
100-year flood. See “base flood.”

A

Astragal. The center member of a double door, which is attached to the fixed or inactive door panel.

B

Base flood. The flood having a 1 percent chance of being equaled or exceeded in any given year, commonly referred to as the “100-year flood.” The base flood is the national standard used by the NFIP and all Federal agencies for the purposes of requiring the purchase of flood insurance and regulating new development.

Base flood elevation (BFE). The height of the base (1 percent or 100-year) flood in relation to a specified datum, usually the National Geodetic Vertical Datum of 1929, or the North American Vertical Datum of 1988.

Base isolation. Also called seismic isolation. A design concept that reduces the earthquake motions in the building superstructure by isolating the building from ground motions.

Basic wind speed. A 3-second gust speed at 33 feet above the ground in Exposure C. (Exposure C is flat open terrain with scattered obstructions having heights generally less than 30 feet.) Note: Since 1995, ASCE 7 has used a 3-second peak gust measuring time. A 3-second peak gust is the maximum instantaneous speed with a duration of approximately 3 seconds. A 3-second peak gust speed could be associated with a given windstorm (e.g., a particular storm could have a 40-mph peak gust speed), or a 3-second peak gust speed could be associated with a design-level event (e.g., the basic wind speed prescribed in ASCE 7).

Building configuration. Size, shape, and proportions of the building; size, shape, and location of structural elements; and the type, size, and location of nonstructural elements.

Building, enclosed. A building that does not comply with the requirements for open or partially enclosed buildings.

Building, open. A building having each wall at least 80 percent open. This condition is expressed by an equation in ASCE 7.

Building, partially enclosed. A building that complies with both of the following conditions:

1. The total area of openings in a wall that receives positive external pressure exceeds the

sum of the areas of openings in the balance of the building envelope (walls and roof) by more than 10 percent.

2. The total area of openings in a wall that receives positive external pressure exceeds 4 square feet, or 1 percent of the area of that wall, whichever is smaller, and the percentage of openings in the balance of the building envelope does not exceed 20 percent.

These conditions are expressed by equations in ASCE 7.

Building, period. The rate at which a building will vibrate as a result of ground motion.

Building, regularly shaped. A building having no unusual geometrical irregularity in spatial form.

Building, simple diaphragm. An enclosed or partially enclosed building in which wind loads are transmitted through floor and roof diaphragms to the vertical main wind-force resisting system.

C

Coastal Flooding. The accumulation of water experienced along the Atlantic, Gulf, and Pacific coasts, and the Great Lakes due to storm surges, extratropical systems, tsunamis, and sometimes wind-driven waves.

Components and cladding (C&C). Elements of the building envelope that do not qualify as part of the main wind-force resisting system.

Coping. The cover piece on top of a wall exposed to the weather, usually made of metal, masonry, or stone, and sloped to carry off water.

D

Damping. The rate at which natural vibration decays as a result of the absorption of energy. In buildings it is an inherent nature to resonate inefficiently to vibration depending on structural connections, kinds of materials, and nonstructural elements used. “Damping” design measures can reduce the magnitude of seismic forces.

Design flood. The greater of the following two flood events: (1) the base flood, affecting those areas identified as special flood hazard areas on a community’s Flood Insurance Rate Map (FIRM); or (2) the flood corresponding to the area designated as a flood hazard area on a community’s flood hazard map or otherwise legally designated.

Design flood elevation (DFE). The elevation of the design flood, including wave height, relative to the datum specified on a community’s flood hazard map.

Downburst. Also known as a microburst. A powerful downdraft associated with a thunderstorm.

Down-slope wind. A wind blowing down the slope of mountains (frequently occurs in Alaska and Colorado).

Drift. The term used in seismic design to describe the horizontal deflection of structural members in response to seismic forces.

Dry floodproofing. An adjustment, modification, or addition of a feature, or any combination thereof, that eliminates or reduces the potential for flood damage by sealing walls and closing openings to keep water from entering a building.

Ductility. The characteristic of certain materials—steel in particular—to fail only after considerable distortion or deformation has occurred.

E

Escarpment. Also known as a scarp. With respect to topographic effects, a cliff or steep slope generally separating two levels or gently sloping areas.

Equivalent Lateral Force (ELF) Procedure. A procedure used in building design that allows adjustments of the design force for varying site seismicities, alternative soil types, different structural and nonstructural systems and materials, different building heights, and occupancies of varying importance.

Epicenter. The epicenter is the place on the surface of the earth under which an earthquake rupture originates, often given in degrees of latitude and longitude.

Exposure. The characteristics of the ground roughness and surface irregularities in the vicinity of a building. ASCE 7 defines three exposure categories—Exposures B, C, and D.

Extratropical storm. A cyclonic storm that forms outside of the tropical zone. Extratropical storms may be large, often 1,500 miles (2,400 kilometers) in diameter, and usually contain a cold front that extends toward the equator for hundreds of miles.

