

## Chapter 3.7 – Floodplain Development

### Sections:

- 3.7.100 Statutory Authority, Findings of Fact, Purpose and Methods
- 3.7.200 General Provisions
- 3.7.300 Administration
- 3.7.400 Provisions for Flood Hazard Reduction

### **3.7.100 Statutory Authority, Findings of Fact, Purpose, and Methods**

**A. Statutory Authorization.** The state of Oregon has, in ORS 197.175, delegated the responsibility to local governmental units to adopt floodplain management regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the City of Baker City does ordain as follows:

**B. Findings of Fact.**

1. The flood hazard areas of Baker City are subject to periodic inundation which may result in 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 special flood hazard areas which increase flood heights and velocities, and when inadequately anchored, cause damage in other areas. Uses that are inadequately flood-proofed, elevated, or otherwise protected from flood damage also contribute to flood loss.

**C. Statement of Purpose.** It is the purpose of this ordinance to promote public health, safety, and general welfare, and to minimize public and private losses due to flooding in flood hazard areas by provisions designed to:

1. Protect human life and health;
2. Minimize expenditure of public money for costly flood control projects;
3. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
4. Minimize prolonged business interruptions;
5. Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone and sewer lines; and streets and bridges located in special flood hazard areas;

6. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas so as to minimize blight areas caused by flooding;
7. Notify potential buyers that the property is in a special flood hazard area
8. Notify those who occupy special flood hazard areas that they assume responsibility for their actions
9. Participate in and maintain eligibility for flood insurance and disaster relief.

**D. Methods of Reducing Flood Losses.** In order to accomplish its purposes, this ordinance includes methods and provisions for:

1. Restricting or prohibiting development which is 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 development 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;
5. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or may increase flood hazards in other areas.

### 3.7.200 General Provisions

- A. Lands to Which This Ordinance Applies.** This ordinance shall apply to all special flood hazard areas within the jurisdiction of the City of Baker City.
- B. Basis for Establishing the Special Flood Hazard Areas.** The special flood hazard areas identified by the federal insurance administrator in a scientific and engineering report entitled “The Flood Insurance Study (FIS) for Baker County, Oregon and Incorporated Areas”, dated June 3rd, 1988, with accompanying flood insurance rate maps (FIRMS) 41001C0385C and 41001C0395C are hereby adopted by reference and declared to be a part of this ordinance. The FIS and FIRM panels are on file at the Baker City-County Planning Department.
- C. Coordination with State of Oregon Specialty Codes.** Pursuant to the requirement established in ORS 455 that the City of Baker City administers and enforces the State of Oregon Specialty Codes, the City of Baker City does hereby acknowledge that the Oregon Specialty Codes contain certain

provisions that apply to the design and construction of buildings and structures located in special flood hazard areas. Therefore, this ordinance is intended to be administered and enforced in conjunction with the Oregon Specialty Codes.

**D. Compliance and Penalties for Non-Compliance**

1. Compliance. All development within special flood hazard areas is subject to the terms of this ordinance and required to comply with its provisions and all other applicable regulations.
2. Penalties for Non-Compliance. No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this ordinance and other applicable regulations. Violations of the provisions of this ordinance by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a civil infraction, which shall be processed accordingly in accordance with Chapter 1.5 - Enforcement. Nothing contained herein shall prevent the City of Baker City from taking such other lawful action as is necessary to prevent or remedy any violation.

**E. Abrogation and Severability.**

1. Abrogation. This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.
2. Severability. This ordinance and the various parts thereof are hereby declared to be severable. If any section clause, sentence, or phrase of the Ordinance is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holding shall in no way effect the validity of the remaining portions of this Ordinance.

**F. Interpretation.** In the interpretation and application of this ordinance, 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.

**G. Warning and Disclaimer of Liability**

1. Warning. The degree of flood protection required by this ordinance 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 man-made or natural

causes. This ordinance 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.

