

**AN ORDINANCE OF THE CITY OF OLYMPIA, WASHINGTON, AMENDING OLYMPIA MUNICIPAL CODE CHAPTER 16.70 RELATED TO FLOOD DAMAGE PREVENTION AND DECLARING AN EMERGENCY BASED UPON PUBLIC HEALTH, SAFETY, AND WELFARE SO THIS ORDINANCE TAKES IMMEDIATE EFFECT**

**WHEREAS**, the City of Olympia is currently covered under the National Flood Insurance Program (NFIP), which is managed by the Federal Emergency Management Agency (FEMA); and

**WHEREAS**, the Department of Ecology (Ecology) has recently completed its process of conducting a Community Assistance Visit (CAV) to Olympia on behalf of FEMA, which serves the dual purpose of providing technical assistance and assuring that the City of Olympia (City) has in place and is adequately enforcing floodplain management regulations required by federal and state laws and regulations; and

**WHEREAS**, the CAV process included review of and recommended changes to the City's current Floodplain Management Ordinance, OMC 16.70; and

**WHEREAS**, Ecology has indicated that its recommended amendments to OMC 16.70 are mandatory in order to remain in compliance with FEMA's program requirements for NFIP coverage; and

**WHEREAS**, the Olympia City Council determines it to be in the City's best interest to adopt FEMA's recommended amendments to OMC 16.70 and submit the adopted measures to FEMA; and

**WHEREAS**, this Ordinance is supported by the staff report and materials associated with the Ordinance along with documents on file with the City of Olympia;

**NOW, THEREFORE, THE OLYMPIA CITY COUNCIL ORDAINS AS FOLLOWS:**

**Section 1. Amendment of OMC 16.70.** Olympia Municipal Code Chapter 16.70 is hereby amended to read as follows:

**Chapter 16.70  
FLOOD DAMAGE PREVENTION**

16.70.000 Chapter Contents

Sections:

- 16.70.010 Purpose and Objectives.
- 16.70.020 Definitions.
- 16.70.030 General Provisions.
- 16.70.040 Administration.
- 16.70.050 Provisions for Flood Hazard Reduction.

**16.70.010 Purpose and Objectives**

A. Authorization.

The Legislature of the State of Washington has delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its ~~citizenry~~ residents. Therefore, the City Of Olympia, does ordain as follows:

B. Findings of Fact.

1. The flood hazard areas of the City of Olympia are subject to periodic inundation which results 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 are caused by the cumulative effect of obstructions in areas of special flood hazards which 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.

C. Statement of Purpose.

It is the purpose of this ordinance 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 and 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 ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

D. Methods of Reducing Flood Losses.

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

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

## 16.70.020 Definitions

### A. DEFINITIONS – SPECIFIC.

"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.

A: "Appeal" means a request for a review of the interpretation of any provision of this ordinance or a request for a variance.

"Area of shallow flooding" means a designated zone AO, AH, AR/AO or AR/AH (or VO) on a 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. Also referred to as the sheet flow area.

### B. DEFINITIONS - SPECIFIC

B: "Area of Special Flood Hazard" is the land in the ~~flood plain~~ 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 V, VE, A, AO, or AE. "Special flood hazard area" is synonymous in meaning with the phrase "area of special flood hazard".

C: "Base Flood" means the flood having a 1% chance of being equaled or exceeded in any given year (also referred to as the "100-year flood"). Designated on Flood Insurance Rate Maps by the letter A.

"Base Flood Elevation" (BFE): means the elevation to which floodwater is anticipated to rise during the base flood.

D: ~~"\*Basement"~~ "Basement" means any area of the building having its floor sub-grade (below ground level) on all sides.

### C. DEFINITIONS - SPECIFIC

E: "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 which produce, use, or store hazardous materials or hazardous waste.

F: ~~"\*\*Cumulative Substantial Damage"~~ "Cumulative Substantial Damage" means flood-related damages sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before the damage occurred.

### D. DEFINITIONS - SPECIFIC

G: ~~"\*\*Development"~~ "Development" means any human- made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials located within the area of special flood hazard.

