

Chapter 14.08
FLOOD DAMAGE PREVENTION*

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* *Prior legislation: Ords. 79-4, 81-3, 81-2, 82-4, 89-4.

Article I. Purpose and Definitions

14.08.010 Purpose.

It is the purpose of this chapter:

1. To protect human life and health;
2. To minimize expenditure of public money and costly flood control and flood relief projects;
3. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
4. To minimize prolonged business interruptions;
5. 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;
6. 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;
7. To ensure that potential buyers are notified that property is in an area of special flood hazard;
8. To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions; and
9. To administer the Washington State Floodplain Management Act (Chapter 86.16 RCW) and maintain Kittitas County's eligibility to participate in the National Flood Insurance Program. (Ord. 2001-03; Ord. 93-18 § 1, 1993).

14.08.015 Methods of reducing flood losses.

In order to accomplish its purposes, this chapter includes methods and provisions for:

1. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
2. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
3. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
4. Controlling filling, grading, dredging, and other development which may increase flood damage; and
5. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or may increase flood hazards in other areas. (Ord. 2001-03).

14.08.020 Definitions.

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.

Appeal

A request for review of the county floodplain administrator's interpretation or application of any provision of this chapter or a request for a variance.

Area of shallow flooding

A designated AO, or AH Zone on the flood insurance rate map (FIRM). The base flood depths range from one to three feet, a clearly defined channel does not exist, the path of flooding is unpredictable and indeterminate, and velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.

Area of special flood hazard

The land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. Designation on maps always includes the letter A. Also referred to as "100-year floodplain" and "special flood hazard area."

Agriculture

"Agriculture" is the grazing, feeding, and watering of livestock; plowing, seeding, cultivation, and harvesting for the production of crops and pasture; soil and water conservation practices; the maintenance of farm or stock ponds, irrigation ditches, drainage ditches, underground drainage systems, fences and farm roads, the control of noxious weeds, and for purposes of this chapter does not include associated structures and/or appurtenances.

Base flood

The flood having 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 letter A.

Basement

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

Best available information

In the absence of official flood insurance rate map data, communities can use data from other federal, state, or other sources provided this data has either been generated using technically defensible methods or is based on reasonable historical analysis and experience.

Breakaway wall

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.

Critical facility

A facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to, schools, nursing homes, hospitals, police, fire and emergency response installations, installations which produce, use or store hazardous materials or hazardous waste, and certain service facilities for

utilities and special utilities (as defined under Chapter 17.61 KCC) as determined by the administrator.

Development

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 located within the areas of special flood hazard.

Elevated building

For insurance purposes, a non-basement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

Existing manufactured home park or subdivision

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 before the effective date of the adopted floodplain management regulations.

Expansion to an existing manufactured home park or subdivision

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).

Flood (or "flooding")

A general and temporary condition of partial or complete inundation of normally dry land areas from the unusual and rapid accumulation of runoff or surface waters from any source.

Flood insurance rate map (FIRM)

The official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

Flood insurance study

The official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood.

Floodway

The channel of a river or other watercourse and the adjacent land areas (a portion of the 100-year floodplain) that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

Lowest floor

The lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for building access in an area other than a basement area, 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 in KCC 14.08.250(2).

Manufactured home

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."

Manufactured home park or subdivision

A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

New construction

Structures for which the "start of construction" commenced on or after the effective date of this ordinance codified in this chapter.

New manufactured home park or subdivision

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 floodplain management regulations.

Recreational vehicle

A vehicle which is:

1. Built on a single chassis;
2. Four hundred square feet or less when measured at the largest horizontal projection;
3. Designed to be self-propelled or permanently towable by a light duty truck; and
4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Riverine

Relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

Start of construction

Includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, 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. 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.

Structure

A walled and roofed building including a gas or liquid storage tank that is principally above ground.

Substantial damage

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

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:

1. Before the improvement or repair is started; or
2. If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.
3. The term does not include either (i) 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 (ii) any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

Variance

A grant of relief from the requirements of this chapter which permits construction in a manner that would otherwise be prohibited by this chapter.

Water dependent

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 operations.

(Ord. 2001-03; Ord. 93-18 § 2.0, 1993).

Article II. General Provisions

14.08.030 Lands to which this chapter applies.

This chapter shall apply to all areas of special flood hazards within the jurisdiction of Kittitas County. (Ord. 2001-03; Ord. 93-18 § 3.1, 1993).