2. Disclaimer of Liability. This ordinance shall not create liability on the part of the City of Baker City, any officer or employee thereof, or the Federal Insurance Administrator for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

### 3.7.300 Administration

- A. **Designation of the Floodplain Administrator.** The Planning Director, and their designee, is hereby appointed to administer, implement, and enforce this ordinance by granting or denying development permits in accordance with its provisions. The Floodplain Administrator may delegate authority to implement these provisions.
- B. **Duties and Responsibilities of the Floodplain Administrator.** Duties of the floodplain administrator, or their designee, shall include, but not be limited to:
  1. Permit Review. Review all development permits to:
    - a. Determine that the permit requirements of this ordinance have been satisfied;
    - b. Determine that all other required local, state, and federal permits have been obtained and approved.
    - c. Determine if the proposed development is located in a floodway. If located in the floodway assure that the floodway provisions of this ordinance in section 3.7.400(B)(4) are met; and
    - d. Determine if the proposed development is located in an area where Base Flood Elevation (BFE) data is available either through the Flood Insurance Study (FIS) or from another authoritative source. If BFE data is not available, then ensure compliance with the provisions of sections 3.7.400(A)(7); and
    - e. Provide to building officials the Base Flood Elevation (BFE) and minimum elevation required for any building requiring a development permit.
    - f. Determine if the proposed development qualifies as a substantial improvement as defined in Chapter 1.3 of this code.
    - g. Determine if the proposed development activity is a watercourse alteration. If a watercourse alteration is proposed, ensure compliance with the provisions in section 3.7.400(A)(1).
    - h. Determine if the proposed development activity includes the placement of fill or excavation.
  2. Information to be Obtained and Maintained. The following information shall be obtained and maintained and shall be made available for public inspection as needed:
    - a. The actual elevation (in relation to mean sea level) of the lowest floor (including basements) and all attendant utilities of all new or substantially improved structures where Base Flood Elevation (BFE) data is provided through the Flood Insurance Study (FIS), Flood Insurance

Rate Map (FIRM), or obtained in accordance with section 3.7.400(A)(7).

- b. The elevation (in relation to mean sea level) of the natural grade of the building site for a structure prior to the start of construction and the placement of any fill and ensure that the requirements of sections 3.7.400(B)(4) and 3.7.300(B)(1) are adhered to.
  - c. A mid-construction elevation certificate, prepared and sealed by a professional licensed surveyor or engineer, certifying the elevation (in relation to mean sea level) of the lowest floor (including basement) upon placement of the lowest floor of a structure (including basement) but prior to further vertical construction.
  - d. Where base flood elevation data are utilized, a post-construction elevation certificate, prepared and sealed by a professional licensed surveyor or engineer, certifying the elevation (in relation to mean sea level) of the lowest floor (including basement), prior to the final inspection.
  - e. Maintain all Elevation Certificates (EC) submitted to the City of Baker City;
  - f. The elevation (in relation to mean sea level) to which the structure and all attendant utilities were flood-proofed for all new or substantially improved flood-proofed structures where allowed under this ordinance and where Base Flood Elevation (BFE) data is provided through the FIS, FIRM, or obtained in accordance with section 3.7.400(A)(7).
  - g. Flood-proofing certificates required under this ordinance;
  - h. All variance actions, including justification for their issuance;
  - i. All hydrologic and hydraulic analyses performed as required under section 3.7.400(B)(4).
  - j. All Substantial Improvement and Substantial Damage calculations and determinations as required under section 3.7.300(B)(3)(d).
  - k. All records pertaining to the provisions of this ordinance.
3. Requirement to Notify Other Entities and Submit New Technical Data
- a. Community Boundary Alterations. The Floodplain Administrator shall notify the Federal Insurance Administrator in writing whenever the boundaries of the community have been modified by annexation or the community has otherwise assumed authority or no longer has authority to adopt and enforce floodplain management regulations for a particular area, to ensure that all Flood Hazard Boundary Maps (FHBM) and Flood Insurance Rate Maps (FIRM) accurately represent the community's boundaries. Include within such notification a copy of a map of the community suitable for reproduction, clearly delineating the new corporate

limits or new area for which the community has assumed or relinquished floodplain management regulatory authority.

