

## Surviving the Earthquake: Steps to Take DURING and AFTER an Earthquake

By Dr. Kenneth S. Cheng

The importance of preparing for a major earthquake has never been more critical: Less than two years ago, the US Geological Survey (USGS) published their latest study, The Uniform California Earthquake Rupture Forecast, Version 3 where one of the findings is that the likelihood of at 8.0 or greater earthquake occurring in southern California in the next 30 years increased from 4.7% to 7.0%. This increase is attributed to a better understanding of the relationship between adjoining faults, specifically, that these faults could rupture simultaneously. This also raised the likelihood of a 6.9 earthquake (equivalent to the Northridge Earthquake of 1994) occurring in the next 30 years to a 40%-50% range. It is clear that major earthquakes continue to be a significant concern in the scientific community. "We are fortunate that seismic activity in California has been relatively low over the past century. But we know that tectonic forces are continually tightening the springs of the San Andreas Fault System, making big quakes inevitable," said Tom Jordan, Director of the Southern California Earthquake Center and co-author of the study.

In the last several issues of the Pony Express, we talked about major earthquakes globally, and how Southern California will experience its own BIG ONE. In last month's article, we described what you should do BEFORE the earthquake strikes. Implementing these steps will help make the earthquake less inconvenient and possibly more survivable. This month's focus is on what you should do DURING and immediately AFTER the earthquake. How you respond to the event and what you do the minutes after an earthquake will drastically help in your survival.

**DURING THE EARTHQUAKE.** At the moment a large earthquake hits, it is best to seek a safe environment where ever you are. If indoors, DROP to the ground, take COVER under or next to a sturdy desk or table (keyword being sturdy), and HOLD ON during the shaking. One's best chance of surviving a ceiling collapse is to be in an air pocket formed by being under or next to heavy, supportive furniture. It is best to lay in the fetal position, hands and arms covering your neck and face and holding on or bracing yourself during the shaking. If these options are not available, lying next to an interior wall or interior corner may also provide you adequate protection. Right now, stop and look around the room you are in and find those safe areas - almost every room in your home has them. As indicated last month, the kitchen is one of the worst places to be during an earthquake because of the high likelihood of broken glass, sharp utensils, liquids, etc. Equally bad are bathrooms due to the mirrors, glass showers, etc. Should the earthquake occur while you are sleeping, simply roll out of bed and lay next to it covering your face and neck with your pillow or blankets.

You should avoid exterior walls and windows, door jambs (not as reliable a safe area and swinging doors can also cause injury), and brick walls and chimneys (because of falling objects, especially from the exterior chimney falling through the roof). As tempting as it may be, do not run outside during an

earthquake; many of the injuries and deaths from the 1995 Mexico City earthquake (magnitude 8.0, ten times stronger than Haiti) occurred when people were struck by falling objects while trying to escape buildings.

If you are outdoors or in your car, safely pull off to the side of the road and avoid powerlines or stopping next to trees and buildings. In most situations, you should stay in your car. The only exception to this is if you are in an underground parking garage, in a tunnel or in an underpass, in which case you should consider getting out (if safe) and lying next to your car, forming the air pocket discussed above.

**AFTER THE EARTHQUAKE.** Once the earthquake has stopped, you need to assess the well-being of your family. If it is dark, do not use matches or candles as a source of light until you have completely evaluated your home for damage. If you are trapped, remain calm and check yourself for injuries and evaluate your surroundings. Find a hard object and use it to tap on another hard object in a rhythmic pattern as Search and Rescue Teams have vibration detection equipment that can sense these vibrations hundreds of feet away. If you are not trapped but others are, notify emergency services (if available) and notify your Block Captain. Light rescue (a topic of a future article) may be needed to bring them to safety. Anything other than light rescue should not be attempted without proper training and equipment. Once you have determined that lives are secure, you will now need to secure your property.

You should immediately shut off the water from the meter or entry point to your home. This will help preserve the purity of the water in your plumbing (including your hot water heater.) Some disaster preparedness resources advocate filling your tub and other receptacles with water immediately after an earthquake. If you have water pressure, this can be done, but you must keep in mind that this water could already be contaminated (as water and sewer lines often run in proximity to each other). If you decide to do this, use only the cold water tap to fill the tubs to preserve the purity of the water in your hot water heater.

Check for gas leaks not only within the home but also to your outdoor barbeque, pool heater and anywhere else natural gas is used on your property. You should shut off the gas main **ONLY** if you hear or smell a gas leak. Do not automatically shut off the gas because some shut-off valves can only be turned back on by the gas company (a low priority service call during a major disaster). Turning your gas off prematurely could prevent you from being able to use this resource for weeks or months. Important: you should, however, turn off the gas to your hot water heater. Details on how to shut off the water and gas can be found on the Nellie Gail website under the Resources tab.

If you notice that doors do not open or close properly, the building is no longer plumb and likely indicates an unsound structure. You should strongly consider leaving the building immediately and stay in open areas away from the building as aftershocks could cause a collapse.

Imagine for a moment that a large earthquake hits Southern California and knocks out all utilities, including phone service. Because you have taken the steps from this series of articles, you are prepared. But how will you communicate to your spouse at work that you are safe? Who will pick up the kids at school and how will you get there? How do you tell your friends and family outside of this area that you are OK? Or, if you have a true medical emergency and need paramedics, how will you summon help? The Nellie Gail Emergency Preparedness Committee has established a "Neighbor Helping Neighbor Assistance Program" (including emergency radio communications in the event land lines and cell phone communications are not available.) The Assistance Program, emergency communications, and the concept of designated Block Captains will be the subject of future articles. Today's article is one of several articles written by your Emergency Preparedness Committee to help you prepare, be self-reliant and be of assistance to your neighbors in the event of a regional emergency. The information is not meant to be exhaustive or complete but is a good starting point in your planning process. These articles, and additional information can be accessed and downloaded through the Nellie Gail website ([www.nelliegailranch.org](http://www.nelliegailranch.org)) by clicking on the Emergency Preparedness tab.

Would you rather be prepared or would you rather be reliant on others? The choice is yours.