



# Appendix B

## Glossary

Many of the terms defined here are also defined in the margins of pages on which they first appear or explained in the body of the text.

**Acquisition and demolition** – The voluntary process by which your State or local government purchases an existing at-risk building, and, typically, the underlying land; demolishes the building; and converts the land to open space. The land is then maintained as open space and used to restore and/or conserve the natural floodplain functions.

**Active retrofitting method** – Method that will not function as intended without human intervention. See “passive retrofitting method.”

**Adjacent grade** – See “lowest adjacent grade (LAG).”

**Alluvial fan flooding** – Flooding that occurs on the surface of an alluvial fan (or similar landform) that originates at the apex of the fan and is characterized by high-velocity flows; active processes of erosion, sediment transport, and deposition; and unpredictable flow paths.

**Armor** – To protect fill slopes, such as the sides of a levee, by covering them with erosion-resistant materials such as rock or concrete.

**Backfill** – To fill in a hole with the soil removed from it or with other material, such as soil, gravel, or stone.

**Backflow valve** – See “check valve.”

**Barrier systems** – See “floodwall” or “levees.”

**Base flood** – Flood that has a 1 percent probability of being equaled or exceeded in any given year (formerly known as the 100-year flood).

**Base flood elevation (BFE)** – The elevation of the base flood relative to the datum specified on a community’s Flood Insurance Rate Map (FIRM). The elevation is shown on the FIRM for Zones AE, AH, A1–A30, AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO, V1–V30, and VE and indicates the water surface elevation resulting from a flood that has a 1 percent chance of equaling or exceeding that level in any given year. The BFE is the National Flood Insurance Program’s (NFIP’s) minimum elevation to which the lowest floor of a building must be elevated or floodproofed (Zone A). In Zone V, the bottom of the lowest horizontal structural member must be elevated to or above the BFE; floodproofing is not permitted in Zone V. Many SFHAs are shown on FIRMs without BFEs; in these areas, community officials and permit applicants are required to obtain and use information from other sources, or must estimate or develop BFEs at specific locations.

**Basement** – Any area of the building having its floor subgrade (below ground level) on all sides.

**Benchmark** – A reference point established by a survey with a precisely known relationship to a datum.

**Building envelope** – The entire exterior surface of a building (including cladding, roofing, exterior walls, doors, and windows) that encloses or envelopes the space within.

**Buoyancy** – The upward hydrostatic force that floodwater exerts on the underside of submerged members (such as floor slabs, walls and footings) of homes that have enclosed spaces below the flood level.

**Cast-in-place concrete** – Concrete poured and formed at the construction site.

**Check valve** – Valve that allows water to flow in one direction, but automatically closes when the direction of flow is reversed.

**Closure** – Shield made of strong material, such as metal or wood, used to temporarily close openings in levees, floodwalls, and dry floodproofed buildings.

**Coastal A Zone** – The portion of the coastal SFHA referenced by building codes and standards, where base flood wave heights are between 1.5 and 3 feet, and where wave characteristics are deemed sufficient to damage many NFIP-compliant structures on shallow or solid wall foundations.

**Coastal High Hazard Areas** – SFHAs along the coasts that have additional hazards due to wind and wave action. These areas are identified on FIRMs as Zones V, V1–V30, and VE.

**Compaction** – In construction, the process by which the density of earth fill is increased so that it will provide a sound base for a building or other structure.

**Crawlspace** – Type of foundation in which the lowest floor of a home is suspended above the ground on continuous foundation walls.

**Cribbing** – A temporary framework that usually consists of criss-crossed timbers that provide temporary structural support. Cribbing usually consists of layers of heavy timber.

**Cutoff trench** – A core located below the base of a dam or levee structure. The trench is filled with an impervious material, such as clay, to form a watertight barrier to prevent under-levee seepage.

**Datum** – An elevation datum is an arbitrary surface that serves as a common reference for the elevations of points above or below it. Elevations are expressed in terms of feet, meters, or other units of measure and are identified as negative or positive, depending on whether they are above or below the datum. Three common elevation datums are mean sea level (msl), NGVD, and NAVD.

**Debris** – Materials carried by floodwaters, including objects of various sizes and suspended soils.

**Demolition** – The act or process of reducing a structure, as defined by State or local code, to a collapsed state.

**Design capacity** – For drainage systems, the volume of water that a channel, pipe, or other drainage line is designed to convey.