- b. Watercourse Alterations. Notify adjacent communities, the Department of Land Conservation and Development, and other appropriate state and federal agencies, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration. This notification shall be provided by the applicant to the Federal Insurance Administration as a Letter of Map Revision (LOMR) along with either:
  - i. A proposed maintenance plan to assure the flood carrying capacity within the altered or relocated portion of the watercourse is maintained; or
  - ii. Certification by a registered professional engineer that the project has been designed to retain its flood carrying capacity without periodic maintenance.

The applicant shall be required to submit a Conditional Letter of Map Revision (CLOMR) when required under section 3.7.300(B)(3)(c). The Floodplain Administrator shall ensure compliance with all applicable requirements in sections 3.7.300(B)(3)(c) and 3.7.400(A)(1).

- c. Requirement to Submit New Technical Data. A community's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six months after the date such information becomes available, a community shall notify the Federal Insurance Administrator of the changes by submitting technical or scientific data in accordance with Section 44 of the Code of Federal Regulations (CFR), Sub-Section 65.3. The community may require the applicant to submit such data and review fees required for compliance with this section through the applicable FEMA Letter of Map Change (LOMC) process.

The Floodplain Administrator shall require a Conditional Letter of Map Revision prior to the issuance of a floodplain development permit for:

- i. Proposed floodway encroachments that increase the base flood elevation; and
- ii. Proposed development which increases the base flood elevation by more than one foot in areas where FEMA has provided base flood elevations but no floodway.

An applicant shall Notify FEMA within six (6) months of project completion when an applicant has obtained a Conditional Letter of Map Revision (CLOMR) from FEMA. This notification to FEMA shall be provided as a Letter of Map Revision (LOMR). The Floodplain Administrator shall be under no obligation to sign the Community Acknowledgement Form, which is part of the CLOMR/LOMR application, until the applicant demonstrates that the project will or has met the requirements of this code and all applicable state and federal laws.

- d. Substantial Improvement and Substantial Damage Assessments and Determinations. Conduct Substantial Improvement (SI) (as defined in Chapter 1.3) reviews for all structural development proposal applications and maintain a record of SI calculations within permit files in accordance with section 3.7.300(B)(2). Conduct Substantial Damage (SD) (as defined in Chapter 1.3) assessments when structures are damaged due to a natural hazard event or other causes. Make SD determinations whenever structures within the special flood hazard area (as established in section 3.7.200(B)) are damaged to the extent that 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.
4. Interpretation of FIRM Boundaries. Make interpretations where needed, as to exact location of the boundaries of the special flood hazard areas (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. Such appeals shall be granted consistent with the standards of section 60.6 of the Rules and Regulations of the National Flood Insurance Program (44 CFR 59-76).

### C. Establishment of Development Permit

1. Floodplain Development Permit Required. A development permit shall be obtained before construction or development begins within any area horizontally within the special flood hazard area established in section 3.7.200(B). The development permit shall be required for all structures, including manufactured dwellings, and for all other development, as defined in Chapter 1.3, including fill and other development activities.
2. Application for Development Permit. Application for a development permit may be made on forms furnished by the Floodplain Administrator 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. In riverine flood zones, the proposed elevation (in relation to mean sea level), of the lowest floor (including basement) and all attendant utilities of all new and substantially improved structures; in accordance with the requirements of section 3.7.300(B)(2).
  - b. Proposed elevation in relation to mean sea level to which any non-residential structure will be flood-proofed.
  - c. Certification by a registered professional engineer or architect licensed in the State of Oregon that the flood-proofing methods proposed for any non-residential structure meet the flood-proofing criteria for non-residential structures in section 3.7.400(B)(3)(c).
  - d. Description of the extent to which any watercourse will be altered or relocated.

- e. Base Flood Elevation data for subdivision proposals or other development when required per sections 3.7.300(B)(1) and 3.7.400(A)(6).
- f. Substantial improvement calculation for any improvement, addition, reconstruction, renovation, or rehabilitation of an existing structure.
- g. The amount and location of any fill or excavation activities proposed.

**D. Variance Procedure.** The issuance of a variance is for floodplain management purposes only. Flood insurance premium rates are determined by federal statute according to actuarial risk and will not be modified by the granting of a variance.

