

## Chapter 15.10

### FLOOD DAMAGE PREVENTION

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**15.10.010 Findings of fact.**

(1) The flood hazard areas of Sammamish are subject to periodic inundation that may result in the loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.

(2) These flood losses may be caused by the cumulative effect of obstructions in areas of special flood hazards that increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated, or otherwise protected from flood damage also contribute to the flood loss.

**15.10.020 Statement of purpose.**

It is the purpose of this chapter to promote the public health, safety, and general welfare; reduce the annual cost of flood insurance; and minimize public and private losses due to flood conditions in specific areas by provisions designed:

- (1) To protect human life and health;
- (2) To minimize expenditure of public money for costly flood control 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 notify those who occupy the areas of special flood hazard that they assume responsibility for their actions;  
and
- (9) To participate in and maintain eligibility for flood insurance and disaster relief.

**15.10.030 Methods of reducing flood losses.**

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

- (1) Restricting or prohibiting development that is dangerous to health, safety, and property due to water or erosion hazards, or that result in damage increases in erosion or in flood heights and velocities;
- (2) Requiring that development vulnerable to floods 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 that may increase flood damage; and
- (5) Preventing or regulating the construction of flood barriers that unnaturally divert flood waters or may increase flood hazards in other areas. (Ord. O2000-54 § 3)

**15.10.040 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.

“Alteration of watercourse” means any action that will change the location of the channel occupied by water within the banks of any portion of a riverine waterbody.

“Appeal” means a request for a review of the interpretation of any provision of this chapter or a request for a variance.

“Area of shallow flooding” means a designated Zone AO, AH, AR/ZO or AR/AH (or VO) on community’s flood insurance rate map (FIRM) with a one percent or greater annual chance of flooding to an average depth of one to three feet; where a clearly defined channel does not exist, where the path of flooding is unpredictable, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

“Area of special flood hazard” means the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. It is shown on the FIRM as Zone A, AO, AH, A1-30, AE, A99, AR (V, VO, V1-30, VE). “Special flood hazard area” is synonymous in meaning with the phrase “area of special flood hazard.”

“ASCE 24” means the most recently published version of ASCE 24, Flood Resistant Design and Construction, published by the American Society of Civil Engineers.

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“Base flood” means 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 letters A or V.

“Base flood elevation (BFE)” means the elevation to which floodwater is anticipated to rise during the base flood.

“Basement” means any area of the building having its floor subgrade (below ground level) on all sides.

“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.

“Coastal high hazard area” means 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. The area is designated on the FIRM as zone V1-V30, VE or V.

“Critical facility” means 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, and installations that produce, use, or store hazardous materials or hazardous waste.

“Development” means any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation, drilling operations, or storage of equipment or materials located within the area of special flood hazard.

“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, post, piers, pilings, or columns.

“Existing 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 before the effective date of the adopted floodplain management regulations.

“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).

“Flood” or “flooding” means:

- (1) A general and temporary condition of partial or complete inundation of normally dry land areas from:
  - i. The overflow of inland or tidal waters.
  - ii. The unusual and rapid accumulation of runoff of surface waters from any source.
  - iii. Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in paragraph (a)(2) of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.
- (2) 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 an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph (1)(i) of this definition.

“Flood elevation study” means 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.

“Flood insurance rate map (FIRM)” means the official map of a community, on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).

“Flood insurance study”: see “flood elevation study.”

“Flood proofing” means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate risk of flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

“Floodplain or flood-prone area” means any land area susceptible to being inundated by water from any source. See “flood or flooding.”

“Floodplain administrator” means the community official designated by title to administer and enforce the floodplain management regulations.

“Floodplain management regulations” means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as floodplain ordinance, grading ordinance, and erosion control ordinance) and other application 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.

“Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height (not more than one foot). Also referred to as “regulatory floodway.”

“Functionally dependent use” means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long-term storage or related manufacturing facilities.

“Highest adjacent grade” means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

2. “Historic structure” means any structure that is:

- 1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of the Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- 2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
- 3) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or
- 4) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
  - i. By an approved state program as determined by the Secretary of the Interior, or
  - ii. Directly by the Secretary of the Interior in states without approved programs.

“Lowest floor” means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage, in an area other than a basement area, is not considered a building’s lowest floor; provided, that such enclosure is not built so as to render

the structure in violation of the applicable non-elevation design requirements of this chapter found at SMC 15.10.160(1)(b).

“Manufactured home” means 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” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

“Mean sea level” means, for purposes of the National Flood Insurance Program, the vertical datum to which base flood elevations shown on the community’s Flood Insurance Rate Map are referenced.