### E. DEFINITIONS - SPECIFIC

H: ~~"\*\*Elevation Certificate"~~ "Elevation Certificate" means the official form (FEMA Form 81-31) used to track development, provide elevation information necessary to ensure compliance with community floodplain management ordinances, and determine the proper insurance premium rate, ~~with Section B completed by Community Officials.~~

I- "Elevated Building" means for insurance purposes, a non-basement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

#### F. DEFINITIONS - SPECIFIC

J- "Flood" or "Flooding" means:

1. ~~a~~-A general and temporary condition of partial or complete inundation of normally dry land areas from:

~~1a.~~ The overflow of inland or tidal waters; ~~and/or~~

~~2b.~~ The unusual and rapid accumulation of runoff of surface waters from any source; ~~or~~

~~c.~~ Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in paragraph (1)(b) 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)(a) of this definition.

K- "Flood Insurance Rate Map (FIRM)" means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

L- "Flood Insurance Study (FIS)" means the official report provided by the Federal Insurance Administration that includes flood profiles and the water surface elevation of the base flood.

"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.

"Floodproofing" 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. Floodproofed structures are those that have the structural integrity and design to be impervious to floodwater below the Base Flood Elevation.

M- "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 one foot.

"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.

#### H. DEFINITIONS SPECIFIC

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

"Historic structure" means any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of 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 of Interior 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 Interior; or
4. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
  - a. By an approved state program as determined by the Secretary of the Interior, or
  - b. Directly by the Secretary of the Interior in states without approved programs.

#### I. DEFINITIONS - SPECIFIC

~~N.~~ ~~"\*\*Increased Cost of Compliance"~~ A flood insurance claim payment up to \$30,000 directly to a property owner for the cost to comply with floodplain management regulations after a direct physical loss caused by a flood. Eligibility for an ICC claim can be through a single instance of "substantial damage" or as a result of a "cumulative substantial damage." (more information can be found in FEMA ICC Manual 301)

#### L. DEFINITIONS - SPECIFIC

~~O.~~ ~~"\*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 ordinance found at OMC 16.70.050.B.1.b (i.e. provided there are adequate flood ventilation openings).

#### M. DEFINITIONS - SPECIFIC

P. "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."

"Mean Sea Level" means for purposes of the National Flood Insurance Program, the vertical datum to which Base Flood Elevations shown on a community's Flood Insurance Rate Map are referenced.

#### N. DEFINITIONS - SPECIFIC

~~Q.~~ ~~"New Construction" means structures for which the "start of construction" commenced on or after the effective date of this ordinance. 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~~structures for which the "start of construction" commenced on or after the effective date of this ordinance.~~

#### R. DEFINITIONS - SPECIFIC

R. "Recreational Vehicle" means a vehicle,

1. Built on a single chassis;
2. 400 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.

#### S. DEFINITIONS - SPECIFIC

S. "Start of Construction" includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; 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.

~~T. "Structure" means a walled and roofed building, including a gas or liquid storage tank that is principally above ground, and a cyclone fence or wall that may or may not require a building permit, as well as a manufactured home.~~

~~U. "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.~~

~~V. "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 can exclude:

1. Any project for improvement of a structure to correct pre-cited existing violations of state or local health, sanitary, or safety code specifications which have been previously identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or
2. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places or as otherwise determined and regulated through the NFIP requirements.

V. DEFINITIONS - SPECIFIC

~~W.~~ "Variance" means a grant of relief from the requirements of this ordinance that permits construction in a manner that would otherwise be prohibited by this ordinance.

W. DEFINITIONS - SPECIFIC

~~X.~~ "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.

**16.70.030 General Provisions**

A. Lands to Which This Ordinance Applies. This ordinance ~~shall apply~~ applies to all areas of special flood hazards within the jurisdiction of City of Olympia.

B. Basis For Establishing The Areas of Special Flood Hazard. The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for Thurston County, Washington and Incorporated Areas" dated ~~October 16, 2012~~ May 15, 2018 and any revisions thereto, with an accompanying Flood Insurance Rate Map (FIRM) dated ~~October 16, 2012~~ May 15, 2018, and any revisions thereto<sup>\*</sup>, are hereby adopted by reference and declared to be a part of this ordinance. The Flood Insurance Study and the FIRM are on file at City of Olympia Permit Assistance Center at 601 - 4<sup>th</sup> Avenue E, Olympia, WA. The best available information for flood hazard area identification as outlined in OMC 16.70.040.C.2 ~~shall be~~ is the basis for regulation until a new FIRM is issued that incorporates data utilized under OMC 16.70.040.C.2.

