

Appendix B

Glossary

A

A zone – Under the *National Flood Insurance Program*, area subject to inundation by the *100-year flood* where wave action does not occur or where waves are less than 3 feet high, designated Zone A, AE, A1-A30, A0, AH, or AR on a *Flood Insurance Rate Map (FIRM)*.

Adjacent grade – Elevation of the natural or graded ground surface, or structural fill, abutting the walls of a building. See *highest adjacent grade* and *lowest adjacent grade*.

Anchor – To secure a structure to its footings or foundation wall in such a way that a continuous load transfer path is created and so that it will not be displaced by flood, wind, or seismic forces.

Appurtenant structure – Under the *National Flood Insurance Program*, a structure which is on the same parcel of property as the principal *structure* to be insured and the use of which is incidental to the use of the principal *structure*.

Armor – To protect slopes from *erosion* and *scour* by *flood* waters. Techniques of armoring include the use of riprap, gabions, or concrete.

B

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

Base Flood Elevation (BFE) – Elevation of the *base flood* in relation to a specified datum, such as the *National Geodetic Vertical Datum* or the *North American Vertical Datum*. The Base Flood Elevation is the basis of the insurance and *floodplain management* requirements of the *National Flood Insurance Program*.

Basement – Under the *National Flood Insurance Program*, any area of a building having its floor subgrade on all sides. (Note: What is typically referred to as a “walkout basement,” which has a floor that is at or above grade on at least one side, is not considered a basement under the *National Flood Insurance Program*.)

Beach nourishment – Replacement of beach sand removed by ocean waters.

Bedrock – Rock, usually solid, that underlies soil or other unconsolidated surficial material.

Berm – Horizontal portion of the backshore beach formed by sediments deposited by waves.

Breakaway wall – Under the *National Flood Insurance Program*, a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system. Breakaway walls are required by the *National Flood Insurance Program* regulations for any enclosures constructed below the *Base Flood Elevation* beneath elevated buildings in *Coastal High Hazard Areas* (also referred to as *V zones*). In addition, breakaway walls are recommended in areas where *flood* waters flow at high velocities or contain ice or other debris.

Building code – Regulations adopted by local governments that establish standards for construction, modification, and repair of buildings and other structures.

Built-up roof covering – Two or more layers of felt cemented together and surfaced with a cap sheet, mineral aggregate, smooth coating, or similar surfacing material.

Bulkhead – Wall or other structure, often of wood, steel, stone, or concrete, designed to retain or prevent sliding or *erosion* of the land. Occasionally, bulkheads are used to protect against wave action.

C

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

Cladding – Exterior surface of the building envelope that is directly loaded by the wind.

Coastal A zone – For the purposes of this manual, the portion of the *Special Flood Hazard Area* landward of a *V zone* or landward of an open coast without mapped *V zones* (e.g., shorelines of the Great Lakes), in which the principal sources of flooding are astronomical tides, *storm surge*, seiches, or *tsunamis*, not riverine sources. The *flood* forces in coastal A zones are highly correlated with coastal winds or coastal seismic

activity. Coastal A zones may therefore be subject to wave effects, velocity flows, *erosion*, *scour*, or combinations of these forces. See *A zone* and *Non-coastal A zone*. (Note: the *National Flood Insurance Program* regulations do not differentiate between coastal A zones and *non-coastal A zones*.)

Coastal barrier – Depositional geologic feature such as a bay barrier, tombolo, barrier spit, or barrier island that consists of unconsolidated sedimentary materials; is subject to wave, tidal, and wind energies; and protects landward aquatic habitats from direct wave attack.

Coastal Barrier Resources Act of 1982 (CBRA) – Act (Pub. L. 97-348) that established the Coastal Barrier Resources System (CBRS). The act prohibits the provision of new flood insurance coverage on or after October 1, 1983, for any *new construction* or *substantial improvements* of structures located on any designated undeveloped coastal barrier within the CBRS. The CBRS was expanded by the Coastal Barrier Improvement Act of 1991. The date on which an area is added to the CBRS is the date of CBRS designation for that area.

Coastal flood hazard area – Area, usually along an open coast, bay, or inlet, that is subject to inundation by storm surge and, in some instances, wave action caused by storms or seismic forces.