14.08.040 Basis for establishing the areas of special flood hazard.

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for the County of Kittitas County," dated November 5, 1980, and any revisions thereto, with an accompanying flood insurance rate map (FIRM), and any revisions thereto, are hereby adopted by reference and declared to be a part of this chapter. The flood insurance study and the FIRM are on file at the ~~county planning~~[Community Development Services department](#)~~Department~~. The best available information for flood hazard area

identification as outlined in KCC 14.08.120 shall be the basis for regulation until a new FIRM is issued which incorporates the data utilized under KCC 14.08.120. (Ord. 2001-03; Ord. 93-18 § 3.2, 1993).

14.08.050 Compliance.

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this chapter and other applicable regulations. (Ord. 2001-03; Ord. 93-18 § 3.3, 1993).

14.08.060 Abrogation and greater restrictions.

This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail. (Ord. 2001-03; Ord. 93-18 § 3.4, 1993).

14.08.070 Interpretation.

In the interpretation and application of this chapter, all provisions shall be:

1. Considered as minimum requirements;
2. Liberally construed in favor of the governing body; and
3. Deemed neither to limit nor repeal any other powers granted under state statutes. (Ord. 2001-03; Ord. 93-18 § 3.5, 1993).

14.08.080 Warning and disclaimer of liability.

The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. 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 shall not create liability on the part of Kittitas County, 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 lawfully made hereunder. (Ord. 2001-03; Ord. 9318 § 3.6, 1993).

Article III. Administration

14.08.090 Development permit required.

A development permit shall be obtained before construction or development begins within any area of special flood hazard established in KCC 14.08.040. The permit shall be for all structures including manufactured homes, as set forth in definitions (KCC 14.08.020), and for all development including fill and other activities, also as set forth in definitions (KCC 14.08.020). (Ord. 2001-03; Ord. 93-18 § 4.1, 1993).

14.08.100 Designation of the administrator.

1. The ~~planning~~Community Development Services director is appointed to administer and implement this chapter by granting or denying floodplain development permit applications in accordance with its provisions. The Community Development Services~~planning~~ director shall also be responsible for interpretations of the flood insurance rate maps (FIRM), and floodplain and floodway field designations. The Kittitas County ~~planning department~~Community Development Services Department shall maintain and keep all files and related information regarding the county's National Flood Insurance Program eligibility.
2. The director of ~~the building department~~Community Development Services shall be responsible for field verification of first floor elevations at the time of framing inspection, and all other special construction requirements contained in this chapter. ~~The building department~~Community Development Services shall also be responsible for ascertaining whether all building permits issued in areas within the 100-year floodplain comply with all of the special construction requirements of this chapter.
3. ~~Jointly the~~The Kittitas County Community Development Services ~~P~~lanning and Building ~~divisions~~departments shall review all development permits to determine that the permit requirements of this chapter have been satisfied; 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.
4. Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the provisions of KCC 14.08.300 are met. (Ord. 2001-03; Ord. 93-18 § 4.2, 1993).

14.08.110 Application for development permit.

Applications for a building or floodplain development permit shall be made on forms furnished by Kittitas County and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the following. Specifically, the following information is required:

1. Elevation in relation to mean sea level of the lowest floor (including basement) of all structures;
2. Elevation in relation to mean sea level to which any structure has been flood-proofed;
3. Certification by a registered professional engineer or architect that the flood-proofing methods for any nonresidential structure meet the flood-proofing criteria in KCC 14.08.270; and
4. Description of the extent to which a watercourse will be altered or relocated as a result of the proposed development. (Ord. 2001-03; Ord. 93-18 § 4.3, 1993).

14.08.115 Elevation Certificates.

Flood elevation certificates will be required to be submitted:

1. For construction drawings prior to issuance of a building permit
2. For a building under construction prior to scheduling of a framing inspection

3. For finished construction prior to issuance of a Certificate of Occupancy.

14.08.120 Use of other base flood data.

When base flood elevation data has not been provided (A and V Zones) in accordance with KCC 14.08.040, the applicant shall conduct a site specific engineering analysis to determine a base flood elevation for the site. ~~Basis for establishing the areas of special flood hazard, the planning director shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source in order to administer KCC 14.08.240 through 14.08.290, specific standards, and KCC 14.08.300, Floodways. (Ord. 2001-03; Ord. 93-18 § 4.4, 1993).~~

14.08.130 Information to be obtained and maintained.

1. Where base flood elevation data is provided through the flood insurance study, FIRM, or required as in KCC 14.08.120, obtain and record the actual (as built) elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.
2. For all new or substantially improved flood-proofed structures where base flood elevation data is provided through the flood insurance study, FIRM, or as required in KCC 14.08.120:
 - a. Verify and record the actual elevation (in relation to mean sea level) to which the structure was flood-proofed; and
 - b. Maintain the flood-proofing certifications required in KCC 14.08.110(3).
3. Maintain for public inspection all records pertaining to the provisions of this chapter.
4. Professional land surveyors, engineers and architects shall be authorized to prepare elevation certificates for compliance with this chapter and the National Flood Insurance Program. (Ord. 2001-03; Ord. 93-18 § 4.5, 1993).