F

Fault. A fault is a fracture along which the blocks of earth's crust on either side have moved relative to one another parallel to the fracture.

Federal Emergency Management Agency (FEMA). The Federal Emergency Management Agency is the Federal agency which administers the National Flood Insurance Program (NFIP).

Flashing. Any piece of material, usually metal or plastic, installed to prevent water from penetrating a structure.

Flood Insurance Rate Map (FIRM). The official map of a community on which FEMA has delineated both the special hazard areas, and the risk premium zones applicable to the community.

Flood Insurance Study (FIS). An engineering study performed by FEMA to identify flood hazard areas, flood insurance risk zones, and other flood data in a community; used in the development of the FIRM.

Floodplain. Any land area, including the watercourse, that is susceptible to partial or complete inundation by water, from any source.

Floodplain management regulations. Zoning ordinances, subdivision regulations, building codes, or special-purpose ordinances that set flood-resistant standards for new construction, land use, and development.

Flood profile. A graph of computed flood elevations at points located along a riverine waterway. A flood profile typically is available for a waterway that has Base Flood Elevations (BFEs) shown on the Flood Insurance Rate Map (FIRM). Flood profiles are usually found in the Flood Insurance Study (FIS) report.

Floodway. The channel and that portion of the floodplain that is to be reserved to convey the base flood, without cumulatively increasing the water surface elevation more than a designated height.

Floodway fringe. The area of the floodplain outside of the floodway, where floodwaters may be shallower and slower.

Freeboard. A factor of safety, usually expressed in feet above a flood level, for purposes of floodplain management. Freeboard also compensates for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, constricting bridge openings, and the hydrological effect of urbanization of the watershed. A freeboard of from 1 to 3 feet is often applied to critical facilities.

G

Glazing. Glass or a transparent or translucent plastic sheet used in windows, doors, and skylights.

Glazing, impact-resistant. Glazing that has been shown, by an approved test method, to withstand the impact of wind-borne missiles likely to be generated in wind-borne debris regions during design winds.

Ground motion. The movement of the earth's surface from earthquakes or explosions. Ground motion is produced by waves that are generated by sudden slip on a fault or sudden pressure at the explosive source, and travel through the earth and along its surface.

H

Hurricane-prone regions. Areas vulnerable to hurricanes; in the United States and its territories defined as:

1. The U.S. Atlantic Ocean and Gulf of Mexico coasts, where the basic wind speed is greater than 90 miles per hour.

2. Hawaii, Puerto Rico, Guam, U.S. Virgin Islands, and American Samoa.

Human intervention. The presence and active involvement of people necessary to enact or implement floodproofing measures prior to the onset of flooding.

Hydrodynamic load. Loads imposed by water flowing against and around an object or structure, including the impacts of debris and waves.

Hydrostatic load. Load (pressure) imposed on an object or structure by a standing mass of water; the deeper the water, the greater the load or pressure against the object or structure.

Impact-resistant covering. A covering designed to protect glazing, which has been shown by an approved test method to withstand the impact of wind-borne missiles likely to be generated in wind-borne debris regions during design winds.

Importance factor, I . A factor that accounts for the degree of hazard to human life and damage to property. Importance factors are given in ASCE 7.

Landslides. The slipping of soil and rock on sloping ground triggered by earthquake ground motion.

Liquefaction. The temporary change of loose granular soils and sand in the presence of water from a solid to a liquid state when subjected to ground shaking.

Lowest floor. The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access, or storage, in an area other than a basement area, is not considered a building's lowest floor, provided that the enclosure is compliant with flood-resistant requirements.

Magnitude. The magnitude is a number that characterizes the relative size of an earthquake. Magnitude is based on measurement of the maximum motion recorded by a seismograph. Best known scales are "Richter magnitude," and "moment magnitude." The moment magnitude (M_w) scale, based on the concept of seismic moment, is uniformly applicable to all sizes of earthquakes.

Main wind-force resisting system. An assemblage of structural elements assigned to provide support and stability for the overall structure. The system generally receives wind loading from more than one surface.

Mean roof height, (h). The average of the roof eave height and the height to the highest point on the roof surface, except that, for roof angles of less than or equal to 10 degrees, the mean roof height shall be the roof eave height.

Missiles. Debris that could become propelled into the wind stream.

Modified Mercalli Intensity (MMI) scale. Intensity scale used to measure the level of earthquake damage.

Moment Frame. Frames in which structural members and joints resist lateral forces by bending. There are “ordinary,” “intermediate,” and “special” moment frames. The latter provide the most resistance.

N

National Flood Insurance Program (NFIP). A Federal program to identify flood-prone areas nationwide, and make flood insurance available for properties in communities that participate in the program.

NEHRP. The Federal National Earthquake Hazard Reduction Program, enacted in 1977, to reduce potential losses from earthquakes by funding research in earthquake prediction and hazards and to guide the implementation of earthquake loss-reduction programs.