**Design flood elevation (DFE)** – The elevation of the design flood relative to the datum specified on the community’s FIRM. The design flood is associated with the greater of the area subject to the base flood or the area designated as a flood hazard area on a community flood hazard map. The I-Codes, ASCE 7, and ASCE 24 use the term DFE. In most communities, the DFE is identical to the BFE. Communities may designate a design flood (or DFE) in order to regulate based on a flood of record, to account for future increases in flood levels based on upland development, or to incorporate freeboard.

**Dry floodproofing** – Protecting a building through a combination of measures in order to prevent the entrance of floodwaters. Structural components of the building must have the capacity to resist the resulting flood loads.

**Duration** – The measure of how long a flood lasts. Duration can also refer to how long it takes for a creek, river, bay, or ocean to return to its normal level.

**Elevation** – In retrofitting, the process of physically raising an existing building so that it is above the height of a given flood.

**Elevation datum** – Arbitrary surface that serves as a common reference for the elevations of points above or below it. Elevations are expressed in terms of feet, meters, or other units of measure and are identified as negative or positive, depending on whether they are above or below the datum. Three common datums are mean sea level (msl), National Geodetic Vertical Datum (NGVD), and North American Vertical Datum (NAVD).

**Enclosure** – That portion of an elevated building below the lowest elevated floor that is either partially or fully shut in by rigid walls.

**Erosion** – A general lowering of the ground surface over a wide area.

**Federal Emergency Management Agency (FEMA)** – Agency within the Department of Homeland Security (DHS) that administers the NFIP. The NFIP is the Federal program, created by Congress in 1968, that makes flood insurance available in communities that adopt and enforce floodplain management ordinances or laws that meet the minimum requirements of the NFIP regulations.

**Federal Insurance and Mitigation Administration (FIMA)** – Component of FEMA directly responsible for administering the flood insurance aspects of the NFIP.

**Fill** – Material such as soil, gravel, or stone that is dumped in an area to increase the ground elevation. Fill is usually placed in layers and each layer compacted (see “compaction”).

**Flap valve** – See “check valve.”

**Flash Flood** – A flood caused by heavy or excessive rainfall in a short period of time, generally less than 6 hours. A flash flood rises and falls very quickly and is usually characterized by high flow velocities.

**Flood** – Under the NFIP, “a general and temporary condition of partial or complete inundation of normally dry land areas” from: 1) the overland flow of a lake, river, stream, ditch, etc.; 2) the unusual and rapid accumulation or runoff of surface waters; and 3) mudflows or the sudden collapse of shoreline land.

**Flood damage-resistant material** – Any building product (material, component, or system) capable of withstanding direct and prolonged contact with floodwaters without sustaining significant damage.

**Flood depth** – Height of floodwaters above the surface of the ground at a given point.

**Flood elevation** – Water surface elevation of floodwaters based on a given elevation datum.

**Flood frequency** – Probability, expressed as a percentage, that a flood of a given size will be equaled or exceeded in any given year. For example, the 1 percent annual chance flood has a 1 percent chance (1 in 100) of being equaled or exceeded in any given year.

**Flood protection elevation** – The elevation to which you choose to protect your home. Although a flood protection elevation less than the DFE is feasible, FEMA recommends protecting your home to at least the DFE.

**Floodplain** – Any area susceptible to inundation by water from any source. See “regulatory floodplain.”

**Floodplain management** – Program of corrective and preventive measures for reducing flood damage, including flood control projects, floodplain management regulations, floodproofing or retrofitting of buildings, and emergency preparedness plans.

**Floodproofing** – Any combination of structural or nonstructural changes or adjustments included in the design, construction, or alteration of a building that reduce or eliminate flood damage to the building and its contents. See “dry floodproofing” and “wet floodproofing.”

**Floodwall** – Flood barrier constructed of manmade materials, such as concrete or masonry, to keep water away from or out of a specified area.

**Floodway** – Portion of the SFHA that must be reserved to prevent significant increases in flood elevations. The flood hazard is usually greater in the floodway (higher flood depths and velocities) than in the surrounding areas of the SFHA, referred to as the “flood fringe.”

**Flow velocity** – Speed at which water moves during a flood. Velocities usually vary across the floodplain and are generally greatest near the channel and lowest near the edges of the floodplain.

**Footing** – The base of a foundation, usually made of concrete and sometimes reinforced with steel bars. Foundation walls are supported on continuous footings; separate foundation members, such as piers, are supported on individual footings.

**Footprint** – The land area a house covers. This area is equal to the length of the home multiplied by its width. The footprint is not necessarily equal to the total square footage of the home.