Coastal High Hazard Area – Under the *National Flood Insurance Program*, an area of special flood hazard extending from offshore to the inland limit of a *primary frontal dune* along an open coast and any other area subject to high-velocity wave action from storms or seismic sources. On a *Flood Insurance Rate Map*, the Coastal High Hazard Area is designated Zone V, VE, or V1-V30. These zones designate areas subject to inundation by the *base flood* where *wave heights* or *wave runup depths* are greater than or equal to 3.0 feet.

Code official – Officer or other designated authority charged with the administration and enforcement of the code, or a duly authorized representative, such as a building, zoning, planning, or *floodplain management* official.

Column foundation – Foundation consisting of vertical support members with a height-to-least-lateral-dimension ratio greater than three. Columns are set in holes and backfilled with compacted material. They are usually made of concrete or masonry and often must be braced. Columns are sometimes known as posts, particularly if the column is made of wood.

Concrete Masonry Unit (CMU) – Building unit or block larger than 12 inches by 4 inches by 4 inches made of cement and suitable aggregates.

Connector – Mechanical device for securing two or more pieces, parts, or members together, including anchors, wall ties, and fasteners.

Contraction joint – Groove that is formed, sawed, or tooled in a concrete structure to create a weakened plane and regulate the location of cracking resulting from the dimensional change of different parts of the structure. See *Isolation joint*.

Corrosion-resistant metal – Any nonferrous metal or any metal having an unbroken surfacing of nonferrous metal, or steel with not less than 10 percent chromium or with not less than 0.20 percent copper.

D

Dead load – Weight of all materials of construction incorporated into the building, including but not limited to walls, floors, roofs, ceilings, stairways, built-in partitions, finishes, *cladding*, and other similarly incorporated architectural and structural items and fixed service equipment. See *Loads*.

Debris – Solid objects or masses carried by or floating on the surface of moving water.

Debris impact loads – Loads imposed on a structure by the impact of floodborne debris. These loads are often sudden and large. Though difficult to predict, debris impact loads must be considered when structures are designed and constructed. See *Loads*.

Debris line – Line left on a structure or on the ground by the deposition of debris. A debris line often indicates the height or inland extent reached by *flood* waters.

Deck – Exterior floor supported on at least two opposing sides by an adjacent structure and/or posts, piers, or other independent supports.

Design flood – The greater of either (1) the *base flood* or (2) the *flood* associated with the *flood hazard area* depicted on a community's flood hazard map, or otherwise legally designated.

Design Flood Elevation (DFE) – Elevation of the *design flood*, or the flood protection elevation required by a community, including wave effects, relative to the *National Geodetic Vertical Datum*, *North American Vertical Datum*, or other datum.

Design flood protection depth – Vertical distance between the eroded ground elevation and the *Design Flood Elevation*.

Design stillwater flood depth – Vertical distance between the eroded ground elevation and the *design stillwater flood elevation*.

Design stillwater flood elevation – Stillwater elevation associated with the *design flood*, excluding wave effects, relative to the *National Geodetic Vertical Datum*, *North American Vertical Datum*, or other datum.

Development – Under the *National Flood Insurance Program*, any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation, or drilling operations or storage of equipment or materials.

Dune – See *Frontal dune* and *Primary frontal dune*.

Dune toe – Junction of the gentle slope seaward of the dune and the dune face, which is marked by a slope of 1 on 10 or steeper.

E

Effective Flood Insurance Rate Map (FIRM) – See *Flood Insurance Rate Map*.

Enclosure – That portion of an elevated building below the *Design Flood Elevation (DFE)* that is partially or fully surrounded by solid (including breakaway) walls.

Encroachment – Any physical object placed in a floodplain that hinders the passage of water or otherwise affects the flood flows.

Episodic erosion – Erosion induced by a single storm event. Episodic erosion considers the vertical component of two factors: general beach profile lowering and localized conical scour around foundation supports. Episodic erosion is relevant to foundation embedment depth and potential undermining. See *Erosion*.

Erodible soil – Soil subject to wearing away and movement due to the effects of wind, water, or other geological processes during a flood or storm or over a period of years.