1. Conditions for Variances.

- a. Generally, variances may be issued 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, in conformance with the provisions of sections 3.7.300(D)(1)(c) and (e), and 3.7.300(D)(2). As the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases.
- b. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- c. Variances shall not be issued within any floodway if any increase in flood levels during the base flood discharge would result.
- d. 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;
  - 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 laws or ordinances.
- e. Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation of historic structures will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.
- f. Variances may be issued by a community for new construction and substantial improvements and for other development necessary for the conduct of a functionally

dependent use provided that the criteria of section 3.7.300(D)(1)(b) through (d) are met, and the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

2. Variance Notification. Any applicant to whom a variance is granted shall be given written notice that the issuance of a variance to construct a structure below the Base Flood Elevation will result in increased premium rates for flood insurance and that such construction below the base flood elevation increases risks to life and property. Such notification and a record of all variance actions, including justification for their issuance shall be maintained in accordance with section 3.7.300(B)(2).

### 3.7.400 Provisions for Flood Hazard Reduction

A. **General Standards.** In all special flood hazard areas, the following standards shall be adhered to:

1. Alteration of Watercourses. Require that the flood carrying capacity within the altered or relocated portion of said watercourse is maintained. Require that maintenance is provided within the altered or relocated portion of said watercourse to ensure that the flood carrying capacity is not diminished. Require compliance with sections 3.7.300(B)(3)(b) and (c).
2. Anchoring.
  - a. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
  - b. All manufactured dwellings shall be anchored per section 3.7.400(B)(3)(d).
3. 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.
4. Utilities and Equipment.
  - a. Water Supply, Sanitary Sewer, And On-Site Waste Disposal Systems.
    - i. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

- ii. 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.
  - iii. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding consistent with the Oregon Department of Environmental Quality.
  - b. Electrical, Mechanical, Plumbing, And Other Equipment. Electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities shall be elevated at or above the base flood level or shall be designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during conditions of flooding. In addition, electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities, if replaced as part of a substantial improvement, shall meet all the requirements of this section.
5. Tanks.
- a. Underground tanks shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood.
  - b. Above-ground tanks shall be installed at or above the base flood level or shall be anchored to prevent flotation, collapse, and lateral movement under conditions of the base flood.
6. Subdivision Proposals & Other Proposed Developments.
- a. All new subdivision proposals and other proposed new developments (including proposals for manufactured dwelling parks and subdivisions) greater than 50 lots or 5 acres, whichever is the lesser, shall include within such proposals, Base Flood Elevation data.
  - b. All new subdivision proposals and other proposed new developments (including proposals for manufactured dwelling parks and subdivisions) shall:
    - i. Be consistent with the need to minimize flood damage.
    - ii. Have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage.
    - iii. Have adequate drainage provided to reduce exposure to flood hazards.
7. Use of Other Base Flood Data. When Base Flood Elevation data has not been provided in accordance with section 3.7.200(B), the local floodplain administrator shall obtain, review, and reasonably utilize any Base Flood Elevation data available from a federal, state, or other source,

in order to administer section 3.7.400. All new subdivision proposals and other proposed new developments (including proposals for manufactured dwelling parks and subdivisions) must meet the requirements of section 3.7.400(A)(6).

Base Flood Elevations shall be determined for development proposals that are  $\pm 5$  acres or more in size or are 50 lots or more, whichever is lesser, in any A zone that does not have an established base flood elevation. Development proposals located within a riverine unnumbered A Zone shall be reasonably safe from flooding; the test of reasonableness includes use of historical data, high water marks, FEMA provided Base Level Engineering data, and 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.

8. Structures Located in Multiple or Partial Flood Zones. In coordination with the State of Oregon Specialty Codes:
  - a. When a structure is located in multiple flood zones on the community's Flood Insurance Rate Maps (FIRM) the provisions for the more restrictive flood zone shall apply.
  - b. When a structure is partially located in a special flood hazard area, the entire structure shall meet the requirements for new construction and substantial improvements.
9. Critical Facilities. Construction of new critical facilities shall be, to the extent possible, located outside the limits of the special flood hazard area. Construction of new critical facilities shall be permissible within the SFHA only if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three (3) feet above the Base Flood Elevation (BFE) or to the height of the 500-year flood, whichever is higher. Access to and from the critical facility shall also be protected to the height utilized above. Flood-proofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.