**Frame Construction** – A type of construction in which a supportive framework forms the primary structural element of a building. In residential construction, the framework typically consists of wood or steel members.

**Freeboard** – An added margin of safety, expressed in feet above a specific flood elevation, usually the BFE. In States and communities that require freeboard, buildings are required to be elevated or floodproofed to the higher elevation. For example, if a community adopts a 2-foot freeboard, buildings are required to be elevated or floodproofed to 2 feet above the BFE.

**Frequency** – See “flood frequency.”

**Grade beam** – In a slab foundation, a support member cast as an integral part of the slab, as opposed to a separate footing.

**Hazard mitigation** – Sustained action taken to reduce or eliminate long-term risk to people and property from hazards such as floods, hurricanes, earthquakes, and fires.

**Human intervention** – Any action that a person must take to enable a flood protection measure to function as intended. This action must be taken every time flooding threatens.

**High-velocity flow** – During a design flood or lesser conditions, water movement adjacent to structures and/or foundations with flow velocities greater than 10 feet per second.

**Hydrodynamic force** – Force exerted by moving water.

**Hydrostatic force** – Force exerted by water at rest, including lateral pressure on walls and uplift (buoyancy) on floors.

**Ice Jam** – Accumulation of floating ice fragments that causes the bridging or damming of a channel or stream.

**Impervious soils** – Soils that resist penetration by water.

**Intensity of rainfall** – The amount of rain that falls during a given amount of time. It is usually expressed in inches of rainfall per hour. The greater the number of inches per hour, the greater the intensity.

**Jetting** – A process in which the hole for the installation of a pile is made by a high-pressure stream of water from a nozzle attached to the bottom of the pile.

**Letter of Map Amendment (LOMA)** – Occasionally, a small area is inadvertently shown to be within the SFHA on a FIRM, even though the ground is at or above the BFE. If this occurs, an individual property owner may submit survey information to FEMA and request that FEMA issue a document that officially removes a property from the SFHA, called a Letter of Map Amendment.

**Levee** – Manmade barrier, usually constructed of compacted soil, designed to contain, control, or divert the flow of flood water from a specified area.

**Local officials** – Community employees who are responsible for floodplain management, zoning, permitting, building code enforcement, and building inspection.

**Lowest adjacent grade (LAG)** – The lowest ground surface that touches any of the exterior walls of a home. The LAG is determined at the pier or post of an attached deck or porch if the elevation is lower than the point where soil touches the foundation of the building.

**Lowest floor** – Floor of the lowest enclosed area within a building, including a basement. The only exception is an enclosed area below an elevated building, but only when the enclosed area is used solely for parking, building access, or storage and is compliant with relevant regulations

**Limit of Moderate Wave Action (LiMWA)** – A line indicating the limit of the 1.5-foot wave height during the base flood. FEMA requires new flood studies in coastal areas to delineate the LiMWA.

**Minimal Wave Action (MiWA) area** – The portion of the coastal Special Flood Hazard Area where base flood wave heights are less than 1.5 feet.

**Moderate Wave Action (MoWA) area** – see Coastal A Zone.

**Manufactured home** – A prefabricated frame home constructed on a transportable frame that can be placed on a permanent or temporary foundation (subject to Federal and State standards).

**Masonry** – Walls constructed of brick, stone, or concrete block.

**Masonry veneer** – Nonstructural, decorative, exterior layer of brick, stone, or concrete block added to the walls of a building.

**Mean sea level (msl)** – A tidal elevation datum based on data collected over a 19-year tide cycle.

**Mitigation reconstruction** – The construction of an improved, elevated building on the same site where an existing building and/or foundation has been partially or completely demolished or destroyed.

**Modular home** – A frame home assembled on site on a permanent foundation from separate sections manufactured elsewhere (subject to local building codes).

**National Geodetic Vertical Datum (NGVD)** – A geodetic elevation datum previously used by FEMA for the determination of flood elevations. While NGVD has been updated to the NAVD datum on many FIRMs, it is still the datum referenced on many of the older FIRMs.

**North American Vertical Datum (NAVD)** – A geodetic elevation datum currently used by FEMA for the determination of flood elevations.

**Passive retrofitting method** – Method that operates automatically, without human intervention. See “active retrofitting method.”

**Permeable soils** – Soils through which water can easily penetrate and flow.

**Pier** – Vertical support member of masonry or cast-in-place concrete that is designed and constructed to function as an independent structural element in supporting and transmitting both building loads and environmental loads to the ground.