Erosion – Under the *National Flood Insurance Program*, the process of the gradual wearing away of land masses. In general, erosion involves the detachment and movement of soil and rock fragments, during a flood or

storm or over a period of years, through the action of wind, water, or other geologic processes.

Erosion analysis – Analysis of the short- and long-term *erosion* potential of soil or strata, including the effects of *flooding* or *storm surge*, moving water, wave action, and the interaction of water and structural components.

F

Federal Emergency Management Agency (FEMA) – Independent agency created in 1979 to provide a single point of accountability for all Federal activities related to disaster mitigation and emergency preparedness, response and recovery. FEMA administers the *National Flood Insurance Program*.

Federal Insurance Administration (FIA) – The component of the *Federal Emergency Management Agency* directly responsible for administering the flood insurance aspects of the *National Flood Insurance Program*.

Fetch – Distance over which wind acts on the water surface to generate waves.

Fill – Material such as soil, gravel, or crushed stone placed in an area to increase ground elevations or change soil properties. See *structural fill*.

500-year flood – *Flood* that has as 0.2-percent probability of being equaled or exceeded in any given year.

Flood – Under the *National Flood Insurance Program*, either (a) a general and temporary condition or partial or complete inundation of normally dry land areas from:

- (1) the overflow of inland or tidal waters,
- (2) the unusual and rapid accumulation or runoff of surface waters from any source, or
- (3) mudslides (i.e., mudflows) which are proximately caused by flooding as defined in (2) and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when the earth is carried by a current of water and deposited along the path of the current,

or (b) the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied

by a severe storm, or by an unanticipated force of nature, such as flash flood or abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in (1), above.

Flood-damage-resistant material – Any construction material capable of withstanding direct and prolonged contact (i.e., at least 72 hours) with flood waters without suffering significant damage (i.e., damage that requires more than cleanup or low-cost cosmetic repair, such as painting).

Flood elevation – Height of the water surface above an established elevation datum such as the *National Geodetic Vertical Datum*, *North American Vertical Datum*, or *mean sea level*.

Flood hazard area – The greater of the following: (1) the area of special flood hazard, as defined under the *National Flood Insurance Program*, or (2) the area designated as a flood hazard area on a community's legally adopted flood hazard map, or otherwise legally designated.

Flood insurance – Insurance coverage provided under the National Flood Insurance Program.

Flood Insurance Rate Map (FIRM) – Under the *National Flood Insurance Program*, an official map of a community, on which the *Federal Emergency Management Agency* has delineated both the special hazard areas and the risk premium zones applicable to the community. (Note: The latest FIRM issued for a community is referred to as the *effective FIRM* for that community.)

Flood Insurance Study (FIS) – Under the *National Flood Insurance Program*, an examination, evaluation, and determination of *flood* hazards and, if appropriate, corresponding *water surface elevations*, or an examination, evaluation, and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards in a community or communities. (Note: The *National Flood Insurance Program* regulations refer to Flood Insurance Studies as “flood elevation studies.”)

Flood-related erosion area or flood-related erosion prone area – A land area adjoining the shore of a lake or other body of water, which due to the composition of the shoreline or bank and high water levels or wind-driven currents, is likely to suffer *flood-related erosion* damage.

Flooding – See *Flood*.

Floodplain – Under the *National Flood Insurance Program*, any land area susceptible to being inundated by water from any source. See *Flood*.

Floodplain management – Operation of an overall program of corrective and preventive measures for reducing *flood* damage, including but not limited to emergency preparedness plans, flood control works, and *floodplain management regulations*.

Floodplain management regulations – Under the *National Flood Insurance Program*, zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as floodplain ordinance, grading ordinance, and erosion control ordinance), and other applications of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of *flood* damage prevention and reduction.

Footing – Enlarged base of a foundation wall, pier, post, or column designed to spread the load of the structure so that it does not exceed the soil bearing capacity.

Footprint – Land area occupied by a structure.

Freeboard – Under the *National Flood Insurance Program*, a factor of safety, usually expressed in feet above a *flood* level, for the purposes of *floodplain management*. Freeboard tends to compensate for the many unknown factors that could contribute to flood heights greater than the heights calculated for a selected size flood and floodway conditions, such as the hydrological effect of urbanization of the watershed.

