

CHAPTER 18.66

FLOOD DAMAGE PREVENTION

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18.66.010: Purpose: Floods are inimical to the public health, safety, and welfare. This Chapter is intended to prevent flood damage and maintain community eligibility in the National Flood Insurance Program. It is also intended to minimize public and private losses due to flood conditions in specific areas by provision designed: to protect human life and health; to minimize expenditure of public money and costly flood control projects; to minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; to minimize prolonged business interruptions; to minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard; to help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas; to ensure that potential buyers are notified that property is in an area of special flood hazard; and to ensure that those who occupy the areas of special flood hazard assume responsibility for their actions. (Ord. 5180 Sec. 1, 2007)

18.66.020: Definitions:

- (1) “Accessory Structure” means nonresidential structures such as garages, sheds, garden buildings, pole buildings, grain bins, and barns, which are considered normal for farming or ranching activities.
- (2) “Appeal” means it requires a review of the interpretation of any provision of this Chapter, or a request for a variance.
- (3) “Area of Shallow Flooding” is designated AO or AH Zone on the Flood Insurance Rate Map (FIRM), has a base flood depth ranging from one to three feet, no clearly defined channel, an unpredictable and indeterminate path and evidence of velocity flow. AO is characterized as sheet flow and AH indicates ponding.
- (4) “Area of Special Flood Hazard” is land with a one percent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.
- (5) “Base Flood” is the flood with a one percent chance of being equaled or exceeded in any given year, also referred to as the “100-Year Flood.” Designation on maps always includes the letters A or V.
- (6) “Basement” means any area of the building having its floor sub-grade (below ground level) on all sides.

(7) “Best Available Information” means information from Federal, State or other sources that has been generated using technically defensible methods or is based on reasonable historical analysis and experience in the absence of official Flood Insurance Rate Map data.

(8) “Breakaway Wall” means 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.

(9) “Critical Facility” means a facility for which even a slight chance of flooding would be too great. Critical facilities include, but are not limited to, schools, hospitals, police, fire and emergency response installations, nursing homes, installations which produce, use or store hazardous materials or hazardous waste.

(10) “Development” is any man-made change to real estate such as buildings, mining, dredging, filling, grading, paving, excavating or drilling operations or storage of equipment and materials located within the area of special flood hazard.

(11) “Development Permit” means a flood-prone area development permit, as established in 18.66.040(1).

(12) “Elevated Building” means for insurance purposes, a non-basement building, which has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.

(13) “Existing Manufactured Home Park or Subdivision” means a manufactured home park subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted flood plain management regulations.

(14) “Expansion to an existing Manufactured Home Park or Subdivision” means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

(15) “Flood or Flooding” is a general and temporary, partial or complete inundation of normally dry land caused by overflowing inland waters or the unusual and rapid accumulating of runoff of surface waters from any source.

(16) “Flood Insurance Rate Map (FIRM)” is the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones for the community.

(17) “Flood Insurance Study” is the official report of the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood.

(18) “Flood Protection Elevation” means to or above the base flood elevation.

(19) “Floodway” is the channel of a river or other watercourse and the adjacent land necessary to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

(20) “Lowest Floor” is the lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure used only 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 such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements found in Section 18.66.060(2)(a).

(21) “Manufactured Home” is a structure, transportable in one or more sections, which is built on a permanent chassis and is designated for use with or without a permanent foundation when connected to the required utilities. The term “manufactured home” does not include a recreational vehicle.

(22) “Manufactured Home Park or Subdivision” is a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

(23) “New Construction” means structures for which the “start of construction” commenced on or after the effective date of this ordinance.

(24) “New Manufactured Home Park or Subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of adopted flood plain management regulations.

(25) “Recreational Vehicle” means a vehicle which is built on a single chassis; 400 square feet or less when measured at the largest horizontal projection; designed to be self-propelled or permanently towable by a light duty truck; and designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

(26) “Special Flood Hazard Area” is an area subject to a base or one hundred year flood; areas of special flood hazard are shown on a flood hazard boundary map or flood insurance rate map as Zone A, AO, A1-30, AE, A99, AH, VO, VI-30, VE, or V.