14.08.140 Alteration of watercourses.

The planning director shall:

1. Notify adjacent communities and the Department of Ecology prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.
2. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished. (Ord. 2001-03; Ord. 93-18 § 4.6, 1993).

14.08.150 Interpretation of FIRM boundaries.

Make interpretations, where needed, as to 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). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in KCC 14.08.160. (Ord. 2001-03; Ord. 93-18 § 4.7, 1993).

Article IV. Variance Procedure

14.08.160 Appeal board.

1. The Kittitas County building appeals board as established by the county shall hear and decide appeals and requests for variances from the requirements of this chapter.
2. The appeals board shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the county in the enforcement or administration of this chapter.
3. Those aggrieved by the decision of the appeals board or any taxpayer may appeal such decision to the Kittitas County superior court as provided by law.
4. In passing upon such applications, the appeals board shall consider all technical evaluations, all relevant factors, standards specified in other sections of this chapter, and the following:
 - a. The danger that materials may be swept onto other lands to the injury of others;
 - b. The danger to life and property due to flooding or erosion damage;
 - c. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 - d. The importance of the services provided by the proposed facility to the community;
 - e. The necessity to the facility of a waterfront location, where applicable;
 - f. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
 - g. The compatibility of the proposed use with existing and anticipated development;
 - h. The relationship of the proposed use to the comprehensive plan and floodplain management program for the area;
 - i. The safety of access to the property in times of flood for ordinary and emergency vehicles;
 - j. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and
 - k. 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.
5. Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood elevation provided subsections (4)(a) through (k) of this section have been fully considered. As the lot size increases, the technical justification required for issuing the variance increases.

6. Upon consideration of the factors of subsection (4) of this section and the purposes of this chapter, the appeals board may attach such conditions to the granting of a variance as it deems necessary to further the purposes of this chapter.
7. The building department shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.
8. After the county has rendered an order either granting or denying a flood control zone permit, said order may be appealed to the Pollution Control Hearings Board pursuant to state law. (Ord. 2001-03; Ord. 93-18 § 4.8, 1993).

14.08.170 Conditions for variances.

1. 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 procedures set forth in the remainder of this section.
2. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result. Variance requests in the designated floodway shall be accompanied by a professional engineering analysis of the resultant base flood discharge.
3. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief and upon:
 - a. A determination that failure to grant the variance would result in exceptional hardship to the applicant; and
 - b. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, and create a nuisance.
4. 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, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevation requirements should be quite rare.
5. Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of flood-proofing than watertight or dry-flood-proofing, where it can be determined that such action will have low damage potential, and comply with all other variance criteria.
6. Any applicant to whom a variance is granted shall 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 cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation. (Ord. 2001-03; Ord. 93-18 § 4.9, 1993).

Article V. Provisions for Flood Hazard Reduction

14.08.180 General standards.

In all areas of special flood hazards, the following standards (set forth in KCC 14.08.190 through 14.08.230) are required. (Ord. 200103; Ord. 93-18 § 5.1, 1993).

14.08.190 Anchoring.

1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
2. All manufactured homes must likewise be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques). (Ord. 2001-03; Ord. 93-18 § 5.1.1, 1993).

14.08.195 AH Zone drainage.

Adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures. (Ord. 2001-03).

14.08.200 Construction materials and methods.

1. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
3. Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding. (Ord. 2001-03; Ord. 93-18 § 5.1.2, 1993).

