

PHIVOLCS Earthquake Preparedness Webinar

How to Prepare for an Earthquake during COVID-19

When there is an earthquake, immediate life safety is the priority when evacuation after an earthquake is necessary. The public needs to understand that an earthquake evacuation takes priority over a COVID-19 stay-at-home order. It is also important that the risk of COVID-19 spread among the public during evacuations is managed.

6 Steps During a Strong Earthquake in Times of COVID-19

1. Duck, cover and hold during a strong ground shaking
2. After a strong ground shaking, vacate the building using the safest and fastest way out while observing at least one-meter distance. Do not forget to wear your face mask and bring your emergency bag.
3. Walk briskly. Do not run.
4. Stay calm. Do not push.
5. Proceed to the nearest open space or pre-identified evacuation site. Observe physical distancing.
6. Wait for an advisory from building management if it is safe to go back.

Hazard and Disaster

- Hazard - process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.
- Disaster - serious disruption of the functioning of a community or a society involving widespread human, economic, or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Earthquake

An earthquake is an example of a natural hazard. It is a phenomenon that cannot be avoided especially in the Philippines since its location is at the Pacific Ring of Fire. An average of 20 earthquakes are recorded everyday in the Philippines.



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Earthquake Strength

High magnitude does not always equate to having high intensity. Magnitude and intensity are not directly proportional and they are not interchangeable. When earthquakes occur, the ground moves and releases energy measured by the seismograph. PHIVOLCS has 111 seismic stations all over the Philippines. Information gathered from seismic stations are then computed and released to the public through their PHIVOLCS' earthquake information website and other official social media accounts.

Magnitude

- Energy released at the focus
- Calculated from data measured by a seismograph
- Arabic numbers (eg m9.5)
- Only comes from PHIVOLCS

Intensity

- Effects to people and structures
- PHIVOLCS earthquake intensity scale (PEIS)
- Roman numeral (eg iv, ix)

Earthquake Hazards

Ground rupture

Deformation on the ground but marks the intersection of the fault with the earth surface fissures displacement of the ground due to movement of the fault are the effects of ground rupture

Ground shaking

Destructive up, down and sideways vibration of the ground during an earthquake causing damage or collapse of the structure

Liquefaction

A phenomenon wherein sediments especially near bodies of water behave like liquid similar to quicksand

Earthquake-induced landslide

The downslope movement of rocks, soil and other debris is known to be a geologic hazard triggered by strong shaking also causing erosion burial and blockage of roads.

Tsunami

A series of waves caused by an earthquake under the sea. A tsunami can cause flooding, coastal erosion, drowning of people and damage to properties.

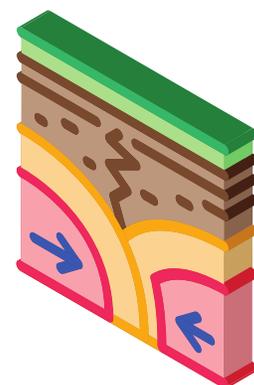


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Valley Fault System

- East Valley Fault (EVF) - 10 km long (M 6.2)
- West Valley fault (WVF) - 100 km long (M 7.2)
- West Valley Fault moved 4 times in past 1400 years; movement interval - 400-600 yrs
- Last major earthquake from West Valley Fault in 1658



How to Prepare for an Earthquake

Tools

HazardHunterPH - A tool developed by DOST-PHIVOLCS to help people know the hazards in their area. It can also be used to determine safe open spaces for evacuation. Accessible through mobile phones.

How safe is my house - An app developed by DOST-PHIVOLCS with the aim of raising awareness of proper construction techniques and standard design, as well as highlighting the importance of structural integrity in creating safer and resilient Filipino communities.

Evacuation Procedure

Building residents, office employees and neighborhoods must be informed of the following:

- Emergency exits
- Second option
- Evacuation map
- Evacuation route and area

Family Reunification Plan

Families should have the following prepared and discussed between its members:

- Personal background information (including family members)
- Hazards in your area
- Emergency supply kit / Jump kit
- Contingency plan
- Maintenance approach
- Transportation plan
- Emergency Communication plan

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Emergency Supply Kit

The supply kit should last at least three days. It should be kept in a waterproof bag and in a safe place that is easy to find. Supply kits usually contains the following:

- First aid kit
- Water and food
- Flashlight and spare batteries
- Candles, matches and lighter
- Battery operated radio
- Whistle
- Knife
- Rope
- Blanket, spare clothes and shoes
- Important documents
- Cash
- Permanent marker, pen and paper
- Emergency contact information
- Medicine
- Toiletries
- Baby food

Due to the pandemic, the following should be added to the supply kit:

- Face mask
- Face shield
- Alcohol / Hand sanitizer

It is also recommended to avoid packing salty food as it makes people thirsty and it will increase a person's need to drink water when the supply is limited. Food packed must be ready to eat for convenience since cooking or heating devices may not be accessible in evacuation sites.