(27) “Start of Construction” is the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement, or other improvement within 180 days after 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; the installation of streets or walkways; excavations for basements, footings, piers, or foundations or the erection of temporary forms; nor the installation of accessory buildings, such as the 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.

(28) “Structure” is a walled and roofed building including a gas or liquid storage tank that is principally above ground.

(29) “Substantial Damage” means 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.

(30) “Substantial Improvement” is any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either before the improvement or repair is started or if the structure has been damaged and is being restored, before the damage occurred. A “substantial improvement” occurs when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not it affects the external dimensions of the structure. A “substantial

improvement” does not include an improvement to comply with health, sanitary, or safety codes that have been identified by the local code enforcement official and which are the minimum necessary to assure safe living or to a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

(31) “Variance” means a grant of relief from the requirements of this Chapter, which permits construction in a manner that would otherwise be prohibited by this Chapter.

(32) “Water Dependent” means a structure for commerce or industry, which cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operation. (Ord. 5309 Sec. 17, 2010: Ord. 5180 Sec. 1, 2007)

18.66.030: General Provisions:

(1) Lands to which this Chapter Applies. This Chapter applies to all areas of special flood hazards within the City. It is an overlay zone imposed in addition to the provisions of the Zoning districts in which it is located.

(2) Basis for Establishing the Areas of Special Flood Hazard. The areas of special flood hazard identified by the Federal Insurance Administration in a report entitled “Flood Insurance Study - City of Kennewick, Washington,” completed in May, 1981, and revised in September of 1989, and any revisions thereto, with accompanying Flood Insurance Rate Maps, and any revision thereto, is hereby adopted by reference. The Study and Maps are on file at the Department of Planning. Areas within Benton County which are annexed into the City, are within such areas, if shown upon studies and maps prepared by the Federal Insurance Administration for Benton County. Areas of special flood hazard will be shown on the Kennewick Zoning Map.

(3) Compliance. No structure or land may be constructed, located, extended, converted, or altered without full compliance with the terms of this Chapter. Violations of the provisions of this Chapter by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Any person who violates this Chapter or fails to comply with any of its requirements shall, upon conviction, be punished in accord with KMC 18.54. Nothing herein contained shall prevent the City of Kennewick from taking such other lawful action as is necessary to prevent or remedy any violation.

(4) Greater Restriction Applies. This Chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. If this Chapter and another ordinance, easement, covenant, or deed restriction conflict or overlap, the more stringent prevails.

(5) Interpretation. In the interpretation and application of this Chapter, all provisions are minimum standards and liberally construed in favor of the City's regulatory powers; and deemed neither to limit or repeal any other powers granted under State statutes.

(6) Warning and Disclaimer of Liability. The degree of flood protection established by this Chapter is reasonable for regulatory purposes and based on scientific and engineering research. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This Chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This Chapter does not create liability on the part of the City of Kennewick, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this Chapter or any administrative decision, or variance made thereunder. (Ord. 5309 Sec. 18, 2010: Ord. 5180 Sec. 1, 2007)

18.66.040: Administration:

(1) Development Permit Required. A Flood-Prone Area Development Permit must be obtained before construction or development begins within any area of special flood hazard established in Section 18.66.030(2). The permit will be for all structures, including manufactured homes, as set forth in Section 18.66.020 and all other development including filling and other activities, also as set forth in Section 18.66.020.

(2) Application. Application for a development permit must be made on forms furnished by the Planning Director and include all information required for any other development application with which it may be filed. The application must include a copy of the construction drawings and elevations, in duplicate, of a site plan (one copy, if no larger than 8½" x 14") drawn to scale and showing lot lines and dimensions of existing and proposed structures, landscaping, fences or walls, ground elevations of the area, proposed fill or grading, storage of materials, drainage facilities, and any other information deemed necessary by the Director. Specific information must show precisely the elevation, in relation to mean sea level, of the lowest floor (including a basement) of existing and proposed structures, the elevation, in relation to mean sea level to which any non-residential structure has been flood-proofed. A certificate by a professional engineer registered in the State of Washington that the flood proofing methods for any nonresidential structure meet the flood proofing criteria in Section 18.66.060, and a description of the extent to which any watercourse will be altered or relocated is required.

