

# CAMPUS SAFETY



# QUARTERLY

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## In this Issue:

Earthquakes Can Happen Here .....	1
Home Preparedness .....	2
Evacuation-It's Not Automatic .....	3
Emergency Supplies .....	3
Hazard Communication .....	4
Emergency Information .....	4

## EARTHQUAKE – IT CAN HAPPEN HERE!

Recent earthquakes around the world serve as a vivid reminder that the earthquake threat is always present. When we hear reports about earthquakes in places like El Salvador, Indonesia, and India, it is easy to blame the devastation and loss of life on substandard construction practices and inferior materials. But the 6.8 magnitude quake that rocked Washington State on February 28 was a wakeup call that we are not immune from earthquake's destruction. The quake lasted only 45 seconds yet it caused an estimated \$2 billion damage. Several hundred injuries occurred but only one death, a heart attack, was attributed to the quake. Fortunately for Washington residents, this earthquake was centered deep underground, minimizing the damage at ground level. If the quake had occurred near the surface, no amount of seismic retrofitting or disaster preparedness could have prevented a major catastrophe. This earthquake was named the Nisqually earthquake after the river delta near its epicenter at the southern end of Puget Sound.

In a comparison to the 1994 Northridge earthquake, the Southern California Earthquake Center notes that although the magnitudes of the two quakes were similar (6.7 and 6.8), the damage sustained in Northridge totaled over \$40 billion and 57 lives were lost. The reasons for this discrepancy are twofold. First, the hypocenter or depth of the Nisqually earthquake was 33 miles while the hypocenter of the Northridge quake was only 11 miles. Second, while Northridge suffered hundreds of aftershocks measuring up to 5.9 in the first week following the initial quake, only two aftershocks were recorded in the week following the Nisqually quake with the larger measuring only 3.4, mitigating the overall damage experienced. Unfortunately, an earthquake hitting the San Diego area would more closely resemble the Northridge quake in depth and number of aftershocks since geological conditions are similar. The damage could be severe.

For the past 18 years, the Governor's Office of Emergency Services has designated April as California Earthquake Preparedness Month. Please read the articles on the following pages and prepare to survive a major earthquake.

**April is  
California  
Earthquake  
Prepared-  
ness Month.  
Are You  
Ready to  
Ride it Out?**



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## Earthquake Preparedness at Home

Many people mistakenly believe that collapsing buildings cause most earthquake damage and injuries. This is not true. At least half of the property damage in the Northridge quake was nonstructural and four deaths resulted from damage inside buildings, such as falling furniture and broken glass. We can make our homes safer to protect our families and belongings by taking the following steps now.

### Make a Plan:

- Make a family emergency plan and practice it often enough to be automatic. Involve children, as they will be much less frightened if they have had prior drills and know what to do.
- Identify safe places in each room such as sturdy tables and desks and interior walls away from windows. Near exterior walls is the most dangerous place to be since they are the first to crumble. There is also danger from broken windows.
- Practice **DUCK, COVER and HOLD**. Take cover and protect your head and neck with your hands. Hold this position until the shaking stops.
- Know alternate exit routes in case exits are blocked by debris. Designate a location to meet outside the building when the quake danger is over.
- Establish an out-of-area contact person. Local phone service may be disrupted.
- If you are outdoors, stay in an open area away from trees, power lines and buildings. Avoid anything that could fall on you.
- If you are in a vehicle, drive to an open area, pull over to the side of the road and stop. Avoid overpasses and power lines. Stay inside the vehicle until the quake is over.

### Conduct a Hazard Hunt:

- Walk through your home and identify things that could fall when shaken. NOTE: Children can often spot things we might overlook so include them in the process.
- Secure anything that is heavy enough to cause injury if it fell or fragile/valuable enough to be a significant loss if broken. Family heirlooms of sentimental value are irreplaceable.
- Consider exit routes and how fallen furniture, broken windows and light fixtures, and other debris would affect evacuation.
- Televisions, stereos, computers, lamps and china are all heavy and costly to replace. Most hardware stores carry straps, cabinet locks, brackets and bolts that can be used to secure these items.
- Check that furnaces and water heaters are secured properly. Gas and water leaks can cause greater damage than the earthquake itself.

**Away from Home:** Most of these earthquake preparedness suggestions also apply to the workplace. Take a few moments during your workday to determine safe places, locate building exits and identify hazards. Assemble a survival supply kit for your workplace and vehicle.

### Be Prepared to “Beat the Quake.”



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## Evacuation – It’s Not Automatic

Video taken during the Nisqually earthquake showed people scrambling to exit shaking buildings while bricks, glass and plaster rained down from above. Much of the structural damage was cosmetic but the falling debris created a real hazard. While the earth shakes, **DUCK, COVER AND HOLD**. Once the shaking stops, consider these factors before deciding to leave the building:

- There may be more danger outside than there is inside the building.
- There may not be a safe assembly area outside or a safe route to get there.
- The lights may go out leaving corridors dark and making exit dangerous.
- There will be aftershocks. Stay prepared to duck and cover.