Frontal dune – Ridge or mound of unconsolidated sandy soil, extending continuously alongshore landward of the sand beach and defined by relatively steep slopes abutting markedly flatter and lower regions on each side.

G

Gabion – Rock-filled cage made of wire or metal that is placed on slopes or embankments to protect them from *erosion* caused by flowing or fast-moving water.

Grade beam – Section of a concrete slab that is thicker than the slab and acts as a footing to provide stability, often under load-bearing or critical structural walls. Grade beams are occasionally installed to provide lateral support for vertical foundation members where they enter the ground.

H

High-velocity wave action – Condition in which *wave heights* or *wave runup depths* are greater than or equal to 3.0 feet.

Highest adjacent grade – Elevation of the highest natural or regraded ground surface, or structural fill, that abuts the walls of a building.

Hurricane – Tropical cyclone, formed in the atmosphere over warm ocean areas, in which wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or “eye.” Hurricane circulation is counter-clockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

Hurricane clip or strap – Structural connector, usually metal, used to tie roof, wall, floor, and foundation members together so that they can resist wind forces.

Hydrodynamic loads – Loads imposed on an object, such as a building, by water flowing against and around it. Among these loads are positive frontal pressure against the structure, drag effect along the sides, and negative pressure on the downstream side.

Hydrostatic loads – Loads imposed on a surface, such as a wall or floor slab, by a standing mass of water. The water pressure increases with the square of the water depth.

I

Isolation joint – Separation between adjoining parts of a concrete structure, usually a vertical plane, at a designated location such as to interfere least with the performance of the structure, yet such as to allow relative movement in three directions and avoid formation of cracks elsewhere in the concrete and through which all or part of the bonded reinforcement is interrupted. See *Contraction joint*.

J

Jetting (of piles) – Use of a high-pressure stream of water to embed a pile in sandy soil. See *pile foundation*.

Jetty – Wall built out into the water to restrain currents or protect a structure.

Joist – Any of the parallel structural members of a floor system that support, and are usually immediately beneath, the floor.

L

Lacustrine flood hazard area – Area subject to inundation by *flooding* from lakes.

Littoral – Of or pertaining to the shore, especially of the sea; coastal.

Littoral drift – Movement of sand by littoral (longshore) currents in a direction parallel to the beach along the shore.

Live loads – *Loads* produced by the use and occupancy of the building or other structure. Live loads do not include construction or environmental loads such as wind load, snow load, rain load, earthquake load, flood load, or dead load. See *Loads*.

Load-bearing wall – Wall that supports any vertical load in addition to its own weight. See *Non-load-bearing wall*.

Loads – Forces or other actions that result from the weight of all building materials, occupants and their possessions, environmental effects, differential movement, and restrained dimensional changes. Permanent loads are those in which variations over time are rare or of small magnitude. All other loads are variable loads.

Lowest adjacent grade (LAG) – Elevation of the lowest natural or regraded ground surface, or structural fill, that abuts the walls of a building. See *Highest adjacent grade*.

Lowest floor – Under the *National Flood Insurance Program*, the lowest floor of the lowest enclosed area (including basement) of a structure. An unfinished or *flood-resistant* enclosure, usable solely for parking of vehicles, building access, or storage in an area other than a basement is not considered a building's lowest floor, provided that the enclosure is not built so as to render the structure in violation of *National Flood Insurance Program* regulatory requirements.

Lowest horizontal structural member – In an elevated building, the lowest beam, *joist*, or other horizontal member that supports the building. *Grade beams* installed to support vertical foundation members where they enter the ground are not considered lowest horizontal structural members.

M

Mangrove stand – Under the *National Flood Insurance Program*, an assemblage of mangrove trees, which are mostly low trees noted for a copious development of interlacing adventitious roots above the ground and which contain one or more of the following species: black mangrove (*Avicennia Nitida*), red mangrove (*Rhizophora Mangle*), white mangrove (*Languncularia Racemosea*), and buttonwood (*Conocarpus Erecta*).

Manufactured home – Under the *National Flood Insurance Program*, a *structure*, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term “manufactured home” does not include a “recreational vehicle.”