(3) Designation of the Director. The Planning Director shall administer and implement this Chapter. He or she may require proof that conditions of approval and the standards of this Chapter have been met or that certification be provided and, if not forthcoming, may revoke the development permit and require that development discontinue or the structure be vacated. When the first floor of a residential structure is required to be elevated, as provided in Section 18.66.060, the Planning Director will require that the applicant submit a statement from a professional surveyor indicating the elevation to which the first floor was actually constructed.

(4) Review. Duties and responsibilities of the Planning Director shall include, but not be limited to:

- (a) Review all development permits to determine that the permit requirements of this Chapter have been satisfied. If they are located in the floodway, assure that the encroachment provisions of Section 18.66.060(2)(f) are met and that all necessary permits have been obtained;
- (b) Review all development permits to determine that all necessary permits have been obtained from those Federal, State, or local government agencies from which prior approval is required (i.e. Section 404 wetlands permits from the U.S. Army Corps of Engineers);
- (c) If base flood elevation data has not been provided by the Flood Insurance Administration, in accordance with Section 18.66.030(2) basis for establishing the areas of special flood hazard, the Planning Director shall obtain, review and use any base flood elevation and floodway data available from a Federal, State or other source, in order to administer Section 18.66.060(2) Specific Standards, and Section 18.66.060(2)(c) Floodways;
- (d) Where base flood elevation is provided through the Flood Insurance Study or is required by this Chapter, obtain, record, and maintain the records of the

actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, whether or not the structure contains a basement; and the flood proofing certification required in Section 18.66.060 (2)(a) and (b), including the actual elevation in relation to mean sea level;

- (e) For all new or substantially improved nonresidential flood-proofed structures: Verify and record the actual elevation in relation to mean sea level, and maintain the flood-proofing certifications required in Section 18.66.040(2);
- (f) Alteration of Watercourses. Notify adjacent communities and the Department of Ecology, prior to any alteration or relocation of a watercourse, submit evidence of such notification to the Federal Insurance Administration, and require that the watercourse be maintained so that its flood carrying capacity is not diminished;
- (g) Make interpretations where needed of the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions);
- (h) If the conditions of this Chapter or any permit are not met, revoke the permit and cause the vacation or demolition of any nonconforming structure; and
- (i) Maintain for public inspection all records pertaining to the provision of this Chapter. (Ord. 5204 Sec. 17, 2007; Ord. 5180 Sec. 1, 2007)

18.66.050: Variance and Appeal Procedure:

(1) Hearing Examiner. The Hearing Examiner shall hear and decide appeals from decisions of the Planning Director and requests for variances. The procedure and requirements for a variance or appeal shall be in accord with Chapters 18.51 and 18.54.

(2) Consideration of the Hearing Examiner.

- (a) In passing upon applications, the Hearing Examiner shall consider all technical evaluations, all relevant factors, and standards specified in other sections of this Chapter, and:
 - (i) The danger that materials may be swept onto other lands to the injury of others;
 - (ii) The danger to life and property due to flooding or erosion;
 - (iii) The susceptibility of the proposed facility and its contents to flood damage and the affect of such damage on the owner;
 - (iv) The importance of the services provided by the proposed facility to the community;
 - (v) The necessity of a waterfront location to the facility, where applicable;
 - (vi) The availability of alternative locations which are not subject to flooding or erosion damage;
 - (vii) The compatibility of the proposed use with existing and anticipated development;
 - (viii) The relationship of the proposed use to the Comprehensive Plan and flood plane management program;
 - (ix) The safety of access to the property in times of flood for ordinary and emergency vehicles;

- (x) The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the affects of wave action, if applicable, expected at the site; and
 - (xi) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.
- (b) Generally, variances may be issued for the new construction or substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing the items in Section 18.66.050(2)(a) have been fully considered. As the lot size increases, the technical justification necessary for issuance of a variance increases.
- (c) Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.
- (d) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- (e) The Hearing Examiner may attach such conditions to a variance as it deems necessary to further the purposes of this chapter.
- (f) Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the remainder of this Section.
- (g) Other variances may be approved by the Hearing Examiner upon:
- (i) No increase in flood levels during the base flood discharge will result;
 - (ii) The variance is the minimum necessary, considering the flood hazard, to afford relief;
 - (iii) There is good and sufficient cause for the granting of the variance;
 - (iv) A failure to grant the variance will result in exceptional hardship to the applicant;
 - (v) Granting of the variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public or conflict with existing laws or ordinances;
 - (vi) Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants or their economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the Flood Hazard Regulations should be quite rare;
 - (vii) Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except Section 18.66.050(2)(b), and otherwise complies with Section 18.66.060.
- (3) Responsibilities of the Director.