“New construction” means, for the purposes of determining insurance rates, 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, and includes any subsequent improvements to such structures. 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.

“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 floodplain management regulations.

“Recreational vehicle” means 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.

“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, 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.

“Structure” means, for floodplain management purposes, a walled and roofed building including a gas or liquid storage tank that is principally above ground, as well as a manufactured home.

“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.

“Substantial improvement” means 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.

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 that have been identified by the local code enforcement official and that 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.”

“Variance” means a grant of relief from the requirements of this chapter that permits construction in a manner that would otherwise be prohibited by this chapter.

“Water dependent” means a structure for commerce or industry that cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations. (Ord. O2000-54 § 4)

**15.10.050 Lands to which this chapter applies.**

This chapter shall apply to all areas of special flood hazards within the jurisdiction of the City of Sammamish. (Ord. O2000-54 § 5)

**15.10.060 Basis for establishing the areas of special flood hazard.**

The areas of special flood hazard identified by the Federal Insurance Administrator in a scientific and engineering report entitled “The Flood Insurance Study (FIS) for King County, Washington, and Incorporated Areas” dated August 19, 2020, and any revisions thereto, with accompanying flood insurance rate maps (FIRMs) dated August 19, 2020, and any revisions thereto, are hereby adopted by reference and declared to be a part of this chapter. The FIS and the FIRM are on file at Sammamish City Hall. The best available information for flood hazard area identification as outlined in SMC 15.10.130(2) shall be the basis for regulation until a new FIRM is issued that incorporates the data utilized under SMC 15.10.130(2).

**15.10.065 Compliance.**

All development within special flood hazard areas is subject to the terms of this ordinance and other applicable regulations.

**15.10.070 Penalties for noncompliance.**

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. 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 thereof be fined not more than \$1,000 or imprisoned for not more than 90 days, or both, for each violation, and in addition shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the City of Sammamish from taking such other lawful action as is necessary to prevent or remedy any violation. (Ord. O2000-54 § 7)

**15.10.080 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. O2000-54 § 8)

**15.10. 090 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. O2000-54 § 9)

**15.10. 100 Warnings 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 the City of Sammamish, 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. O2000-54 § 10)

**15.10. 110 Establishment of development permit.**

(1) Development Permit Required. A development permit shall be obtained before construction or development begins within any area of special flood hazard established in SMC 15.10.060. The permit shall be for all structures including manufactured homes, as set forth in SMC 15.10.040, Definitions, and for all development including fill and other activities, also as set forth in SMC 15.10.040, Definitions.

(2) Application for Development Permit. Application for a development permit shall be made on forms furnished by the City 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 foregoing. Specifically, the following information is required:

- (a) Elevation in relation to mean sea level of the lowest floor (including basement) of all structures;
- (b) Elevation in relation to mean sea level to which any structure has been floodproofed;
- (c) Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in SMC 15.10.160(2); and
- (d) Description of the extent to which a watercourse will be altered or relocated as a result of proposed development. (Ord. O2000-54 § 11)
- (e) Any other such information that is required by the Floodplain Administrator in order to review the application.

**15.10. 120 Designation of the City manager.**

The city manager or designee is hereby appointed to administer, implement, and enforce this chapter by granting or denying development permit applications in accordance with its provisions.

**15.10. 130 Duties and responsibilities of the City manager.**

Duties of the City manager or designee shall include, but not be limited to:

- (1) Permit Review.
  - (a) Review all development permits to determine that the permit requirements of this chapter have been satisfied;
  - (b) Review all development permits to determine that all necessary permits have been obtained from those federal, state, or local governmental agencies from which prior approval is required; and

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(c) Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of SMC 15.10.170(1) are met.

(d) Review all development permits to determine that the site is reasonably safe from flooding.

(e) Notify FEMA when annexations occur in the special flood hazard area.

(2) Use of Other Base Flood Data. When base flood elevation data has not been provided in accordance with SMC 15.10.060, Basis for establishing the areas of special flood hazard, the City manager or designee 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 SMC 15.10.160, Specific standards, and SMC 15.10.170(1), Floodways.

(3) Information to Be Obtained and Maintained.

(a) Where base flood elevation data is provided through the flood insurance study, FIRM, or required as in subsection (2) of this section, obtain and maintain a record of 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.

(b) For all new or substantially improved floodproofed nonresidential structures where base flood elevation data is provided through the FIS, FIRM, or as required in subsection (2) of this section:

(i) Obtain and maintain a record of the actual elevation (in relation to mean sea level) to which the structure was floodproofed; and

(ii) Maintain the floodproofing certifications required in SMC 15.10.110(2)(c).