14.08.210 Utilities.

1. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
2. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters.
3. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
4. New water wells shall be constructed in compliance with WAC 173-160-171. (Ord. 2001-03; Ord. 93-18 § 5.1.3, 1993).
5. [Fuel storage tanks shall either be elevated or anchored using methods and practices that minimize flood damage. \(reference FEMA's "Protecting Building Utilities From Flood Damage" guidebook for techniques\).](#)

14.08.220 Subdivision proposals.

1. All subdivision proposals shall be consistent with the need to minimize flood damage.
 2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.
 3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage.
 4. Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments and shall be depicted on the final mylar.
 5. All subdivision proposals and other proposed development greater than 50 lots or 5 acres, whichever is the lesser, include within such proposals Base Flood Elevation (BFE) data. Such data shall be shown on the final plat.
- ~~5.6.~~ All subdivisions shall show on the face of both the preliminary and final plat, for either short or long plats, the boundary of the 100year floodplain and floodway. (Ord. 2001-03; Ord. 93-18 § 5.1.4, 1993).

14.08.230 Review of building permits.

Where elevation data is not available either through the flood insurance study, FIRM, or from another authoritative source (KCC 14.08.120), 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. Failure to elevate at least two feet above the highest adjacent grade in these zones may result in higher insurance rates. (Ord. 2001-03; Ord. 93-18 § 5.1.5, 1993).

14.08.240 Specific standards.

In all areas of special flood hazards where base flood elevation data has been provided (Zones A1-30, AH, and AE) as set forth in KCC 14.08.040, Basis for establishing the areas of special flood hazard, or KCC 14.08.120, Use of other base flood data, the following provisions are required. (Ord. 200103; Ord. 93-18 § 5.2, 1993).

14.08.250 Residential construction.

1. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more above the base flood elevation.
2. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic and hydrodynamic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:
 - a. 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.

- b. The bottom of all openings shall be no higher than one foot above grade.
 - c. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters. (Ord. 2001-03; Ord. 93-18 § 5.2.1, 1993).
3. Because of hydrodynamic loads, crawlspace construction is not permitted in areas with flood velocities greater than 5 feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or licensed engineer.
 4. Any building utility systems within the crawlspace must be elevated above the BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular must be located above the BFE or sealed to prevent the entry of floodwaters.
 5. Portions of buildings below the BFE must be constructed with materials resistant to flood damage. This includes any joists, pony walls, beams, posts, insulation, wall coverings, wall sheathing or other materials that extend below the BFE.
 6. The elevation of the interior crawlspace grade (inside of the foundation walls in crawlspace construction) must be at or above the lowest elevation of the exterior grade. Below-grade crawlspace foundations will be allowed only if all of the following conditions are met: *(buildings that have below-grade crawlspaces will have higher flood insurance premiums than buildings that have the preferred crawlspace construction, with the interior elevation at or above the lowest adjacent exterior grade).*
 - a. The interior grade of the crawlspace (below the BFE) must not be more than 2 feet below the lowest adjacent exterior grade.
 - b. The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the crawlspace foundation wall must not exceed 4 feet at any point.
 - c. There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. Possible options include natural drainage through porous, well drained soils and drainage systems such as perforated pipes, drainage tiles, or gravel or crushed stone drainage by gravity or mechanical means.
 7. Garages attached to a residential structure must have the floor elevated above the BFE or be constructed according to the following conditions.
 - a. The walls must have openings designed to automatically equalize hydrostatic and hydrodynamic flood forces by allowing for the entry and exit of floodwaters. (See the requirements listed above for the residential structure).
 - b. All portions of the garage below the BFE must be constructed with materials resistant to flood damage. This includes any studs, walls, beams, posts, insulation, wall coverings, wall sheathing or other materials that extend below the BFE.

14.08.260 Detached accessory buildings (garages).

The following special provisions apply only to detached accessory structures used as garages to single-family residences. When an accessory structure represents a minimal

investment, the elevation or dry flood-proofing standards need not be met. However, all other requirements applicable to structures will be applicable. A minimum investment shall be determined by the applicable guiding authority, or by appeal under the variance procedure and shall be determined, if necessary, on a case-to-case basis. However, as a general application, an expenditure for the accessory structure of not more than 10 percent of the value of the main structure shall be considered a minimal investment.

1. Accessory structures shall not be used for human habitation and must be limited to parking and storage.
2. Accessory structures shall comply with the foundation opening requirements in KCC 14.08.250(2).
3. Accessory structures shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters.
4. Accessory structures must be adequately anchored to prevent flotation, collapse, or lateral movement of the structure which may result in damage to other structures.
5. Accessory structures must comply with floodplain encroachment provisions of this chapter and the National Flood Insurance Program.
6. Service facilities such as electrical and heating equipment shall be elevated one foot or more above the base flood elevation.
7. Applicants that elect not to elevate the lowest floor of accessory structures under the provisions of this section shall be notified that flood insurance premiums will be based on rates that are one foot below the base flood elevation. (Ord. 2001-03; Ord. 93-18 § 5.2.2, 1993).