Earthquake Drills

- Affects the whole building and nearby areas
- Immediate response is to "Drop, Cover and Hold" during an earthquake, and to evacuate if necessary
- Immediate outside help is not a guarantee
- Area for evacuation after the event is limited only to an open area that is safe from falling debris and other earthquake-related hazards
- Aftershocks will be another concern

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Planning and Organizing an Earthquake Drill

- Form a Disaster Risk Reduction and Management Committee (DRRMC)
- Over-all Coordinator
- First-Aid Team
- Fire-Safety Team
- Communication Team
- Building Safety Inspection Team
- Evacuation Team
- Site Security Team

Developing the Earthquake Evacuation Plan

- Mark all possible emergency exits in the building
- Determine if there is sufficient open space for all
- Make sure the evacuation route will not expose the community to hazards
- Prepare an evacuation map
- Include legend
- Show evacuation route
- Post evacuation map in every floor/door

Orientation Prior to the Conduct of an Earthquake Drill

- Introduce earthquake scenario
- Introduce evacuation plan and assign evacuation areas
- Check system and equipment
- Take note of the number of drill participants/population
- Inform the neighborhood about the drill

Participating in an Earthquake Drill

The Disaster Risk Reduction and Management Committee (DRRMC) must do the following:

- Be Alarm
- Be Responsive
- Facilitate Evacuation
- Facilitate Assembly
- Facilitate Head Count
- Termination of the Drill and Evaluation

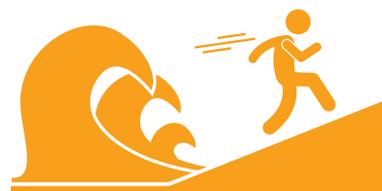
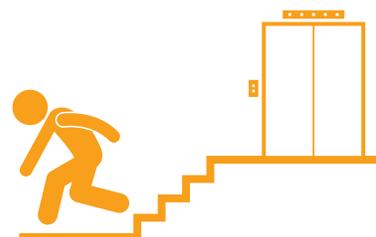
After a successful drill, practices should be remembered and implemented during an occurrence of an actual earthquake.

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WHEN IS THE BEST TIME TO EVACUATE?

- During a strong earthquake, one must duck, cover and hold until the shaking stops. It is recommended to stay alert and avoid panic. Evacuate immediately after a strong earthquake (at least intensity 6).
- When inside a structure, stay inside, duck, cover and hold. Once shaking stops, take the fastest and safest way out. Only use the stairs and avoid elevators.
- When outside, go to an open space. Avoid trees, powerline posts, buildings, walls and stay away from steep slopes.
- When near the shore, move to a higher ground. A tsunami might arrive within minutes after a strong earthquake. Aftershocks can be strong enough to destroy weak structures.



It is important to be informed and be prepared.



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WEBINAR Q&A

Is the Marikina Fault part of the Valley Fault System? Is it only the Marikina fault that poses a significant threat of magnitude to areas which most of FSSI employees live and work in?

The Marikina Fault is actually the old name of the Valley Fault System. The name was changed because the initial name caused fear that may have affected the economy of Marikina, and also because the fault system is not in Marikina alone but starts in Doña Remedios Trinidad, Bulacan in the north and runs through the province of Rizal, and the Metro Manila cities of Quezon, Marikina, Pasig, Makati, Taguig and Muntinlupa, and the provinces of Cavite and Laguna that ends in Canlubang. If you are living in the NCR bubble, yes, the valley may affect you. However, there are also other faults, such as the Manila Trench that may also cause shaking.

How will we be able to tell what intensity a live earthquake is? How do we know it is Intensity VI?

We can refer to the PHIVOLCS Earthquake Intensity Scale where we'll be able to determine the intensity of the earthquake based on our observations of our surroundings. For example, for Intensity VI, we can see that old and poorly built houses or manmade structures may be damaged and the trees outside may be moving around. We would be unable to balance while standing up or walking around. We can also refer to the Instrumental Intensity Meter, a machine that can read intensity based on vibrations, which is connected to city halls.

What is the latest news regarding the "big one"?

For clarification, when we say the "big one", it just means a large earthquake, not necessarily the West Valley Fault. Each region in the Philippines would have a different source for the "big one" as we have different faults. There is currently no additional information regarding the big one for Metro Manila. The existing information can be found on PHIVOLCS' YouTube channel.

Can there be a chain reaction of "big ones" in Luzon, Visayas, and Mindanao?

No, it is not possible. Yes, there is a Philippine Fault Line from Luzon to Mindanao, but it is segmented—meaning it is not just one line. If there is an earthquake in one area, the impact will be concentrated on that area only. However, sometimes the energy is strong enough to transfer stress to another fault, but it is not enough to cause a chain of big earthquakes.

Where are the identified evacuation sites in Metro Manila?

You can refer to Hazard Hunter PH for the map of the evacuation sites. You can also look at your surroundings to see any open areas available for your evacuation. You can also reach out to your city DRRM officers to help you pinpoint evacuation areas and areas to avoid.

Calatagan, Batangas has often been the epicenter of earthquakes in Luzon lately. What is the reason behind this?

It is the same reason as to why earthquakes can happen anywhere in the Philippines. It is because of constant movement in the tectonic plates.

Is there technology being developed to detect when an earthquake is coming?

There is constant research on how we can understand earthquakes better, however, there is currently no technology being developed to detect earthquakes. This is because faults can be as deep as 100km or more, and we have very limited technology that is able to go that deep.

What are the chances that there will be aftershocks that are as intense as the first major earthquake?

It is possible. The magnitude of the earthquakes will differ, but the intensity may be the same.