(c) Maintain for public inspection all records pertaining to the provisions of this chapter.

(d) Records of all variance actions, including justification for their issuance.

(e) Improvement and damage calculations.

(4) Alteration of Watercourses.

(a) 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 Administrator through the appropriate notification means.

(b) Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.

(5) Interpretation of FIRM Boundaries. Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazard (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 SMC 15.10.140. (Ord. O2005-193 § 2; Ord. O2000-54 § 13) Such appeals shall be granted consistent with the standards of Section 60.6 of the Rules and Regulations of the NFIP.

### **15.10.135 Changes to Special Flood Hazard Area.**

If a project will alter the BFE or boundaries of the SFHA, then the project proponent shall provide the community with engineering documentation and analysis regarding the proposed change. If the change to the BFE or boundaries of the SFHA would normally require a Letter of Map Change, then the project proponent shall initiate, and receive approval of, a Conditional Letter of Map Revision (CLOMR) prior to approval of the development permit. The project shall be constructed in a manner consistent with the approved CLOMR.

If a CLOMR application is made, then the project proponent shall also supply the full CLOMR documentation package to the Floodplain Administrator to be attached to the floodplain development permit, including all required property owner notifications.

### **15.10.140 Variance procedure.**

(1) Hearing Examiner.



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(a) The City's hearing examiner shall hear and decide appeals and requests for variances from the requirements of this chapter.

(b) The hearing examiner shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the City's administrative staff in the enforcement or administration of this chapter.

(c) Those aggrieved by an administrative decision of the City may appeal such decision to the hearing examiner, as provided herein.

(d) In passing upon such applications, the hearing examiner shall consider all technical evaluations, all relevant factors, 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 damage;

(iii) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

(iv) The importance of the services provided by the proposed facility to the community;

(v) The necessity to the facility of a waterfront location, where applicable;

(vi) The availability of alternative locations for the proposed use that 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 floodplain management program for that area;

(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 effects of wave action, if applicable, expected at the site; and

(xi) The costs of providing governmental services during and after flood conditions, including the maintenance and repair of public utilities, facilities, and systems such as sewer, gas, electrical, water, streets, and bridges.

(e) Upon consideration of the factors of subsection (1)(d) of this section and the purposes of this chapter, the hearing examiner may attach such conditions to the granting of variances as it deems necessary to further the purposes of this chapter.

(f) The hearing examiner or his/her designee shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.

(2) Conditions for Variances.

(a) 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 of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level; provided, that subsections (1)(d)(i) through (xi) of this section have been fully considered. As the lot size increases, the technical justification required for issuing the variance increases.

(b) 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 this section.

(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) Variances shall only be issued upon:

(i) A showing of good and sufficient cause;

(ii) A determination that failure to grant the variance would result in exceptional hardship to the applicant; and

(iii) A determination that the granting of a 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 local laws or ordinances.

(f) 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 economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.

(g) 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 subsection (2)(a) of this section, and otherwise complies with SMC 15.10.150(1) and (2).

(h) 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. O2000-54 § 14)

**15.10.150 Provisions for flood hazard reduction – General standards.**

In all areas of special flood hazards, the following standards are required:

(1) Anchoring.

(a) All new construction and substantial improvements, including those related to manufactured homes, shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads including the effects of buoyancy; and

(b) 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).

(2) Construction Materials and Methods.

(a) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;

(b) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage; and

(c) 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.

(3) Utilities.

(a) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;

(b) The proposed water well shall be located on high ground that is not in the floodway (WAC 173-160-171);

(c) 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; and

(d) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(4) Storage of Materials and Equipment.

The storage or processing of materials that could be injurious to human, animal, or plant life if released due to damage from flooding is prohibited in special flood hazard areas.

Storage of other material or equipment may be allowed if not subject to damage by floods and if firmly anchored to prevent flotation, or if readily removable from the area within the time available after flood warning.

(5) Subdivision Proposals.

All subdivisions, as well as new development, shall:

(a) Be consistent with the need to minimize flood damage;

(b) Have public utilities, facilities, and systems such as sewer, gas, electrical, and water located and constructed to minimize or eliminate flood damage;

(c) Have adequate drainage provided to reduce exposure to flood damage; and

(d) Where subdivision proposals and other proposed developments contain at least 50 lots or five acres (whichever is less), base flood elevation data shall be included as part of the application.