14.08.270 Nonresidential construction.

New construction and substantial improvement of any commercial, industrial or other nonresidential structures, except detached accessory structures, shall either have the lowest floor, including basement, elevated one foot or more above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

1. Be 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.
2. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
3. Be certified by a registered professional engineer or architect 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 KCC 14.08.130(2).
4. Nonresidential structures that are elevated, not flood-proofed, must meet the same standards for space below the lowest floor as described in KCC 14.08.250(2).
5. 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. (Ord. 2001-03; Ord. 93-18 § 5.2.3, 1993).

14.08.280 Critical facility.

Construction of new, critical facilities shall be located outside the limits of the special flood hazard area. However, new construction and substantial improvement of both new and existing critical facilities shall be permissible within the 100-year floodplain, provided no feasible alternative site is available, and provided the facility's nature is related to or necessitates a riverine location (such as municipal water and sewer pump stations and related treatment facilities).

1. Critical facilities shall have the lowest floor elevated three feet or more above the base flood elevation; and
2. Flood-proofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters; and
3. Access routes to critical facilities shall be elevated to or above the base flood elevation to the extent possible. (Ord. 2001-03; Ord. 93-18 § 5.2.4, 1993).

14.08.290 Manufactured homes.

1. All manufactured homes to be placed or substantially improved on sites:
 - a. Outside of a manufactured home park or subdivision;
 - b. In a new manufactured home park or subdivision;
 - c. In an expansion to an existing manufactured home park or subdivision; or
 - d. 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 or more above the base flood elevation and be securely anchored to an adequately designed foundation system to resist flotation, collapse and lateral movement in accordance with KCC 14.08.190(2).
2. Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision that are not subject to the above manufactured home provisions be elevated so that either:
 - a. The lowest floor of the manufactured home is elevated one foot or more above the base flood elevation; or
 - b. 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. (Ord. 2001-03; Ord. 93-18 § 5.2.5, 1993).

14.08.295 Recreational vehicles.

Recreational vehicles placed on sites are required to:

1. Be on the site for fewer than 180 consecutive days; and
2. Be fully licensed and ready for highway use, 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. (Ord. 200103).

14.08.300 Floodways.

Located within areas of special flood hazard established in KCC 14.08.040 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

1. Prohibit encroachments, including fill, new construction, substantial improvements, and other development, unless certification by a registered professional engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels during the occurrence of the base flood discharge.
2. Construction or reconstruction of residential structures is prohibited within designated floodways, except for:
 - a. Repairs, reconstruction, or improvements to a structure which do not increase the ground floor area; and
 - b. Repairs, reconstruction or improvements to a structure, the cost of which does not exceed 50 percent of the market value of the structure either: (i) before the repair or reconstruction is started, or (ii) if the structure has been damaged, and is being restored, before the damage occurred. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety codes 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 shall not be included in the 50 percent.
3. If subsection (1) of this section is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of KCC 14.08.180 through 14.08.310, provisions for flood hazard reduction.
4. Filling in the floodway is prohibited except for residential maintenance. Residential maintenance is considered the importing of bark or top soil for flower beds and gardens. The quantity of material must be able to be hauled in a pick up truck and not require the use of a commercial dump truck. The total amount of material shall not exceed one load per calendar year.
5. Traditional agricultural practices are exempt. (Ord. 2001-03; Ord. 93-18 § 5.3, 1993).

14.08.305 Wetlands management.

See KCC Title 17A. (Ord. 2001-03; Ord. 93-18 § 5.4, 1993. Formerly 14.08.310).

14.08.310 Standards for shallow flooding areas (AO Zones).

Shallow flooding areas appear on FIRMs 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:

1. New construction and substantial improvements of residential structures and manufactured homes within AO Zones shall have the lowest floor (including basements) elevated above the highest grade adjacent to the building, one foot or more above the depth number specified in feet on the FIRM (at least two feet above the highest adjacent grade to the structure if no depth number is specified).
2. New construction and substantial improvements of nonresidential structures within AO Zones shall either:
 - a. 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
 - b. 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 or architect as in KCC 14.08.270(3).
3. Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.
4. Recreational vehicles placed on sites within AO Zones on the community's FIRM are required to:
 - a. Be on the site for fewer than 180 consecutive days; and
 - b. Be fully licensed and ready for highway use, 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. (Ord. 2001-03; Ord. 93-18 § 5.5, 1993. Formerly 14.08.320).