EARLY WARNING LABS

How Earthquake Early Warning Saves Lives.

Wondering how effective earthquake early warning really is? Here's your answer.

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Earthquake waves propagate quickly,

covering great distances in a relatively short period of time. On average, an earthquake early warning (EEW) system can be expected to give people in the path of an earthquake roughly 10 to 60 seconds of advance warning.[1]

Naturally, some people wonder: "How much difference can 10 to 60 seconds of advance warning really make?"

History tells us that this warning period is sufficient to make an enormous difference, potentially reducing injuries by a substantial amount and even saving lives, not to mention significantly limiting property damage.

[1] In some cases, warning time may be greater or lesser than this depending on the user's location and the location of the earthquake.

Personal safety measures can prevent injuries and save lives.

Studies of previous earthquakes — including the 1994 Northridge earthquake and the 1989 Loma Prieta earthquake — indicate that half of all injuries sustained during the quake are the result of:

- **Falls, many of which are due to people walking, running, or otherwise trying to move during the quake; and/or**
- **Non-structural falling hazards (i.e., the danger posed by heavy objects like bookcases, furnishings, equipment and other unsecured items that can tip over or fall during ground shaking)**

Thus, potentially half of all injuries can be mitigated by taking personal precautions such as:

- **Dropping, covering and holding on**
- **Taking cover under a sturdy object**
- **Moving away from non-structural falling hazards**
- **Staying still (not running or walking) until the shaking ceases**
- **Pulling vehicles over to the side of the road**

Advance warning also allows people in a variety of specialized settings to take important precautions. For instance, in a hospital setting, surgeons can pause, cover the patient and secure any potentially dangerous equipment until the shaking has stopped.

These may seem like simple actions, and for the most part they are. But data regarding injuries sustained in prior earthquakes indicate these precautions can drastically decrease your chances of being injured and even killed during intense ground shaking.

Automated Safety Measures

Automating physical safety features can expand and enhance the protections offered by early warning notifications. Early Warning Labs (EWL) offers hardware and software solutions that integrate directly with existing infrastructure — including building control systems and other technology — creating the possibility for a wide range of customizable safety automations.

Notable examples of potential safety automations include:

- **Stopping elevators at the nearest floor & opening doors to prevent entrapment**
- **Shutting down and/or securing expensive or potentially dangerous machinery**
- **Shutting down gas lines to prevent fires**
- **Opening bay doors to prevent emergency vehicles such as fire trucks and ambulances from becoming trapped inside**
- **Automatically slowing or stopping transit systems**

Along with the mitigating injuries and minimizing property damage, automated safety features have the potential to limit the severity of secondary emergencies like widespread fires and entrapment.

How Earthquake Early Warning Works

Earthquake early warning (EEW) in the United States is enabled by thousands of sensors located in seismic zones, primarily in the Western U.S. These sensors are maintained by the US Geological Survey (USGS) and are a foundational part of the organization's program.

Early warning is possible because earthquakes produce two separate and distinct waves:

1. **Primary wave (P-wave):** A fast moving but generally harmless wave. P-waves are rarely felt by people.
2. **Secondary wave (S-wave):** The slower moving wave that follows in the wake of the P-wave. S-waves can cause considerable ground shaking, and are responsible for virtually all of the damage in an earthquake.

That's where EWL comes in.

EWL uses proprietary technology to distribute warnings and activate automatic safety features that help protect people and infrastructure in the moments leading up to ground shaking.

Integration with Existing Audible Notification Systems

EWL offers proprietary hardware integration that allows businesses, schools, public agencies and other organizations to send automatic alerts through existing infrastructure like Fire Alarms, PA systems and IP phone networks.

These additional means of notification increase the chances that individuals in the organization will receive the alert. This is especially important in situations where individuals may not have immediate access to their cell phones or may be working in noisy or distracting environments.

Physical Automation

Along with advance notification, EWL's proprietary hardware and software systems can integrate with buildings and other physical infrastructure to automate critical safety features. These physical automations can further help to protect individual safety and minimize property damage.

The Opportunity is Here Today

The technology developed by EWL and USGS has the potential to save lives, significantly reduce the number of injuries and limit property damage in future earthquakes.

In order to realize that potential, businesses, public agencies, school systems and other organizations need to move quickly to implement these systems before the next major earthquake hits.

The technology exists today. It's time we put it to use.

Contact EWL today to learn more about how we can help protect the people who depend on you.

Contact Us

About Early Warning Labs

Early Warning Labs (EWL) is an official licensed partner of the US Geological Survey, and the world's leader in earthquake early warning technology. EWL provides comprehensive early warning solutions that allow public and private organizations across the globe to protect their people and property during major earthquakes.