**B. Specific Standards for Riverine (Including All Non-Coastal) Flood Zones.** These specific standards shall apply to all new construction and substantial improvements in addition to the General Standards contained in section 3.7.400(A) of this ordinance.

1. Flood Openings. All new construction and substantial improvements with fully enclosed areas below the lowest floor (excluding basements) are subject to the following requirements. Enclosed areas below the Base Flood Elevation, including crawl spaces shall:
  - a. Be designed to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters;
  - b. Be used solely for parking, storage, or building access;

- c. Be certified by a registered professional engineer or architect or meet or exceed all of the following minimum criteria:
  - i. A minimum of two openings.
  - ii. The total net area of non-engineered openings shall be not less than one (1) square inch for each square foot of enclosed area, where the enclosed area is measured on the exterior of the enclosure walls.
  - iii. The bottom of all openings shall be no higher than one foot above grade.
  - iv. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they shall allow the automatic flow of floodwater into and out of the enclosed areas and shall be accounted for in the determination of the net open area.
  - v. All additional higher standards for flood openings in the State of Oregon Residential Specialty Codes Section R322.2.2 shall be complied with when applicable.

2. Garages.

- a. Attached garages may be constructed with the garage floor slab below the Base Flood Elevation (BFE) in riverine flood zones, if the following requirements are met:
  - i. If located within a floodway the proposed garage must comply with the requirements of section 3.7.400(B)(4).
  - ii. The floors are at or above grade on not less than one side;
  - iii. The garage is used solely for parking, building access, and/or storage;
  - iv. The garage is constructed with flood openings in compliance with section 3.7.400(B)(1) to equalize hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwater.
  - v. The portions of the garage constructed below the BFE are constructed with materials resistant to flood damage;
  - vi. The garage is constructed in compliance with the standards in section 3.7.400(A); and
  - vii. The garage is constructed with electrical, and other service facilities located and installed so as to prevent water from entering or accumulating within the components during conditions of the base flood.

- b. Detached garages must be constructed in compliance with the standards for accessory structures in section 3.7.400(B)(3)(f) or non-residential structures in section 3.7.400(B)(3)(c) depending on the square footage of the garage.
3. For Riverine (Non-Coastal) Special Flood Hazard Areas with Base Flood Elevations. In addition to the general standards listed in section 3.7.400(A) the following specific standards shall apply in Riverine (non-coastal) special flood hazard areas with Base Flood Elevations (BFE): Zones A1-A30, AH, and AE.
- a. Before Regulatory Floodway. In areas where a regulatory floodway has not been designated, no new construction, substantial improvement, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's Flood Insurance Rate Map (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.
  - b. Residential Construction.
    - i. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated at or above the Base Flood Elevation (BFE) or three feet above highest adjacent grade where no BFE is defined.
    - ii. Enclosed areas below the lowest floor shall comply with the flood opening requirements in section 3.7.400(B)(1).
  - c. Non-Residential Construction.
    - i. New construction and substantial improvement of any commercial, industrial, or other non-residential structure shall have the lowest floor, including basement elevated at or above the Base Flood Elevation (BFE) or three (3) feet above highest adjacent grade where no BFE is defined; or, together with attendant utility and sanitary facilities:
      - A. Be flood-proofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water;
      - B. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
      - C. 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 section based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the Floodplain Administrator as set forth section 3.7.300(B)(2).