Marsh – Wetland dominated by herbaceous or nonwoody plants often developing in shallow ponds or depressions, river margins, tidal areas, and estuaries.

Masonry – Built-up construction of combination of building units or materials of clay, shale, concrete, glass, gypsum, stone, or other approved units bonded together with or without mortar or grout or other accepted methods of joining.

Mean sea level (MSL) – Average height of the sea for all stages of the tide, usually determined from hourly height observations over a 19-year period on an open coast or in adjacent waters having free access to the sea. See *National Geodetic Vertical Datum*.

Metal roof panel – Interlocking metal sheet having a minimum installed weather exposure of 3 square feet per sheet.

Metal roof shingle – Interlocking metal sheet having an installed weather exposure less than 3 square feet per sheet.

Mitigation – Any action taken to reduce or permanently eliminate the long-term risk to life and property from natural hazards.

Mitigation Directorate – Component of *Federal Emergency Management Agency* directly responsible for administering the flood hazard identification and *floodplain management* aspects of the *National Flood Insurance Program*.

N

National Flood Insurance Program (NFIP) – Federal program created by Congress in 1968 that makes *flood* insurance available in communities that enact and enforce satisfactory *floodplain management regulations*.

National Geodetic Vertical Datum (NGVD) – Datum established in 1929 and used as a basis for measuring flood, ground, and structural elevations, previously referred to as Sea Level Datum or *Mean Sea Level*. The *Base Flood Elevations* shown on most of the *Flood Insurance Rate Maps* issued by the *Federal Emergency Management Agency* are

referenced to NGVD or, more recently, to the *North American Vertical Datum*.

Naturally decay-resistant wood – Wood whose composition provides it with some measure of resistance to decay and attack by insects, without preservative treatment (e.g., heartwood of cedar, black locust, black walnut, and redwood).

New construction – For the purpose of determining flood insurance rates under the *National Flood Insurance Program*, structures for which the start of construction commenced on or after the effective date of the initial *Flood Insurance Rate Map* or after December 31, 1974, whichever is later, including any subsequent improvements to such structures. (See *Post-FIRM structure*.) For *floodplain management* purposes, new construction means structures for which the *start of construction* commenced on or after the effective date of a *floodplain management regulation* adopted by a community and includes any subsequent improvements to such structures.

Non-coastal A zone – For the purposes of this manual, the portion of the *Special Flood Hazard Area* in which the principal source of *flooding* is runoff from rainfall, snowmelt, or a combination of both. In non-coastal A zones, *flood* waters may move slowly or rapidly, but waves are usually not a significant threat to buildings. See *A zone* and *coastal A zone*. (Note: the *National Flood Insurance Program* regulations do not differentiate between non-coastal A zones and *coastal A zones*.)

Non-load-bearing wall – Wall that does not support vertical loads other than its own weight. See *Load-bearing wall*.

North American Vertical Datum (NAVD) – Datum used as a basis for measuring flood, ground, and structural elevations. NAVD is used in many recent *Flood Insurance Studies* rather than the *National Geodetic Vertical Datum*.

O

100-year flood – See *Base flood*.

Oriented strand board (OSB) – Mat-formed wood structural panel product composed of thin rectangular wood strands or wafers arranged in oriented layers and bonded with waterproof adhesive.

P

Pier foundation – Foundation consisting of isolated masonry or *cast-in-place* concrete structural elements extending into firm materials. Piers are

relatively short in comparison to their width, which is usually less than or equal to 12 times their horizontal dimension. Piers derive their load-carrying capacity through skin friction, end bearing, or a combination of both.

Pile foundation – Foundation consisting of concrete, wood, or steel structural elements driven or jetted into the ground or cast-in-place. Piles are relatively slender in comparison to their length, which usually exceeds 12 times their horizontal dimension. Piles derive their load-carrying capacity through skin friction, end bearing, or a combination of both.

Plain concrete – *Structural concrete* with no reinforcement or with less reinforcement than the minimum amount specified for *reinforced concrete*.

Plywood – Wood structural panel composed of plies of wood veneer arranged in cross-aligned layers. The plies are bonded with an adhesive that cures on application of heat and pressure.