Nor'easter. Nor'easters are non-tropical storms that typically occur in the eastern United States, any time between October and April, when moisture and cold air are plentiful. They are known for dumping heavy amounts of rain and snow, producing hurricane-force winds, and creating high surfs that cause severe beach erosion and coastal flooding. A nor'easter is named for the winds that blow in from the northeast and drive the storm along the east coast and the Gulf Stream, a band of warm water that lies off the Atlantic Coast.

O

Openings. Apertures or holes in the building envelope that allow air to flow through the building envelope. A door that is intended to be in the closed position during a windstorm would not be considered an opening. Glazed openings are also not typically considered openings. However, if the building is located in a wind-borne debris region and the glazing is not impact-resistant or protected with an impact-resistant covering, the glazing is considered an opening.

P

Passive Energy Dissipation. The reduction of earthquake forces in a building by the introduction of devices designed to dissipate the earthquake energy in a controlled manner using friction, hydraulics, or deformation of material specially placed for this purpose.

Peak Ground Acceleration. The largest acceleration that occurs during earthquake-induced ground motion.

R

Racking. Lateral deflection of a structure resulting from external forces, such as wind or lateral ground movement in an earthquake.

Resonance. The increase in vibrations and accelerations to a vibrating building from the transmission of ground motion.

Response spectrum. A characterization of ground motion (representing the suite of spectral ordinates) measuring the extent of shaking different structures will experience based on their natural period of vibration.

Richter magnitude scale. Developed in 1935 by Charles F. Richter of the California Institute of Technology. The magnitude of an earthquake is determined from the logarithm of the amplitude of waves recorded by seismographs. Adjustments are included for the variation in the distance between the various seismographs and the epicenter of the earthquakes. On the Richter Scale, magnitude is expressed in whole numbers and decimal fractions. For example, a magnitude 5.3 might be computed for a moderate earthquake, and a strong earthquake might be rated as magnitude 6.3. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude; as an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.

Ridge. With respect to topographic effects, an elongated crest of a hill characterized by strong relief in two directions.

Riverine Flooding. The accumulation of runoff from rainfall or snowmelt, such that the volume of flow exceeds the capacity of waterway channels and spreads out over the adjacent land.

S

Seiche. A wave that oscillates in lakes, bays, or gulfs from a few minutes to a few hours as a result of seismic or atmospheric disturbances.

Seismic ground motion. The movement of ground surfaces in every direction simultaneously, back and forth, side to side, and up and down during an earthquake.

Seismograph. Also known as seismometer, is an instrument used to detect and record earthquakes. Generally, it consists of a mass attached to a fixed base. During an earthquake, the base moves and the mass does not. The motion of the base with respect to the mass is commonly transformed into an electrical voltage. The electrical voltage is recorded on paper, magnetic tape, or another recording medium. This record is proportional to the motion of the seismometer mass relative to the earth, but it can be mathematically converted to a record of the absolute motion of the ground.

Shear. A force that causes parts of a material to slide past one another in opposite directions

Shear wall. Solid wall that resists shear forces, used in buildings constructed in earthquake and high-wind zones.

Sheetflow. Rainfall runoff that flows over relatively flat land without concentrating into streams or channels.

Spectral Acceleration. The acceleration to be experienced by structures of different periods.

Stiffness. Rigidity, or resistance to deflection or drift. A measure of deflection or of staying in alignment within a certain stress.

Stillwater elevation. The elevation that the surface of coastal flood waters would assume in the absence of waves, referenced to a datum.

Straight-line wind. A wind blowing in a straight line with wind speeds ranging from very low to very high (the most common wind occurring throughout United States and its territories).

Substantial damage. Damage of any origin sustained by a structure, whereby the cost of restoring the structure to its predamage condition equals or exceeds 50 percent of the market value of the structure before the damage occurred (or smaller percentage if established by the authority having jurisdiction). Structures that are determined to be substantially damaged are considered to be substantial improvements, regardless of the actual repair work performed.

Substantial improvement. Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure (or smaller percentage if established by the authority having jurisdiction) before the start of the improvement.

T

Torsion. Twisting around an axis. The center of the mass does not coincide with the center of resultant force of the resisting building elements causing rotation or twisting action in plans and stress concentrations. Symmetry in general reduces torsion.

Tsunami. An unusually large sea wave produced by submarine earth movement or a volcanic eruption.

W

Wet floodproofing. Permanent or contingent measures and construction techniques, applied to a structure or its contents, that prevent or provide resistance to damage from flooding while allowing floodwaters to enter the structure. Generally, this includes properly anchoring the

structure, using flood-resistant materials below the BFE, protection of mechanical and utility equipment, and the use of openings or breakaway walls.

Wind-borne debris regions. Areas within hurricane-prone regions located:

1. Within 1 mile of the coastal mean high water line, where the basic wind speed is equal to or greater than 110 mph, and in Hawaii.
2. In areas where the basic wind speed is equal to or greater than 120 mph.