- (a) Any applicant to whom a variance is granted will be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the costs of flood insurance may be commensurate with the increased risk.
- (b) The Planning Director will maintain records of all appeal actions and report any variances to the Federal Insurance Administration upon request. (Ord. 5322 Sec. 63, 2010; Ord. 5309 Sec. 19, 2010; Ord. 5180 Sec. 1, 2007)

18.66.060: Standards for Flood Hazard Reduction:

(1) GENERAL STANDARDS. In all areas of special flood hazards the following standards apply:

- (a) Anchoring.
 - (i) All new construction and substantial improvements must be anchored to prevent flotation, collapse, or lateral movement.
 - (ii) All manufactured homes must be anchored to prevent flotation, collapse, or lateral movement by providing the over-the-top and frame ties to ground anchors. Over-the-top ties must be provided at each of the four corners of the mobile home with two additional ties per side at intermediate locations, but mobile homes less than 50 feet long need have only one additional tie per side. Frame ties must be provided at each corner of the home with five additional ties per side. All components of the anchoring system must be capable of carrying a force of 4,800 pounds. Any additions to the mobile home must be similarly anchored.
 - (iii) An alternative method of anchoring may be used provided it complies with the standards contained in FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook; incorporated herein by reference.
- (b) Construction Materials and Methods. All new construction and substantial improvements must be constructed with materials and utility equipment and by methods and practices that resist and minimize flood damage.
- (c) Mechanical Equipment and Utilities.
 - (i) Electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities shall be designed or located so as to prevent water from entering or accumulating within the components during conditions of flooding;
 - (ii) All new and replacement water supply systems must be designed to eliminate or minimize the infiltration of flood waters into the system;
 - (iii) All new and replacement sanitary sewage systems must be designed to minimize or eliminate infiltration from and discharge into flood waters;
 - (iv) On-site waste disposal systems must be located and designed to avoid impairment or contamination during flooding; and
 - (v) Water wells shall be located on high ground that is not in the floodway.
- (d) Subdivision Proposals.

- (i) All the subdivision proposals must have public utilities and facilities such as sewer, gas, electrical, water systems, and adequate drainage located and constructed which will minimize flood damage.
 - (ii) Base flood elevation data must be provided for subdivision proposals and other proposed developments which contain at least 50 lots or five acres (whichever is less).
- (e) Review of Building Permits. The Planning Director shall obtain, review and reasonably utilize the best available information as criteria for requiring that new construction, substantial improvements, or other development in Zone “A” conform to applicable provisions of this Chapter. Where elevation data is not available either through the Flood Insurance Study or from another authoritative source (Section 18.66.040(4)(c)), applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Residential and commercial structures in unnumbered “A” Flood Hazard Zones must be elevated with their lowest floor at least two feet above grade. Failure to elevate at least two feet above grade in unnumbered “A” Zones may result in higher insurance rates. All applicants for building permits within special flood hazard areas are encouraged to elevate the lowest floor at least one foot above the base flood level. Elevating to at least one foot above the base flood will further substantially reduce the damage potential in the event of a 100-year flood; and, will have a lessening effect on the fees or rates for required flood insurance.
- (2) SPECIFIC STANDARDS. In all areas of special flood hazards where base flood elevation data has been provided, as set forth in Section 18.66.030(2) or 18.66.040(4)(d), the following standards apply:
- (a) Residential Construction.
 - (i) New Construction and substantial improvement of any residential structure must have the lowest floor, including basement, elevated one foot above the base flood elevation. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwater. Designs for meeting this requirement must be certified by a registered professional engineer or must meet or exceed the following minimum criteria: A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided; the bottom of all openings shall be no higher than one foot above grade; and openings may be equipped with screens, louvers, or other coverings or devices, provided that they permit automatic entry and exit of floodwaters.
 - (ii) Manufactured Homes. All manufactured homes to be placed or substantially improved within Zones A1-A30, AH, and AE on the community’s FIRM on sites: outside of a manufactured home park or subdivision in an expansion to an existing manufactured home park or

