

# Natural Disasters: Earthquake

## Definition and Characteristics:

Earthquakes are sudden shifts or movements of tectonic plates in the Earth's crust. They occur along fault lines, are unpredictable, and are one of the most frightening and destructive phenomena of nature. The huge plates that form the earth's surface constantly move over, under, and past each other. Usually the movement is slow and gradual; but at other times, the plates become locked together, unable to release the accumulating energy. When this energy grows strong enough, the plates break free, causing an earthquake. If the earthquake occurs in a populated area, it may cause many deaths and injuries and extensive property damage.

Earthquakes in Michigan are rare, but not unheard of. All hazards preparedness includes consideration of the effects of an earthquake in any region.

## Terminology:

After Shock	An earthquake of similar or lesser intensity that follows the main earthquake.
Fault	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.
Epicenter	The place on the earth's surface directly above the point on the fault where the earthquake rupture began. Once slippage begins, it expands along the fault during the earthquake and can extend hundreds of miles before stopping.
Seismic Waves	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 cause most of the destruction.
Magnitude	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.

## Public Information / Recommended Actions:

Before	<p>Make a plan: Locate safe spots in each room under a sturdy table or against an inside wall. Reinforce this information by moving to these places during earthquake drills with your family: drop, cover, and hold on!</p> <p>Prepare your home: Get appropriate professional help to repair defective electrical wiring, leaky gas lines, and inflexible utility connections. Bolt down and secure to the wall studs your water heater, refrigerator, furnace, and gas appliances. Fasten shelves,</p>
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	mirrors, and large picture frames to walls. Brace high and top-heavy objects. Store bottled foods, glass, china, and other breakables on low shelves or in cabinets that fasten shut. Anchor overhead lighting fixtures.
During	<p>Take shelter immediately!</p> <p>Indoors:</p> <ul style="list-style-type: none"> <li>• Take cover under a sturdy desk, table, or bench or against an inside wall, and hold on. Cover your face and head with your arms and crouch in an inside corner of the building.</li> <li>• Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.</li> <li>• 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.</li> <li>• 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.</li> <li>• Stay inside until shaking stops and it is safe to go outside. Most injuries during earthquakes occur when people are hit by falling objects when entering into or exiting from buildings.</li> <li>• DO NOT use the elevators.</li> </ul> <p>Outdoors:</p> <ul style="list-style-type: none"> <li>• Stay there, but move away from buildings, streetlights, and utility wires.</li> <li>• 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, watching for road and bridge damage.</li> <li>• 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.</li> </ul>
After	<ul style="list-style-type: none"> <li>• Listen to news reports for information and instructions from authorities. Be prepared for after shocks.</li> <li>• Use extreme caution when entering damaged areas of buildings. Stay away from damaged areas unless your assistance has been specifically requested by police, fire, or relief organizations.</li> <li>• Open cabinets cautiously, as large objects may fall off shelves.</li> <li>• Stay away from downed power lines, and report them to the power company. Be alert for gas leaks and report them to the gas company.</li> </ul>