**Piling** – Vertical support member of wood, steel, or precast concrete that is driven or jetted into the ground and supported primarily by friction between the pilings and the surrounding earth. Pilings often cannot act as independent support units and therefore are often braced with connections to other pilings.

**Post** – Long vertical support member of wood or steel set in holes that are backfilled with compacted material. Posts often cannot act as independent support units and, therefore, are often braced with connections to other posts.

**Precast concrete** – Concrete materials such as posts, beams, and blocks that are brought to the construction site in finished form.

**Prolonged contact** – At least 72 hours of contact with floodwaters.

**Rates of rise and fall** – How rapidly the elevation of the water rises and falls during a flood.

**Regulatory floodplain** – Flood hazard area within which a community regulates development, including new construction, the repair of Substantially Damaged buildings, and Substantial Improvements to existing buildings. In communities participating in the NFIP, the regulatory floodplain must include at least the area inundated by the base flood, also referred to as the SFHA.

**Reinforcement** – Inclusion of steel bars in concrete members and structures to increase their strength.

**Relocation** – In retrofitting, the process of moving a home or other building to a new location outside the flood hazard area.

**Retrofitting** – Making changes to an existing home or other building to protect it from flooding or other hazards.

**Riprap** – Pieces of rock or crushed stone added to the surface of a fill slope, such as the side of a levee, to prevent erosion.

**Saturated soils** – Soils that have absorbed, to the maximum extent possible, water from rainfall or snowmelt.

**Scour** – A localized loss of soil, often around a foundation element.

**Sealant** – In retrofitting, a waterproofing material or substance used to prevent the infiltration of floodwater.

**Service equipment** – The utility systems, heating and cooling systems, and large appliances in a retrofitted home.

**Significant damage** – As it relates to flood-damage resistant materials, any damage requiring more than cosmetic repair.

**Slab-on-grade** – Type of foundation in which the lowest floor of the home is formed by a concrete slab that sits directly on the ground. The slab may be supported by independent footings or integral grade beams.

**Special Flood Hazard Area (SFHA)** – An area delineated on a FIRM as being subject to inundation by the base flood, designated Zone A, AE, A1–A30, AR, AO, AH, A99, V, VE, or V1–V30.

**Storm surge** – Water pushed toward the shore by the force of the winds swirling around a storm. It is the greatest cause of loss of life due to hurricanes..

**Subgrade** – Below the level of the ground surface.

**Substantial Damage** – Damage to a building, regardless of the cause, is considered Substantial damage if the cost of restoring the building to its before-damage condition would equal or exceed 50 percent of the market value of the building before the damage occurred

**Substantial Improvement** – Under the NFIP, an improvement of a building (such as reconstruction, rehabilitation, or an addition) is considered a Substantial Improvement if its cost equals or exceeds 50 percent of the market value of the building before the start of construction of the improvement.

**Substantially impermeable** – A wall is considered substantially impermeable if it limits water accumulation to 4 inches in a 24 hour period. In addition, sump pumps are required to control any seepage and flood-resistant materials must be used in all areas where seepage is likely to occur. This standard is the minimum requirement; lower seepage rates are possible and strongly encouraged by FEMA, particularly in new construction.

**Sump pump** – Device used to remove water from seepage or rainfall that collects in areas protected by a levee, floodwall, or dry floodproofing. In addition, a sump pump is often part of a standard home drainage system that removes water that collects below a basement slab floor.

**Tsunami** – Large, rapidly moving sea waves produced by an undersea earth movement (earthquakes, crustal displacements or landslides) or volcanic eruption.

**Underseepage** – Water that migrates downward along the sealed walls of a home and then under the foundation.

**Veneer** – See “masonry veneer.”

**Walkout-on-grade basement** – Basement whose floor is at ground level on at least one side of a home. The term “walkout” is used because most basements of this type have an outside door or doors (entry door, garage door, or both) at ground level. A walkout-on-grade basement is not considered a basement under the NFIP. See “basement.”

**Watershed** – The land area that drains water to a particular stream, river, or lake. It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge.

**Wave action** – The characteristics and effects of waves that move inland from an ocean, bay, or other large body of water. Large, fast-moving waves can cause extreme erosion and scour, and their impact on buildings can cause severe damage.

**Wet floodproofing** – The use of flood-damage-resistant materials and construction techniques to minimize flood damage to areas below the flood protection level of a building, which is intentionally allowed to flood. Usually, only enclosed areas used for parking, building access, or storage are wet floodproofed.