C. Penalties For Noncompliance. 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 misdemeanor. Any person who violates this ordinance or fails to comply with any of its requirements shall upon conviction thereof be fined not more than One Thousand and no/100 Dollars (\$1,000.00) or imprisoned for not more than ninety (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 Building Official from taking such other lawful action as is necessary to prevent or remedy any violation.

D. Abrogation and Greater Restrictions. 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.

E. 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.

F. Warning And Disclaimer of Liability. 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 humanmade 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. This ordinance shall not create liability on the part of the Building Official, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

G. Severability. If any section, clause, sentence, or phrase of this Chapter is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holding shall in no way affect the validity of the remaining portions of this Chapter.

### **16.70.040 Administration**

A. 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 OMC 16.70.030.B. The permit shall be for all structures including manufactured homes, as set forth in the "Definitions," and for all development including fill and other activities, also as set forth in the "Definitions."

2. Application for Development Permit. Application for a development permit shall be made on forms furnished by the City of Olympia 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 recorded on a current elevation certificate (FEMA Form 81-31) with Section B completed by the local official;

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 floodproofing criteria in OMC 16.70.050.B.2; and

d. Description of the extent to which a watercourse will be altered or relocated as a result of proposed development;

e. Where a structure is proposed in a V, V1-30, or VE zone, a V-zone design certificate;

f. Where development is proposed in a floodway, an engineering analysis indicating no rise of the Base Flood Elevation; and

g. Any other such information that may be reasonably required by the Floodplain Administrator in order to review the application.

B. Designation of the Local Administrator. Building Official is hereby appointed to administer and implement this ordinance by granting or denying development permit applications in accordance with its provisions. ~~The Building Official may delegate this authority and these duties to one or more representatives.~~ The Floodplain Administrator may delegate authority to implement these provisions.

C. Duties and Responsibilities of the Local Administrator. Duties of the Building Official shall include, but not be limited to:

1. Permit Review

- a. Review all development permits to determine that the permit requirements of this ordinance 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.
- 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 OMC 16.70.050.E.1 are met.
- d. 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 (In A Zones)

When base flood elevation data has not been provided (in A Zones) in accordance with OMC 16.70.030.B, Basis for Establishing the Areas of Special Flood Hazard, the Building Official 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 OMC 16.70.050.B, Specific Standards, and OMC 16.70.050.E 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 OMC 16.70.040.C.2, obtain and record the actual (as-built) elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement. Recorded on a current elevation certificate (FEMA Form 81-31) with Section B completed by the local official.
- 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 OMC 16.70.040.C.2:
  - i. Obtain and record the elevation (in relation to mean sea level) to which the structure was floodproofed; and
  - ii. Maintain the floodproofing certifications required in OMC 16.70.040.C.3.b.
- c. Maintain for public inspection all records pertaining to the provisions of this ordinance.
- d. Documentation of the elevation of the bottom of the lowest horizontal structural member in V or VE zones.
- e. Certification required by OMC 16.70.050(E)(1).
- f. Records of all variance actions, including justification for their issuance.
- g. 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 Administration.

- 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 hazards (e.g. 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).
6. 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 small or irregularly shaped lot contiguous to and surrounded by lots with existing structures constructed below the base flood level. As the lot size increases the technical justification required for issuing the variance increases.
  - b. Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.
  - c. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
  - 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 local laws or ordinances.
  - e. Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from flood elevations should be quite rare.
  - f. 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 OMC 16.70.040.C.6.a, and otherwise complies with OMC 16.70.050.A.1, OMC 16.70.050.A.3 and OMC 16.70.050.A.4 of the General Standards.
  - g. Any applicant to whom a variance is granted shall be given written notice that the permitted structure will be built with its lowest floor below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk.

## 16.70.050 Provisions for Flood Hazard Reduction

A. General Standards. In all areas of special flood hazards, the following standards are required:

1. 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 homes shall 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. For more detailed information, refer to FEMA publication FEMA P-85, "Protecting Manufactured Homes from Floods and Other Hazards."

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.

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. Locating such equipment below the base flood elevation may cause annual flood insurance premiums to be increased.

3. Utilities

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

b. ~~Water wells shall be located on high ground that is not in the floodway\*.~~ Water wells shall not be located in the floodway. Where the site is subject to flooding, the top of the casing must be at least two feet above the estimated water level of a one hundred-year frequency flood.

c. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.

d. Onsite waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

4. Subdivision Proposals

a. All subdivision proposals shall be consistent with the need to minimize flood damage.

b. All subdivision proposals shall have public utilities and facilities, such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage.

c. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage.

d. Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or 5 acres (whichever is less). Base flood elevation data must be included as part of the application.

