% of owners have submitted retrofit plans. Of the 1,195 non-ductile concrete buildings (think of a stiff structure that can't flex during shaking), retrofit plans for 65% have been submitted. All retrofits must be completed by 2041. The County has a web site where any tenant can check a building's status.

The next damaging earthquake in California is very unlikely to be what is outlined in the ShakeOut Scenario. It could be anywhere in the State or be on a different southern California fault. Even of similar size and location on the San Andreas, an actual earthquake will differ in particulars and the damage and impacts will be different. But the Scenario gives a realistic picture of the region's more vulnerable structures in what is a near worst case situation.

Other scenarios have been completed for different parts of California and other seismically active areas. Although generally not as detailed as the original ShakeOut Scenario, they all show similar vulnerabilities – older structures and those not meeting current building codes will account for the lion's share of the damage. Many homeowners in Humboldt County are now eligible for the Brace and Bolt program that provides funds to reinforce foundations. If your house was built before 1980, you might qualify (<https://www.earthquakeauthority.com/prepare-your-house-earthquake-risk/brace-and-bolt-grants>).

The emphasis of the original ShakeOut was not just building vulnerabilities. It put equal emphasis on how human behavior and preparedness actions could exacerbate or reduce injuries and loss. Today the annual ShakeOut drill continues that focus – what you do during shaking and actions before and after will reduce injuries, loss, and speed up recover.

Today I want to recognize several organizations that have embraced ShakeOut not just on the third Thursday of October but throughout the year. Schools are always at the tip of the list. The first ShakeOut partnered with southern California schools, and they have led the

registration numbers ever since. California schools have been mandated to develop earthquake plans and conduct DROP, COVER HOLD ON drills since the Katz Act of 1984.

Redwood Coast Montessori in Manila has gone a step further. The school's location on the Samoa Peninsula means an earthquake not only poses a shaking threat but could be followed by a tsunami as well. At the beginning of the school year, all students include basic survival supplies in their backpacks such as contact/medical information, water, needed medications, and flashlights.

During ShakeOut, a staff member blows a horn to simulate the beginning of the earthquake, students crouch under their desks counting out their pretend quake, and calmly walk to the door, grab their backpacks and head up the trail to the evacuation site. Each month the school practices a similar drill called a random times and the older students are well aware of the process, assisting the younger ones in what to do, where to go, and keeping calm.

Always a big shout out to the Blue Lake Rancheria and other tribal groups that have long included preparedness as part of their cultural heritage. In 2017, the Rancheria began hosting FEMA training classes through a Tribal Homeland Security Grant. Several thousand students have now graduated from classes at the Rancheria, earning it the nickname "Emergency Management Institute of the West Coast". In 2022, the Rancheria added the "Tsunami-Con" meeting for regional emergency responders and planners to their agenda. All employees of the Rancheria will be participating in the ShakeOut drill on Thursday.

Community Emergency Response Teams (CERT) are also all-year preparedness organizations. I last counted 12 Humboldt County CERT groups, the most recent in Trinidad. CERTs are all volunteer groups whose members have completed a 23-hour basic training class. Team is the operative term in CERT – members work as a team to assist law enforcement in the early hours of an emergency.

Blue Lake CERT is a good example. With 13 active members, the ShakeOut drill will be incorporated into various locations on October 17. On October 20<sup>th</sup>, the drill will be extended to community pods - asking every household to check on near neighbors then check in the assembly area in Perigot Park.

Tell me your ShakeOut stories or how an organization you are involved with is preparing for earthquakes or other disasters (see the email and phone number below). Please visit <https://rctwg.humboldt.edu/great-shakeout> for more ShakeOut ideas and how to register your participation.

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Lori Dengler is an emeritus professor of geology at Humboldt State University, an expert in tsunami and earthquake hazards. The opinions expressed are hers and not the Times-Standard's. All Not My Fault columns are archived online at <https://kamome.humboldt.edu/taxonomy/term/5> and may be reused for educational purposes. Leave a message at (707) 826-6019 or email [Kamome@humboldt.edu](mailto:Kamome@humboldt.edu) for questions and comments about this column or to request copies of the preparedness magazine "Living on Shaky Ground."