(6) Review of Building Permits. Where elevation data is not available either through the flood insurance study, FIRM, or from another authoritative source (SMC 15.10.130(2)), applications for floodplain development 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 grade in these zones may result in higher insurance rates. (Ord. O2000-54 § 15)

**15.10.160 Specific standards.**

In all areas of special flood hazards where base flood elevation data has been provided as set forth in SMC 15.10.060, Basis for establishing the areas of special flood hazard, or SMC 15.10.130(2), Use of Other Base Flood Data, the following provisions are required:

(1) Residential Construction.

(a) In AE and A1-30 zones or other A zoned areas where the BFE has been determined or can be reasonably obtained, 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. Mechanical equipment and utilities shall be waterproof or elevated at least one foot above the BFE. Exception: crawlspaces may be

allowed if they meet the below criteria:

- (i) The interior grade of a crawlspace below the base flood elevation must not be more than two feet below the lowest adjacent exterior grade.
  - (ii) 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 four feet at any point.
  - (iii) There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. The enclosed area should be drained within a reasonable time after a flood event. The type of drainage system will vary because of the site gradient and other drainage characteristics, such as soil types. 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.
- (b) 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 flood waters. 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:
- (i) 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;
  - (ii) The bottom of all openings shall be no higher than one foot above grade; and
  - (iii) Openings may be equipped with screens, louvers, valves, or other coverings or devices; provided, that they permit the automatic entry and exit of flood waters.
  - (iv) A garage attached to a residential structure, constructed with the garage floor slab below the BFE, must be designed to allow for the automatic entry and exit of floodwaters.
- (b) New construction and substantial improvement of any residential structure in an AO zone shall meet the requirements in Chapter 15.19.190.
- (c) New construction and substantial improvement of any residential structure in an unnumbered A zone for which a BFE is not available and cannot be reasonably obtained shall be reasonably safe from flooding, but in all cases the lowest floor shall be at least two feet above the highest adjacent grade.

(2) Nonresidential Construction. New construction and substantial improvement of any commercial, industrial, or other nonresidential structure shall meet the requirements of subsection a or b, below.

- (a) New construction and substantial improvement of any commercial, industrial, or other nonresidential structure shall meet all of the follow requirements:
  - (i) In AE and A1-30 zones or other A zoned areas where the BFE has been determined or can be reasonably obtained:

New construction and substantial improvement of any commercial, industrial, or other nonresidential structure shall have the lowest floor, including basement, elevated one foot or more above the base flood elevation, or elevated as required by ASCE 24, whichever is greater. Mechanical equipment and utilities shall be waterproofed or elevated at least one foot above the BFE, or as required by ASCE 24, whichever is greater.
  - (ii) If located in an AO zone, the structure shall meet the requirements in SMC 15.10.190.
  - (iii) If located in an unnumbered A zone for which a BFE is not available and cannot be reasonably obtained, the structure shall be reasonably safe from flooding, but in all cases the lowest floor shall be at least two feet above the highest adjacent grade.
  - (iv) 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 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. Have a minimum of two openings with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding.
- b. The bottom of all openings shall be no higher than one foot above grade.
- c. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwater.
- d. A garage attached to a structure, constructed with the garage floor slab below the BFE, must be designed to allow for the automatic entry and exit of floodwaters.

(b) If the requirements of subsection a are not met, then new construction and substantial improvement of any commercial, industrial, or other nonresidential structure shall meet all of the following requirements:

- (v) Be dry floodproofed so that below one foot or more above the base flood level the structure is watertight with walls substantially impermeable to the passage of water or dry floodproofed to the elevation required by ASCE 24, whichever is greater;
- (vi) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
- (vii) 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 the provisions of this subsection based on the engineer's or architect's development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in SMC 15.10.130(3)(b);
- (viii) Nonresidential structures that are elevated and not floodproofed must meet the same standards for space below the lowest floor as described in subsection (1)(b) of this section; and

Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g., a building floodproofed to the base flood level will be rated as one foot below). Floodproofing the building an additional foot will reduce insurance premiums.

### (3) Manufactured Homes.

(a) All manufactured homes to be placed or substantially improved on sites:

- (i) Outside of a manufactured home park or subdivision;
- (ii) In a new manufactured home park or subdivision;
- (iii) In an expansion to an existing manufactured home park or subdivision; or
- (iv) 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 shall be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

(b) 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 shall be elevated so that either:

- (i) The lowest floor of the manufactured home is elevated one foot or more above the base flood elevation; or
- (ii) 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 securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

(4) Recreational Vehicles. Recreational vehicles placed on sites are required to either:

- (a) Be on the site for fewer than 180 consecutive days;
- (b) Be fully licensed and ready for highway use, on their wheels or jacking systems, attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or
- (c) Meet the requirements of subsection (3) of this section and the elevation and anchoring requirements for manufactured homes. (Ord. O2005-193 § 2; Ord. O2000-54 § 16)

(5) Enclosed Area below the Lowest Floor.