5. Review of Building Permits. Where elevation data is not available either through the Flood Insurance Study, FIRM, or from another authoritative source (OMC 16.70.040.C.2), applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two feet above the highest adjacent grade in these zones may result in higher insurance rates.

B. Specific Standards. In all areas of special flood hazards where base flood elevation data has been provided as set forth in OMC 16.70.030.B, Basis for Establishing the Areas of Special Flood Hazard, or OMC 16.70.040.C.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, nNew construction and substantial improvement of any residential structure ~~shall~~must have the lowest floor, including basement, elevated one foot or more\* above the base flood elevation (BFE). Mechanical equipment and utilities must be waterproof or elevated least one foot above the BFE.

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 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:

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.

iii. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

iiii. 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.

c. Additional requirements for below-grade crawlspace construction:

The interior grade of a crawlspace below the base flood elevation (BFE) must not be more than two-feet below the lowest adjacent exterior grade (LAG).

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.

The height limitation is the maximum allowable unsupported wall height according to the engineering analyses and building code requirements for flood hazard areas.

This limitation will also prevent these crawlspaces from being converted into habitable spaces.

There must be 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.

The velocity of floodwaters at the site should not exceed five-feet per second for any crawlspace. For velocities in excess of five-feet per second, other foundations should be used.

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.

Below grade crawlspace construction in accordance with the requirements listed above will not be considered basements.

d. New construction and substantial improvement of any residential structure in an AO zone must meet the requirements in Appendix A.

e. 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 must be reasonably safe from flooding, but in all cases the lowest floor must be at least two feet above the Highest Adjacent Grade.

f. New construction and substantial improvement of any residential structure in a V, V1-30, or VE zone must meet the requirements in Appendix B.

2. Nonresidential Construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure ~~shall either have the lowest floor, including basement, elevated one foot or more\* above the base flood elevation; or, together with attendant utility and sanitary facilities, shall~~ must meet the following requirements:

a. In AE and A1-30 zones or other A zoned areas where the BFE has been determined or can be reasonably obtained:

i. New construction and substantial improvement of any commercial, industrial, or other nonresidential structure must have either the lowest floor, including basement, elevated one foot or more above the base flood elevation. Mechanical equipment, sanitary and utilities must 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 must meet the requirements in Appendix A.

iii. If located in an Unnumbered A zone for which a BFE is not available and cannot be reasonably obtained, the structure must be reasonably safe from flooding, but in all cases the lowest floor must be at least two feet above the Highest Adjacent Grade.

iv. If located in a V, V1-30, or VE zone, the structure must meet the requirements in Appendix B.

v. Fully enclosed areas below the lowest flood that are subject to flooding must meet the requirements of 16.70.050(B)(1)(b).

b. If the requirements of subsection 1 are not met, then new construction and substantial improvement of any commercial, industrial, or other nonresidential structure must meet all of the following requirements:

- i. a.—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;
- ii. b.—Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
- iii. 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 subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in OMC 16.70.040.C.3.b; and
- iv. d.—Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described in OMC 16.70.050.B.1.b.

~~\*Applicants who are floodproofing nonresidential buildings should 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 significantly.~~

3. Manufactured Homes. All manufactured homes in the floodplain to be placed or substantially improved on sites shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one foot or more above<sup>±</sup> the base flood elevation and be 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; or
- b. Be fully licensed and ready for highway use, on wheels or jacking system, 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 OMC 16.70.050.B.3 above and the elevation and anchoring requirements for manufactured homes.

C. AE Zones with Base Flood Elevations but No Floodways. In areas with base flood elevations (but a regulatory floodway has not been designated), no new construction, substantial improvements, or other development (including fill) shall be permitted within Zone 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.

D. Coastal High Hazard Area and Coastal A Zone. Coastal high hazard areas (V or VE Zones) and coastal A Zones are located within the areas of special flood hazard established in section 3.2. These areas have special flood hazards associated with high velocity waters from tidal surges and hurricane

wave wash; therefore, the following provisions shall apply to building permits and related permits in Title 16:

1. Location of Structures

- a. All buildings or structures shall be located landward of the reach of the mean high tide.
- b. The placement of manufactured homes shall be prohibited, except in an existing manufactured home park or subdivision.