- ii. Non-residential structures that are elevated, not flood-proofed, shall comply with the standards for enclosed areas below the lowest floor in section 3.7.400(B)(1).
- iii. Applicants flood-proofing non-residential buildings shall:
  - A. Be notified that flood insurance premiums will be based on rates that are one (1) foot below the flood-proofed level (e.g. a building flood-proofed to the base flood level will be rated as one (1) foot below);
  - B. Supply a maintenance plan for the entire structure, including but not limited to: exterior envelop of structure; all penetrations to the exterior of the structure; all shields, gates, barriers, or components designed to provide flood-proofing protection to the structure; all seals or gaskets for shields, gates, barriers, or components; and, the location of all shields, gates, barriers, and components, as well as all associated hardware, and any materials or specialized tools necessary to seal the structure; and
  - C. Supply an Emergency Action Plan (EAP) for the installation and sealing of the structure prior to a flooding event that clearly identifies what triggers the EAP and who is responsible for enacting the EAP.
- d. Manufactured Dwellings.
  - i. New or substantially improved manufactured dwellings supported on solid foundation walls shall be constructed with flood openings that comply with section 3.7.400(B)(1);
  - ii. The bottom of the longitudinal chassis frame beam shall be at or above Base Flood Elevation;
  - iii. New or substantially improved manufactured dwellings shall be anchored to prevent flotation, collapse, and lateral movement during the base flood. 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), and;
  - iv. Electrical crossover connections shall be a minimum of twelve (12) inches above Base Flood Elevation (BFE).
- e. Recreational Vehicles. Recreational vehicles placed on sites are required to:
  - i. Be on the site for fewer than 180 consecutive days; and
  - ii. Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no

- permanently attached additions; or
- iii. Meet the requirements of section 3.7.400(B)(3)(d), including the anchoring and elevation requirements for manufactured dwellings.
- f. Accessory Structures. Relief from elevation or flood-proofing requirements for residential and non-residential structures in Riverine (Non-Coastal) flood zones may be granted for accessory structures that meet the following requirements:
- i. Accessory structures located partially or entirely within the floodway must comply with requirements for development within a floodway found in section 3.7.400(B)(4).
  - ii. Accessory structures must only be used for parking, access, and/or storage and shall not be used for human habitation;
  - iii. In compliance with State of Oregon Specialty Codes, accessory structures on properties that are zoned residential are limited to one-story structures less than  $\pm 200$  square feet, or  $\pm 400$  square feet if the property is greater than two ( $\pm 2$ ) acres in area and the proposed accessory structure will be located a minimum of  $\pm 20$  feet from all property lines. Accessory structures on properties that are zoned as non-residential are limited in size to  $\pm 120$  square feet.
  - iv. The portions of the accessory structure located below the Base Flood Elevation must be built using flood resistant materials;
  - v. The accessory structure must be adequately anchored to prevent flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the base flood.
  - vi. The accessory structure must be designed and constructed to equalize hydrostatic flood forces on exterior walls and comply with the requirements for flood openings in section 3.7.400(B)(1);
  - vii. Accessory structures shall be located and constructed to have low damage potential;
  - viii. Accessory structures shall not be used to store toxic material, oil, or gasoline, or any priority persistent pollutant identified by the Oregon Department of Environmental Quality unless confined in a tank installed in compliance with section 3.7.400(A)(5).
  - ix. Accessory structures shall be constructed with electrical, mechanical, and other service facilities located and installed so as to prevent water from entering or accumulating within the components during conditions of the base flood.

g. Below-Grade Crawlspace.

- i. The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Hydrostatic loads and the effects of buoyancy can usually be addressed through the flood opening requirements contained in 3.7.400(B)(1). Because of hydrodynamic loads, crawlspace construction is not allowed in areas with flood velocities greater than five (5) feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer. Other types of foundations are recommended for these areas.
- ii. The crawlspace is an enclosed area below the Base Flood Elevation (BFE) and, as such, must have openings that equalize hydrostatic pressures by allowing the automatic entry and exit of floodwaters. The bottom of each flood vent opening can be no more than one (1) foot above the lowest adjacent exterior grade.
- iii. Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the crawlspace used to elevate the building, but also any joists, insulation, or other materials that extend below the BFE. The recommended construction practice is to elevate the bottom of joists and all insulation above BFE.
- iv. Any building utility systems within the crawlspace must be elevated above BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters.
- v. The interior grade of a crawlspace below the BFE must not be more than two (2) feet below the lowest adjacent exterior grade.
- vi. 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 (4) feet at any point. The height limitation is the maximum allowable unsupported wall height according to the engineering analyses and building code requirements for flood hazard areas.
- vii. 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.