If buildings or manufactured homes are constructed or substantially improved with fully enclosed areas below the lowest floor, the areas shall be used solely for parking of vehicles, building access, or storage.

(6) Appurtenant Structures (Detached Garages & Small Storage Structures)

For A Zones (A, AE, A1-30, AH, AO):

- 1) Appurtenant structures used solely for parking of vehicles or limited storage may be constructed such that the floor is below the BFE, provided the structure is designed and constructed in accordance with the following requirements:
  - a) Use of the appurtenant structure must be limited to parking of vehicles or limited storage;
  - b) The portions of the appurtenant structure located below the BFE must be built using flood resistant materials;
  - c) The appurtenant structure must be adequately anchored to prevent flotation, collapse, and lateral movement;
  - d) Any machinery or equipment servicing the appurtenant structure must be elevated or floodproofed to or above the BFE;
  - e) The appurtenant structure must comply with floodway encroachment provisions in SMC 15.10.170(1);
  - f) The appurtenant structure must be designed to allow for the automatic entry and exit of flood waters in accordance with SMC 15.10.160(1)(b);
  - g) The structure shall have low damage potential;
  - h) If the structure is converted to another use, it must be brought into full compliance with the standards governing such use; and
  - i) The structure shall not be used for human habitation.
- 2) Detached garages, storage structures, and other appurtenant structures not meeting the above standards must be constructed in accordance with all applicable standards in SM 15.10.160(1).
- 3) Upon completion of the structure, certification that the requirements of this section have been satisfied shall be provided to the Floodplain Administrator for verification.

AE and A1-30 Zones with Base Flood Elevations but No Floodways.

In areas with BFEs (but a regulatory floodway has not been designated), no new construction, substantial improvements, or other development (including fill) shall be permitted within zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

#### **15.10.170 Floodways.**

Located within areas of special flood hazard established in SMC 15.10.060 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters that carry debris, potential projectiles, and erosion potential, the following provisions apply:

(1) Encroachments are prohibited, 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 encroachments shall 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 that 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, the market value before the damage occurred.

Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications that have been identified by the local code enforcement official and that are the minimum necessary to assure safe living conditions or to structures identified as historic places may be excluded in the 50 percent.

(3) If subsection (1) of this section is satisfied or construction is allowed pursuant to subsection (2), all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of SMC 15.10.150 through 15.10.210. (Ord. O2005-193 § 2; Ord. O2000-54 § 17)

#### **(4) General Requirements for Other Development**

All development, including manmade changes to improved or unimproved real estate for which specific provisions are not specified in this ordinance or the state building codes with adopted amendments and any City of Sammamish amendments, shall:

- (a) Be located and constructed to minimize flood damage;
- (b) Meet the encroachment limitations of this ordinance if located in a regulatory floodway;
- (c) Be anchored to prevent flotation, collapse, or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the design flood;
- (d) Be constructed of flood damage-resistant materials;
- (e) Meet the flood opening requirements of SMC 15.10.160(1)(b), and
- (f) Have mechanical, plumbing, and electrical systems above the design flood elevation or meet the requirements of ASCE 24, except that minimum electric service required to address life safety and electric code requirements is permitted below the design flood elevation provided it conforms to the provisions of the electrical part of building code for wet locations.

#### **15.10.180 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. O2000-54 § 18)

#### **15.10.190 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 basement) 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 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 floodproofed 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 SMC 15.10.160(2)(c).
- (3) Adequate drainage paths shall be required around structures on slopes to guide flood waters around and away from proposed structures.
- (4) Recreational vehicles placed on sites within AO zones on the community's FIRM shall either:
  - (a) Be on the site for fewer than 180 consecutive days;
  - (b) Be fully licensed and ready for highway use, on their wheels or jacking systems, attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or
  - (c) Meet the requirements of this section and the elevation and anchoring requirements for manufactured homes. (Ord. O2000-54 § 19)

**15.10. 200    *Repealed***

**15.10. 210    *Critical facility.***

Construction of new critical facilities shall be, to the extent possible, located outside the limits of the special flood hazard area (SFHA) (100-year floodplain). 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 flood, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into flood waters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible. (Ord. O2000-54 § 21)