subdivision, in a new manufactured home park or subdivision, or in an existing manufactured home park or subdivision on which a manufactured home has incurred “substantial damage” as the result of a flood shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one foot above the base flood elevation and be securely anchored to an adequately designed foundation system to resist flotation collapse and lateral movement. Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision with A1- A30, AH, and AE on the community’s FIRM that are not subject to the above manufactured home provisions be elevated so that either: the lowest floor of the manufactured home is elevated one foot above the base flood elevation, or the manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.

- (iii) Residential structures that contain fully enclosed areas below the base flood level must meet the same standards for such areas as described in 18.66.060(2)(b)(i).
- (b) Nonresidential Construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure must either have the lowest floor, including basement, and attendant utility and sanitary facilities, elevated one foot above the base flood elevation; or flood-proofed so that below one foot above the base flood level the structure is watertight with walls substantially impermeable to the passage of water, has structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy, be certified by a registered professional engineer that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications, and plans. Such certifications shall be provided to the official as set forth in Section 18.66.040(2).
 - (i) Nonresidential structures that are elevated, not flood-proofed, must meet the same standards for space below the lowest floor as described in Section 18.66.060(2)(a)(i).
 - (ii) Applicants flood proofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the flood proofed level (a building flood-proofed to the base flood level will be rated as one foot below that level).
- (c) Floodways. Located within areas of special flood hazard established in Section 18.66.030(2) are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters that can carry debris, and increase erosion potential, the following provision apply:
 - (i) Encroachments are prohibited, including fill, new construction, substantial improvements and other development; unless a registered,

professional civil engineer certifies that the encroachments will not increase flood levels during the occurrence of the base flood discharge.

- (ii) Construction or reconstruction of residential structures is prohibited within designated floodways except for (1) repairs, reconstruction, or improvements to a structure which do not increase the ground flood area; and (2) repairs, reconstruction or improvements to a structure, the cost of which does not exceed 50 percent of the market value of the structure either before the repair, or reconstruction is started, or if the structure has been damaged and is being restored, before the damaged occurred. 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 to structures identified as historic places, may be excluded in the 50 percent.
- (iii) If Section (c) (i) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of this section.
- (d) Standards for shallow flooding areas (AO Zones). Shallow flooding areas appear on Flood Insurance Rate Maps as AO zones with depth designations. The base flood depths in these zones range from one to three feet above ground where a clearly defined channel does not exist, or where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is usually characterized as sheet flow. In these areas, the following provisions apply:
 - (i) New construction and substantial improvements of residential structures and manufactured homes within AO zones shall have the lowest floor (including basement) elevated above the highest grade adjacent to the building, one foot or more above the depth number specified on the FIRM (at least two feet if no depth number is specified).
 - (ii) New construction and substantial improvements of nonresidential structures within AO zones shall either:
 - (I) Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, one foot or more above the depth number specified on the FIRM (at least two feet if no depth number is specified); or
 - (II) Together with attendant utility and sanitary facilities, be completely flood-proofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. If this method is used, compliance shall be certified by a registered professional engineer.

- (iii) Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.
- (iv) Recreational Vehicles. Recreational vehicles placed on sites within Zones A, A1-30, and AE in the community's FIRM either must: be on site for fewer than 180 consecutive days, or be fully licensed and ready for highway use, be on its wheels or jacking system, be attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or meet the requirements of Section 18.66.060(2)(a)(ii) and the elevation and anchoring requirements for manufactured homes.
- (e) Critical Facilities. Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Special Flood Hazard Area (SFHA) (100-year flood plain). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet or more above the level of the base flood elevation (100-year) at the site or to the height of the 500-year event, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Flood-proofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Ingress and egress routes, elevated to or above the base flood elevation, shall be provided to all critical facilities to the extent possible.
- (f) Encroachments. The cumulative effect of any proposed development, where combined with all other existing and anticipated development, shall not increase the water surface elevation of the base flood more than one foot at any point. (Ord. 5309 Sec. 20, 2010; Ord. 5180 Sec. 1, 2007)