- viii. The velocity of floodwaters at the site shall not exceed five (5) feet per second for any crawlspace. For velocities in excess of five (5) feet per second, other foundation types should be used.
4. Floodways. Located within the special flood hazard areas established in section 3.7.200(B) are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of the floodwaters which carry debris, potential projectiles, and erosion potential, the following provisions apply:
- a. Prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless:
    - i. Certification by a registered professional civil engineer is provided demonstrating, through hydrologic and hydraulic analyses performed in accordance with standard engineering practice, that the proposed encroachment shall not result in any increase in flood levels within the community during the occurrence of the base flood discharge; or,
    - ii. A community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that a Conditional Letter of Map Revision (CLOMR) is applied for and approved by the Federal Insurance Administrator, and the requirements for such revision as established under Volume 44 of the Code of Federal Regulations, section 65.12 are fulfilled. If an encroachment proposal resulting in an increase in Base Flood Elevation meets the following criteria, then an approved CLOMR may not be required prior to approval of a floodplain permit, as determined by the Floodplain Administrator:
      - A. Is for the purpose of fish enhancement,
      - B. Does not involve the placement of any structures (as defined in Chapter 1.3) within the floodway,
      - C. Has a feasibility analysis completed documenting that fish enhancement will be achieved through the proposed project,
      - D. Has a maintenance plan in place to ensure that the stream carrying capacity is not impacted by the fish enhancement project,
      - E. Has approval by the National Marine Fisheries Service, the State of Oregon Department of Fish and Wildlife, or the equivalent federal or state agency, and
      - F. Has evidence to support that no existing structures will be negatively impacted by the proposed activity;

- b. If the requirements of section 3.7.400(B)(4)(a) are satisfied, all new construction, substantial improvements, and other development shall comply with all other applicable flood hazard reduction provisions of section 3.7.400(B).
5. Standards for Shallow Flooding Areas. Shallow flooding areas appear on FIRMs as AO zones with depth designations or as AH zones with Base Flood Elevations. For AO zones, the base flood depths range from one (1) to three (3) 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. For both AO and AH zones, adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures.
- a. Standards for AH Zones. Development within AH Zones must comply with the standards in sections 3.7.400(A), 3.7.400(B), and 3.7.400(B)(5)(a).
  - b. Standards for AO Zones. In AO zones, the following provisions apply in addition to the requirements in sections 3.7.400(A), and 3.7.400(B)(5)(a):
    - i. New construction and substantial improvement of residential structures and manufactured dwellings within AO zones shall have the lowest floor, including basement, elevated above the highest grade adjacent to the building, at minimum to or above the depth number specified on the FIRM (at least three (3) feet if no depth number is specified). For manufactured dwellings the lowest floor is considered to be the bottom of the longitudinal chassis frame beam.
    - ii. New construction and substantial improvements of non-residential structures within AO zones shall either:
      - A. Have the lowest floor, including basement, elevated above the highest adjacent grade of the building site, at minimum to or above the depth number specified on the FIRM (at least three (3) feet if no depth number is specified); or
      - B. Together with attendant utility and sanitary facilities, be completely flood-proofed to or above the highest adjacent grade of the building site, minimum to or above the depth number specified on the FIRM (at least three (3) feet if no depth number is specified), 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 stated in section 3.7.400(B)(3)(a)(iv).
    - iii. Recreational vehicles placed on sites within AO Zones on the community's Flood Insurance Rate Maps (FIRM) shall either:

- 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, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or
  - C. Meet the elevation requirements of section 3.7.400(B)(5)(b)(i), and the anchoring and other requirements for manufactured dwellings of section 3.7.400(B)(5)(b)(ii).
- iv. In AO zones, new and substantially improved accessory structures must comply with the standards in section 3.7.400(B)(3)(f).
- v. In AO zones, enclosed areas beneath elevated structures shall comply with the requirements in section 3.7.400(B)(1).