Post foundation – Foundation consisting of vertical support members set in holes and backfilled with compacted material. Posts are usually made of wood and usually must be braced. Posts are also known as columns, but columns are usually made of concrete or masonry.

Post-FIRM structure – For purposes of determining insurance rates under the *National Flood Insurance Program*, structures for which the *start of construction* commenced on or after the effective date of an initial *Flood Insurance Rate Map* or after December 31, 1974, whichever is later, including any subsequent improvements to such structures. This term should not be confused with the term *new construction* as it is used in *floodplain management*.

Precast concrete – Structural concrete element cast elsewhere than its final position in the structure. See *Cast-in-place concrete*.

Pressure-treated wood – Wood impregnated under pressure with compounds that reduce the susceptibility of the wood to flame spread or to deterioration caused by fungi, insects, or marine borers.

Primary frontal dune – Under the *National Flood Insurance Program*, a continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject to erosion and overtopping from high tides and waves during major coastal storms. The inland limit of the primary frontal

dune occurs at the point where there is a distinct change from a relatively steep slope to a relatively mild slope.

R

Reinforced concrete – *Structural concrete* reinforced with steel bars.

Retrofit – Any change made to an existing structure to reduce or eliminate damage to that structure from flooding, *erosion*, high winds, earthquakes, or other hazards.

Revetment – Facing of stone, cement, sandbags, or other materials placed on an earthen wall or embankment to protect it from *erosion* or *scour* caused by *flood* waters or wave action

Riprap – Broken stone, cut stone blocks, or rubble that is placed on slopes to protect them from *erosion* or *scour* caused by *flood* waters or wave action.

Roof deck – Flat or sloped roof surface not including its supporting members or vertical supports.

S

Sand dunes – Under the *National Flood Insurance Program*, natural or artificial ridges or mounds of sand landward of the beach.

Scour – Removal of soil or fill material by the flow of *flood* waters. The term is frequently used to describe storm-induced, localized conical erosion around pilings and other foundation supports where the obstruction of flow increases turbulence. See *Erosion*.

Seawall – Solid barricade built at the water's edge to protect the shore and to prevent inland *flooding*.

Shearwall – *Load-bearing wall* or *non-load-bearing wall* that transfers in-plane lateral forces from lateral *loads* acting on a structure to its foundation.

Shoreline retreat – Progressive movement of the shoreline in a landward direction caused by the composite effect of all storms considered over decades and centuries (expressed as an annual average *erosion* rate). Shoreline retreat considers the horizontal component of *erosion* and is relevant to long-term land use decisions and the siting of buildings.

Single-ply membrane – Roofing membrane that is field-applied with one layer of membrane material (either homogeneous or composite) rather than multiple layers.

60-year setback – A state or local requirement that prohibits new construction and certain improvements and repairs to existing coastal buildings located in an area expected to be lost to *shoreline retreat* over a 60-year period. The inland extent of the area is equal to 60 times the average annual long-term recession rate at a site, measured from a reference feature.

Special Flood Hazard Area (SFHA) – Under the *National Flood Insurance Program*, an area having special *flood*, mudslide (i.e., mudflow) and/or flood-related erosion hazards, and shown on a Flood Hazard Boundary Map or *Flood Insurance Rate Map* as Zone A, AO, A1-A30, AE, A99, AH, V, V1-V30, VE, M or E.

Start of construction (for other than new construction or substantial improvements under the Coastal Barrier Resources Act) – Under the *National Flood Insurance Program*, date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading, and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a *substantial improvement*, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

State Coordinating Agency – Under the *National Flood Insurance Program*, the agency of the state government, or other office designated by the Governor of the state or by state statute to assist in the implementation of the *National Flood Insurance Program* in that state.

Stillwater elevation – Projected elevation that flood waters would assume, referenced to the *National Geodetic Vertical Datum, North*

American Vertical Datum, or other datum, in the absence of waves resulting from wind or seismic effects.

Storm surge – Rise in the water surface above normal water level on the open coast due to the action of wind stress and atmospheric pressure on the water surface.

Storm tide – Combined effect of *storm surge*, existing astronomical tide conditions, and breaking *wave setup*.

