

Earthquake

One of the most frightening and destructive phenomena of nature is a severe earthquake and its terrible aftereffects. Earthquakes strike suddenly, violently, and without warning at any time of the day or night. If an earthquake occurs in a populated area, it may cause many deaths and injuries and extensive property damage. Although there are no guarantees of safety during an earthquake, identifying potential hazards ahead of time and advance planning can save lives and significantly reduce injuries and property damage.

Definitions:

Aftershock is an earthquake of similar or lesser intensity that follows the main earthquake.

Earthquake is a sudden slipping or movement of a portion of the earth's crust, accompanied and followed by a series of vibrations.

Epicenter is the place on the earth's surface directly above the point on the fault where the earthquake rupture began. Once fault slippage begins, it expands along the fault during the earthquake and can extend hundreds of miles before stopping.

Fault is the fracture across which displacement has occurred during an earthquake. The slippage may range from less than an inch to more than 10 yards in a severe earthquake.

Magnitude is the amount of energy released during an earthquake, which is computed from the amplitude of the seismic waves. A magnitude of 7.0 on the Richter Scale indicates an extremely strong earthquake. Each whole number on the scale represents an increase of about 30 times more energy released than the previous whole number represents. Therefore, an earthquake measuring 6.0 is about 30 times more powerful than one measuring 5.0.

Seismic Waves are vibrations that travel outward from the earthquake fault at speeds of several miles per second. Although fault slippage directly under a structure can cause considerable damage, the vibrations of seismic waves cause most of the destruction during earthquakes

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Source

Federal Emergency Management Agency

Michigan State Police - Emergency Management & Homeland Security Division

More Information

<http://www.fema.gov/>

<http://www.ready.gov/>

http://www.michigan.gov/msp/0,1607,7-123-1593_3507---,00.html

<http://earthquake.usgs.gov/earthquakes/states/michigan/history.php>

Prevention / Mitigation / Preparedness – Earthquake

Work with the University of Michigan Office of Emergency Preparedness (734) 647-1143 and request planning guidance as needed.

Check for hazards in your building by doing the following:

Contact Plant Operations (734) 647-2059 to repair defective electrical wiring and leaky gas connections. These are potential fire hazards.

Fasten shelves securely to walls

Place large or heavy objects on lower shelves

Store breakable items in low, closed cabinets with latches

Hang heavy items such as pictures and mirrors away from where people may sit

Identify Shelter in Place locations Indoors and Outdoors, such as:

- Under sturdy furniture such as a heavy desk or table
- Against an inside wall
- Away from where glass could shatter around windows, pictures, mirrors, or where heavy bookcases or other heavy furniture could fall over.
- In the open, away from buildings, trees, and telephone and electrical lines

Monitor local news sources such as radio, television, and the Internet for emergency information on what occurred, its severity, and any safeguard action that may need to be taken.

Know your building evacuation routes and where the rally point is located.

Establish a three deep system of personnel located at the building and provide training on what actions may need to be taken during this event.

Review the protective actions section in this EOP regarding persons with disabilities. Identify staff that may need assistance and discuss efforts needed to get those persons into a safe location.

Response – Earthquake

Remain calm during and after the event to avoid any unnecessary accidents.

If indoors

- DROP to the ground, take COVER by getting under a sturdy table or other piece of furniture, and HOLD ON until the shaking stops. If there isn't a table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building.
- Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.
- Stay in bed if you are there when the earthquake strikes. Hold on and protect your head with a pillow, unless you are under a heavy light fixture that could fall. In that case, move to the nearest safe place.
- Use a doorway for shelter only if it is in close proximity to you and if you know it is a strongly supported, load bearing doorway.

If in stadium seating

- Take the “brace position” until the shaking stops. Follow ushers instructions for orderly evacuation.
- Stay inside until shaking stops and it is safe to go outside. Research has shown that most injuries occur when people inside buildings attempt to move to a different location inside the building or try to leave.
- Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on.
- DO NOT use the elevators.

If outdoors

- Stay there.
- Move away from buildings, streetlights, and utility wires.
- Once in the open, stay there until the shaking stops. The greatest danger exists directly outside buildings, at exits, and alongside exterior walls. Many of the 120 fatalities from the 1933 Long Beach earthquake occurred when people ran outside of buildings only to be killed by falling debris from collapsing walls. Ground movement during an earthquake is seldom the direct cause of death or injury; most earthquake-related casualties result from collapsing walls, flying glass, and falling objects.

If in a moving vehicle

- Stop as quickly as safety permits and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses, and utility wires.
- Proceed cautiously once the earthquake has stopped. Avoid roads, bridges, or ramps that might have been damaged by the earthquake.

If trapped under debris

- Do not light a match.

- Do not move about or kick up dust.
- Cover your mouth with a handkerchief or clothing.
- Tap on a pipe or wall so rescuers can locate you. Use a whistle if one is available. Shout only as a last resort. Shouting can cause you to inhale dangerous amounts of dust.

Once the shaking stops, if items have broken or made a mess, the building should self-evacuate. That should trigger an inspection by a building engineer. When the all clear is given, it's time to clean up.

Recovery – Earthquake

After the shaking stops: If items have broken or made a mess, the building should self-evacuate. That should trigger an inspection by a building engineer. When the all clear is given, it's time to clean up.

After the shaking stops: In case of moderate or severe earthquakes, before you exit your room, check around you for anyone injured.

Administer life-saving first aid (open airway, stop serious bleeding, treat for shock). Ask responsible others to assist lightly injured.

If a severely injured or trapped individual is inside, make them comfortable. Give them a whistle and comfort item and reassure them that search and rescue team will come for them. If staying would be dangerous, non-ambulatory injured should be transported with class.

Put out any small fire.

Take ten seconds to look around and make a mental note of damage and dangers to report.

Mark your door with either green “All Out” sign or red “HELP! / DANGER!” sign.

Leave your doors unlocked.

Check for safe exit routes and then carefully evacuate building, moving away from the building.

If the building has sustained damage, contact Plant Operations at (734) 647-2059

Be careful of downed power lines, gas line breaks, broken glass, and other sharp objects.

Do not touch any downed wires or objects that are in contact with downed wires, due to electrical hazards.

Expect aftershocks. These secondary shockwaves are usually less violent than the main quake but can be strong enough to do additional damage to weakened structures and can occur in the first hours, days, weeks, or even months after the quake.

Listen to a battery-operated radio or television. Listen for the latest emergency information.

Call 911 only for emergency calls.

Open cabinets cautiously. Beware of objects that can fall off shelves.

Stay away from damaged areas. Stay away unless your assistance has been specifically requested by police, fire, or relief organizations. Return home only when authorities say it is safe.

Help injured or trapped persons. Remember to help your neighbors who may require special assistance such as the elderly and people with disabilities. Give first aid where appropriate. Do not move seriously injured persons unless they are in immediate danger of further injury. Call 911 for help.

During an aftershock: Take the same protective measures as during the shaking.