

How to Mitigate Earthquake Impact and Save Lives

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Abstract

Earthquake is one of the deadliest natural disasters. It is a sudden rupture of the tectonic plate caused by excessive stored energy due to tectonic movements, called tectonic earthquake. Volcanic activities may also cause ground movements, called volcanic earthquake. This is usually less damaging compared to the tectonic earthquake. This disaster may strike anytime without warning. It can cause great threat to buildings, historical sites, natural environment, downtime of business operations, and a number of casualties. Historical earthquakes recorded losses of billions of dollars and compromised thousands of lives. This is due to the lack of knowledge and preparedness for the terrifying impact of earthquake events. To make things worse, the poor structural engineering design, poor construction standards, and poor building maintenance triggered the collapse of several buildings which caused numerous deaths. Old building codes estimated the seismic forces as dependent to the seismicity of the site, type of structural system, and the building weight. Recent code realizes that the type of the underlying soil and proximity of the building from the identified fault lines also play important roles in seismic force generation to the building and will have a major impact in the built-environment. To mitigate the impact of earthquake forces, we have to be prepared and to be educated about the effects of this natural disaster. Every individual must realize and understand that to be safe, we have to do our part in planning for this terrifying event. However, the best way to make sure that structures are safe and can withstand earthquakes is by consulting professionals with regards to their design, construction and maintenance. Building codes and standards shall be strictly followed and observed. The tremendous effect of structurally sound buildings to human lives is something that will not be equal to any amount of money.

Keywords: Earthquakes, collapse of buildings, structural engineering design, construction standard, disaster planning