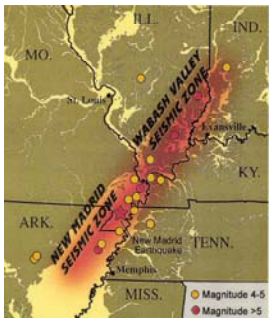
Earthquake Safety
For Missouri's Schools

The New Madrid Seismic Zone Extends 120 Miles Southward from the area of Charleston, Missouri, and Cairo, Illinois, through New Madrid and Caruthersville, following Interstate 55 to Blytheville and on down to Marked Tree, Arkansas. The NMSZ consists of a series of large, ancient faults that are buried beneath thick, soft sediments. These faults cross five state lines and cross the Mississippi River in three places and the Ohio River in two places.

The New Madrid Seismic Zone and surrounding region is Active, Averaging More than 200 Measured Events per Year (Magnitude 1.0 or greater), about 20 per month. Tremors large enough to be felt (Magnitude 2.5 – 3.0) are noted every year. The fault releases a shock of 4.0 or more, capable of local minor damage, about every 18 months. Magnitudes of 5.0 or greater occur about once per decade. They can cause significant damage and be felt in several states.

The Highest Earthquake Risk in the United States outside the West Coast is in the New Madrid Seismic Zone. Damaging temblors are not as frequent as in California, but when they do occur, the destruction covers over more than 20 times the area due to the nature of geologic materials in the region. The 1968 5.5 magnitude Dale, Illinois earthquake toppled chimneys and caused damage to unreinforced masonry in the St. Louis area, more than 100 miles from the epicenter. A 5.2 magnitude earthquake in April 2008 in southeast Illinois, did not cause damage in Missouri, but was felt across much of the state.



A Damaging Earthquake in this Area, which experts say is about a 6.0 magnitude event, occurs about once every 80 years (the last one in 1895 was centered near Charleston, Missouri). There is estimated to be a 25-40% chance for a magnitude 6.0 – 7.5 or greater earthquake along the New Madrid Seismic Zone in a 50-year period according to the U.S. Geological Survey reports. The results would be serious damage to un-reinforced masonry buildings and other structures from Memphis to St. Louis. We are certainly overdue for this type of earthquake!

A Major Earthquake in this Area - the Great New Madrid Earthquake of 1811-12 was actually a series of over 2000 shocks in five months, with several quakes believed to be a 7.0 Magnitude or higher. Eighteen of these rang church bells on the Eastern seaboard. The very land itself was destroyed in the Missouri Bootheel, making it unfit even for farming for many years. It was the largest release of seismic energy east of the Rocky Mountains in the history of the U.S. and was several times larger than the San Francisco quake of 1906.

When Will Another Great Earthquake the Size of Those in 1811-12 Happen? Several lines of research suggest that the catastrophic upheavals like those in 1811-12 visit the New Madrid region every 500-600 years. Hence, emergency planners, engineers, and seismologists do not expect a repeat of the intensity of the 1811-12 series for at least 100 years or more. However, even though the chance is remote, experts estimate the chances for a repeat earthquake of similar magnitude to the 1811-1812 New Madrid earthquakes over a 50-year period to be a 7 - 10% probability.

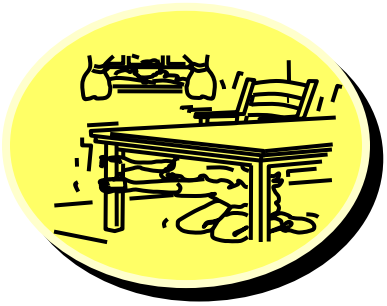
What Can We Do to Protect Ourselves? Education, planning, proper building construction, and preparedness are proven means to minimize earthquake losses, deaths, and injuries.

Prepare a Home Earthquake Plan

- Choose a safe place in every room--under a sturdy table or desk or against an inside wall where nothing can fall on you.
- Practice DROP, COVER AND HOLD ON at least twice a year. Drop under a sturdy desk or table, hold onto the desk or table with one hand, and protect the back of the head with the other hand. If there's no table or desk nearby, kneel on the floor against an interior wall away from windows, bookcases, or tall furniture that could fall on you and protect the back of your head with one hand and your face with the other arm.
- Choose an out-of-town family contact.
- Take a first aid class from your local Red Cross chapter. Keep your training current.
- Get training in how to use a fire extinguisher from your local fire department.
- Inform babysitters and caregivers of your plan.

Eliminate Hazards

- Consult a professional to find out additional ways you can protect your home, such as bolting the house to its foundation and other structural mitigation techniques.
- Bolt bookcases, china cabinets and other tall furniture to wall studs.
- Install strong latches on cupboards.
- Strap the water heater to wall studs.



Prepare a Disaster Supplies Kit for Home and Car

- First aid kit and essential medications.
- Canned food and can opener.
- At least three gallons of water per person.
- Protective clothing, rainwear, and bedding or sleeping bags.
- Battery-powered radio, flashlight, and extra batteries.
- Special items for infant, elderly, or disabled family members.
- Written instructions for how to turn off gas, electricity, and water if authorities advise you to do so. (Remember, you'll need a professional to turn natural gas service back on.)
- Keeping essentials, such as a flashlight and sturdy shoes, by your bedside.

Know What to Do When the Shaking BEGINS

- DROP, COVER AND HOLD ON! Move only a few steps to a nearby safe place. Stay indoors until the shaking stops and you're sure it's safe to exit. Stay away from windows.
- In a high-rise building, expect the fire alarms and sprinklers to go off during a quake.
- If you are in bed, hold on and stay there, protecting your head with a pillow.
- If you are outdoors, find a clear spot away from buildings, trees, and power lines. Drop to the ground.
- If you are in a car, slow down and drive to a clear place (as described above). Stay in the car until the shaking stops.

Know What to Do AFTER the Shaking Stops

- Check yourself for injuries. Protect yourself from further danger by putting on long pants, a long-sleeved shirt, sturdy shoes, and work gloves.
- Check others for injuries. Give first aid for serious injuries.
- Look for and extinguish small fires. Eliminate fire hazards. Turn off the gas if you smell gas or think it's leaking. (Remember, only a professional should turn it back on.)
- Listen to the radio for instructions
- Expect aftershocks. Each time you feel one, DROP, COVER, AND HOLD ON!
- Inspect your home for damage. Get everyone out if your home is unsafe.
- Use the telephone only to report life-threatening emergencies.

The information contained in the flier was extracted from the American Red Cross website http://www.redcross.org/services/prepare/0,1082,0_241_,00.html, Missouri State Emergency Management Agency website (http://sema.dps.mo.gov/EQ.htm) and the Federal Emergency Management Agency website (http://www.fema.gov/hazard/earthquake). ***This flier could be distributed by school districts to each student annually to satisfy the requirements of RSMo 160.455***

Missouri Revised Statutes

Chapter 160

Schools--General Provisions

Section 160.455

August 28, 2013

Distribution to each student certain materials on earthquake safety--duties of school district.

160.455. At the beginning of each school year, each school district in the state shall distribute to each student such materials that have been prepared by the Federal Emergency Management Agency, the state emergency management agency or by agencies that are authorities in the area of earthquake safety and that provide the following objectives:

(1) Developing public awareness regarding the causes of earthquakes, the forces and effects of earthquakes, and the need for school and community action in coping with earthquake hazards;

(2) Promoting understanding of the impact of earthquakes on natural features and manmade structures; and

(3) Explaining what safety measures should be taken by individuals and households prior to, during and following an earthquake.

(L. 1990 S.B. 539 § 4)