

Active Fault

A fault along which significant displacement or movement has occurred in the recent geologic past (e.g., 10,000 years).

Atlantic Basin

The Atlantic Ocean north of the equator, the Caribbean Sea, and the Gulf of Mexico.

Central Pressure Drop

A decrease in the central pressure in an eye of a hurricane or typhoon. A rapid pressure drop often signifies an intensifying hurricane or typhoon.

Cost/Loss Analysis

An analysis to determine expected cost/loss to assets from both man-made and natural hazards.

Damage Function

A relationship between a measure of ground shaking (e.g., spectral acceleration) or intensity (e.g., wind speed) and the cost of replacement or repair of the property (e.g., building or contents).

Earthquake

The breakage or rupture of a fault associated with the generation of seismic waves and ground shaking.

Epicenter

The point on the earth's surface directly above the focus or point of initial slip or rupture of an earthquake.

Essential Facility

Structure that is necessary for emergency operations subsequent to a natural disaster (e.g., hospital, power plant, school). Uniform Building Code prescribes higher design levels of strength and stiffness to assure operational performance after a major earthquake.

Eye

The circulation and low pressure center of a tropical cyclone. Winds are normally calm in the eye, and sometimes the sky clears.

Eye Wall

The ring of thunderstorms that surrounds a typhoon's or hurricane's eye. The heaviest rain, strongest winds and worst turbulence are normally located in the eye wall.

Fault

A fracture or zone of fractures in the earth that acts as a slip or rupture surface during a specific earthquake, and generally for recurring earthquakes over geologic time.

Fault Segment

A portion of a fault that is capable of generating characteristic earthquakes.

Frequency

Rate (per unit time) of occurrence of an event or oscillation (vibration) of a wave.

Fujita Scale

A scale of wind damage intensity in which wind speeds are inferred from an analysis of wind damage. All tornadoes, and most other severe local windstorms, are assigned a single number from this scale according to the most intense damage caused by the storm.



Geo-coordinates

The set of geographic latitude and longitude values specifying a particular location on the surface of the earth.

Ground Motion

Shaking or movement of the ground resulting from an earthquake.

Hurricane

A tropical system with sustained winds of 74 mph or more. This terminology is normally applied to such storms in the Atlantic Basin and the Pacific Ocean east of the International Date Line.

Hypocenter

The point in the earth at which an earthquake is initiated: ground zero.

Immediate Occupancy Performance Level

A building meeting this performance level may experience minimal to no damage to its structural components and minor damage to its nonstructural components. Although immediate re-occupancy of the building would be possible, nonstructural system may not function due to internal damage or lack of utility service. Risk to life safety would be very low.

Knot

A measure of speed, equal to one nautical mile per hour. A nautical mile is one degree of latitude and is slightly longer than the ordinary, or statute, mile used in the United States. One nautical mile equals 1.15 statutory miles. To convert nautical miles or knots to miles per hour, multiply by 1.15. To convert miles to nautical miles or miles per hour to knots, divide by 1.15.

Landslide

The failure and subsequent sliding of soil on a sloped surface.

Lateral Spreading

A permanent deformation of soil due to lateral movement of one location on the surface relative to another.

Latitude

The geographic latitude of a particular location indicates how far north or south it is from the earth's equator, in terms of the angle in degrees measured from the earth's center.

Life Safety Performance Level

A building meeting this performance level may experience extensive damage to both structural and nonstructural components. Risk to life in the building would be low, but the building would require repairs before reoccupying.

Longitude

The geographic longitude of a particular location indicates how far east or west it is from the Greenwich Meridian, in terms of the angle measured from the earth's polar axis in degrees.

Loss of Structural Integrity Performance Level

A building meeting this performance level may be severely damaged and near collapse. It may pose significant hazard to life safety from failure of nonstructural components. Such buildings will be complete economic losses.

Magnitude

Any one of several measures of earthquake size, based on the amplitudes of seismic waves measured at known distances from the fault or epicenter. A general characteristic is that each unit increment of magnitude corresponds to a factor of 10 in amplitude.



Millibar

A measure of air pressure.

Modified Mercalli Intensity (MMI)

The MMI scale, ranging from I to XII, is used to rank the qualitative effects of an earthquake at a location on the Earth's surface. The lower values address human response to ground motions, the intermediate values characterize the response of simple structures, and the upper values describe ground failure processes.

Moment-Resisting Frame

A frame in which members and joints are capable of resisting forces primarily by flexure.

Operational Performance Level

A building meeting this performance level will sustain minimal or no damage to its structural and non-structural components. The building would be suitable for its normal occupancy and there would not be risk to life safety.

Period of Vibration

Interval of time of the oscillation (vibration) of a wave.

Probability of Exceedence (or Non-Exceedence)

The probability that a given measure or value of hazard, cost or loss will be exceeded (or not exceeded) over a period of time.

Probable Maximum Loss (PML)

Loss expected with a 90 % likelihood it will not be exceeded. Can be expressed for a scenario event, or for one or more sources over a specified time window.

Radius of Maximum Winds

The distance from the edge of the eye of a hurricane to the outermost area where a hurricane's maximum winds are being generated. This distance varies with the intensity of the hurricane, and can range from about 5 miles to 100 miles.

Randomness

The variability in the occurrence of an event or phenomenon associated with natural or inherent variability.

Return Period

Average interval of time associated with the recurrence of an event (e.g., earthquake).

Response Spectrum

A representation of seismic intensity or ground shaking expressed as a function of period of vibration. Specifically, it is a plot of the maximum response of a set of simple damped oscillators with different periods of vibration when subjected to shaking.

Richter Scale

The earthquake magnitude scale defined by Richter (1935), also referred to as local magnitude scale.

Saffir-Simpson Scale

A reference scale used to categorize hurricanes and typhoons into different classes of intensity. The categories range from 1 (lowest intensity) to 5 (highest intensity), based on the maximum sustained wind speed generated by the hurricane.

Seismic Waves

Waves of ground deformation generated in response to an earthquake (or explosion).



Soil Failure

Permanent deformation of the soil due to, for example, lateral spreading, liquefaction, landslide, or subsidence.

Soft Story Behavior

A mode of failure observed during earthquakes due to drastic difference of the strength and stiffness characteristics between two adjacent stories of the building.

Spectral Acceleration

The acceleration of the ground or a building expressed as a function of the period (or frequency) of vibration.

Storm Surge

The dome of water that builds up as a hurricane moves over water. As this water comes ashore with the storm, it causes flooding that is usually a tropical system's biggest killer.

Tectonic Plate

The basic unit of the earth's outer shell (~100 km thick), which deforms relatively little in response to tectonic forces, the boundaries of which are responsible for most earthquake activity. The San Andreas Fault is a plate boundary.

Tectonics

Pertaining to geologic forces governing the long-term deformation of the earth's structure.

Tornado

A violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. A condensation funnel does not need to reach to the ground for a tornado to be present; a debris cloud beneath a thunderstorm is all that is needed to confirm the presence of a tornado, even in the total absence of a condensation funnel.

Uncertainty

The variability in the occurrence of an event or phenomenon associated with our lack of knowledge or data.

Variability

The variability (in hazard or loss estimation) is comprised of two components: a randomness (inherent variability) and uncertainty (knowledge variability)

Wind Speed

Level of wind generated by a hurricane or tornado at a particular location.

If additional information or assistance is requested, please contact Impact Forecasting by phone at (312) 381-5919, by email at ifsupport@aon.com, or by the worldwide web at www.impactforecasting.com.

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