Structural concrete – All concrete used for structural purposes, including *plain concrete* and *reinforced concrete*.

Structural fill – Fill compacted to a specified density to provide structural support or protection to a *structure*. See *Fill*.

Structure – For *floodplain management* purposes under the *National Flood Insurance Program*, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home. For insurance coverage purposes under the NFIP, structure means a walled and roofed building, other than a gas or liquid storage tank, that is principally above ground and affixed to a permanent site, as well as a *manufactured home* on a permanent foundation. For the latter purpose, the term includes a building while in the course of construction, alteration, or repair, but does not include building materials or supplies intended for use in such construction, alteration, or repair, unless such materials or supplies are within an enclosed building on the premises.

Substantial damage – Under the *National Flood Insurance Program*, damage of any origin sustained by a *structure* whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial improvement – Under the *National Flood Insurance Program*, 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 before the *start of construction* of the improvement. This term includes structures which have incurred *substantial damage*, regardless of the actual repair work performed. The term does not, however, include either (1) any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe

living conditions, or (2) any alteration of a “historic structure,” provided that the alteration will not preclude the structure’s continued designation as a “historic structure.”

Surge – See *Storm surge*.

T

30-year erosion setback – A state or local requirement that prohibits new construction and certain improvements and repairs to existing coastal buildings located in an area expected to be lost to *shoreline retreat* over a 30-year period. The inland extent of the area is equal to 30 times the average annual long-term recession rate at a site, measured from a reference feature.

Tropical depression – Tropical cyclone with some rotary circulation at the water surface. With maximum sustained wind speeds of up to 39 miles per hour, it is the second phase in the development of a *hurricane*.

Tropical disturbance – Tropical cyclone that maintains its identity for at least 24 hours and is marked by moving thunderstorms and with slight or no rotary circulation at the water surface. Winds are not strong. It is a common phenomenon in the tropics and is the first discernable stage in the development of a *hurricane*.

Tsunami – Great sea wave produced by submarine earth movement or volcanic eruption.

Typhoon – Name given to a *hurricane* in the area of the western Pacific Ocean west of 180 degrees longitude.

U

Underlayment – One or more layers of felt, sheathing paper, nonbituminous saturated felt, or other approved material over which a steep-sloped roof covering is applied.

Undermining – Process whereby the vertical component of erosion or scour exceeds the depth of the base of a building foundation or the level below which the bearing strength of at the foundation is compromised.

Uplift – Hydrostatic pressure caused by water under a building. It can be strong enough lift a building off its foundation, especially when the building is not properly anchored to its foundation.

V

V zone – See *Coastal High Hazard Area*.

Variance – Under the *National Flood Insurance Program*, grant of relief by a community from the terms of a *floodplain management regulation*.

Violation – Under the *National Flood Insurance Program*, the failure of a structure or other development to be fully compliant with the community's *floodplain management regulations*. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in Sections 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) of the NFIP regulations is presumed to be in violation until such time as that documentation is provided.

W

Water surface elevation – Under the *National Flood Insurance Program*, the height, in relation to the *National Geodetic Vertical Datum* of 1929 (or other datum, where specified), of *floods* of various magnitudes and frequencies in the *floodplains* of coastal or riverine areas.

Wave – Ridge, deformation, or undulation of the water surface.

Wave crest elevation – Elevation of the crest of a wave.

Wave height – Vertical distance between the wave crest and wave trough.

Wave runup – Rush of wave water up a slope or structure.

Wave runup depth – Vertical distance between the maximum wave runup elevation and the eroded ground elevation.

Wave runup elevation – Elevation, referenced to the *National Geodetic Vertical Datum* or other datum, reached by *wave runup*.

Wave setup – Increase in the stillwater surface near the shoreline, due to the presence of breaking waves.

X

X zone – Under the *National Flood Insurance Program*, areas where the *flood hazard* is less than that in the *Special Flood Hazard Area*. Shaded X zones shown on recent *Flood Insurance Rate Maps* (B zones on older maps) designate areas subject to inundation by the *500-year flood*. Unshaded X zones (C zones on older *Flood Insurance Rate Maps*) designate areas where the annual probability of flooding is less than 0.2 percent.