Before an earthquake strikes is the time to evaluate potential hazards both inside and outside the building such as:

- Suspended ceilings and light fixtures
- Large windows, exterior and interior
- Tall furniture such as bookcases and cabinets that are not secured to walls
- Heavy equipment including computers, televisions, printers, etc.
- Laboratory equipment, especially chemicals and glassware
- Cleaning supplies, paints, and solvents
- Power lines
- Trees
- Building trim (parapets, roof tiles, and chimneys) that may shake loose
- Concrete block walls
- Covered walkways
- Main building gas and electric supply lines
- Chain link fences (shock hazard if in contact with live wires)
- Hazardous materials storage areas

Once you are aware of these post-earthquake hazards, you will be better prepared to:

- Assess the situation inside and outside.
- Make the decision whether to evacuate the building or stay where you are.
- Choose the best route to safety.

### Earthquake Survival Supplies

Prepare to be self-sufficient for at least 72 hours following any major disaster. Emergency services will be responding to the most serious situations and may not be available to assist you. Your recovery will be more comfortable if you assemble the following supplies before an emergency occurs. Store supplies in a duffel bag or backpack that is easily accessible at home, at work and in your vehicle. Personalize the contents as appropriate.

- Nonperishable, nutritious food
- Water--one gallon per person per day (Canned fruits and vegetables are a source of water.)
- Cooking utensils--with a manual can opener
- Camp stove or gas barbecue for outdoor use (Ensure there are no gas leaks before using)
- Disposable plates and silverware
- First aid kit and handbook
- Prescription medicines and eyeglasses
- Personal hygiene and sanitation supplies (Including heavy plastic bags and buckets)
- Flashlight and batteries (no candles)
- Portable radio and batteries
- Work gloves and dust masks for clearing debris
- Sturdy shoes and comfortable clothes
- Blankets or sleeping bags and plastic tarps
- Fire extinguisher
- Tools to turn off water/gas (only if leaking)
- Infants: formula/food, bottles, diapers, etc.
- Pets: food, water, bowls, leash and/or carrier
- Emergency cash (ATMs may not work.)

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## Hazard Communication and Material Safety Data Sheets

San Diego State University has developed and implemented a Hazard Awareness and Communication Program in compliance with federal and state regulations. The essence of this Hazard Communication (HAZCOM) program involves the disclosure and dissemination of health hazard information and potential workplace hazards. Employees, students, and visitors are informed and educated that they have both a right and a responsibility to be aware of general safety procedures, knowledgeable of hazards and vigilant in observing and reporting conditions which may be hazardous.

If potentially hazardous materials are involved, the responsibilities also include instruction on how to access and read Material Safety Data Sheets (MSDS). Material Safety Data Sheets are provided by the manufacturer and must be accessible to all employees. Environmental Health and Safety is the central repository for MSDS (hardcopies) on campus. MSDS can be obtained from EH&S by calling extension 46778 and requesting a copy. It is recommended that MSDS be maintained at the location of hazardous materials use and storage in clearly labeled accessible files.

In this era of technology, OSHA allows facilities to utilize electronic access to files, providing hard copies are also available. If you are dependent upon electronic MSDS, make sure that employees have access to a computer and printer and are knowledgeable on how to obtain MSDS. In addition to the manufacturer's web pages, the following resources can be used to find data on the hazardous materials in your area.

**<http://msds.pdc.cornell.edu/msdssrch.asp>** - Cornell University. Electronic MSDS from various manufacturers on over 325,000 chemicals.

**<http://www.ilpi.com/msds/>** - Where to find MSDS on the Internet. An interactive listing of manufacturer, government, and educational resources for obtaining MSDS.

**<http://www.nih.gov/od/ors/ds/msds.html>** - National Institutes of Health, Division of Safety. An MSDS and chemical fact sheet site. Also provides direct links to many manufacturers.

**<http://www.msdssearch.com>** and **<http://www.msdsonline.com>** - Two excellent general MSDS sites with comprehensive manufacturer links.

**<http://www.chemfinder.camsoft.com>** - Chemfinder Webserver. A single master list of chemical compounds providing physical and chemical data. References other sources of information.

### Emergency Information Resources

**On-Campus Resources: If you have an emergency on campus, call 9-1-1.** For preparedness information, consult the "SDSU Emergency Procedures" flipchart for a quick reference. These should be posted in each office and classroom on campus. Copies are available by calling SDSU Public Safety at 41991. More detailed information is available in section 2 of the campus telephone directory. SDSU Public Safety also maintains an Emergency Procedures Web Site:

**<http://police.sdsu.edu/PDWeb/OEP/>**

**Internet Resources:** A wealth of excellent information about emergency and earthquake preparedness is available on the World Wide Web. Some excellent sites for Southern California are:

California Governor's Office of Emergency Services:  
**<http://www.oes.ca.gov/>**

The Southern California Earthquake Center publication "Putting Down Roots in Earthquake Country":  
**<http://www.scecdc.scec.org/eqcountry.html>**

The "Los Angeles Times" Guide to Seismic Safety:  
**<http://www.latimes.com/HOME/NEWS/REALEST/ATHOME/QUAKE/>**

Time spent preparing for emergencies can reduce your risk of suffering injury and damage when an emergency occurs and enhance your recovery when it is over.