2. Construction Methods

- a. Elevation. All new construction and substantial improvements shall be elevated on piling or columns so that:

- i. The bottom of the lowest horizontal structural member of the lowest floor (excluding the piling or columns) is elevated to or above the base flood elevation plus one (1) foot or as required by ASCE/SEI 24-14, Table 4-1, whichever is more restrictive,

- and,

- ii. With all space below the lowest floor's supporting member open so as not to impede the flow of water, except for breakaway walls as provided for in OMC 16.70.050.D.2.d.

- b. Structural Support

- i. All new construction and substantial improvements shall be securely anchored on piling or columns.

- ii. The pile or column foundation and structure attached thereto shall be anchored to resist flotation, collapse or lateral movement due to the effects of wind and water loading values each of which shall have a one percent chance of being equaled or exceeded in any given year (100-year mean recurrence interval).

- iii. Prohibit the use of fill for structural support of buildings within Zones V1-30, VE, V, and Coastal A on the community's FIRM.

- c. Certification. Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in OMC 16.70.040.C.3.b.

- d. Space Below the Lowest Floor

- i. Any alteration, repair, reconstruction or improvement to a structure started after the enactment of this ordinance shall not enclose the space below the lowest floor unless breakaway walls, open wood lattice-work or insect screening are used as provided for in this section.

- ii. Breakaway walls, open wood lattice-work or insect screening shall be allowed below the base flood elevation provided that they are intended to collapse under wind and water loads without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Breakaway walls shall be designed for a safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading of 20 pounds per square foot (either by

design or when so required by local or State codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

(i) breakaway wall collapse shall result from a water load less than that which would occur during the base flood and,

(ii) the elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement or other structural damage due to the effects of wind and water load acting simultaneously on all building components (structural and non-structural). Water loading values used shall be those associated with the base flood. Wind loading values used shall be those required by applicable State or local building standards.

iii. If breakaway walls are utilized, such enclosed space shall be used solely for parking of vehicles, building access, or storage and not for human habitation.

iv. Prior to construction, plans for any breakaway wall must be submitted to the ~~Construction Code Official or Building Sub-Code Official~~ for approval.

E. Floodways. Located within areas of special flood hazard established in OMC 16.70.030.B are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters that can carry debris, and increase erosion potential, the following provisions apply:

1. Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels during the occurrence of the base flood discharge.

2. Construction or reconstruction of residential structures is prohibited within designated floodways\*, except for (i) repairs, reconstruction, or improvements to a structure which do not increase the ground floor area; and (ii) repairs, reconstruction or improvements to a structure, the cost of which does not exceed 50 percent of the market value of the structure either, (A) before the repair, or reconstruction is started, or (B) if the structure has been damaged, and is being restored, before the damage occurred. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or to structures identified as historic places, may be excluded in the 50 percent.

3. If OMC 16.70.050.E.1 is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of OMC 16.70.050, Provisions for Flood Hazard Reduction.

F. 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 above BFE 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 floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible.

G. Livestock Sanctuary Areas. Elevated areas for the purpose of creating a flood sanctuary for livestock are allowed on farm units where livestock is allowed. Livestock flood sanctuaries must be sized appropriately for the expected number of livestock and be elevated sufficiently to protect livestock. Proposals for livestock flood sanctuaries must meet all procedural and substantive requirements of this chapter.

H. 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 1 to 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. In addition to other provisions in this code, the following additional provisions also apply in AO zones.

1. New construction and substantial improvements of residential structures and manufactured homes within AO zones must have the lowest floor (including basement and mechanical equipment) elevated above the highest adjacent grade to the structure, one foot or more above the depth number specified in feet on the community's FIRM (at least two feet above the highest adjacent grade to the structure if no depth number is specified).
2. New construction and substantial improvements of nonresidential structures within AO zones must 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 must be certified by a registered professional engineer, or architect.
3. Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.
4. Recreational vehicles placed on sites within AO zones on the community's FIRM either:
  - a. Be on the site for fewer than 180 consecutive days;
  - 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 requirements of subsections (1) and (3) above and the anchoring requirements for manufactured homes (OMC 16.70.050(A)(1)(b)).

I. Standards for Coastal High Hazard Areas (V Zones). Located within areas of special flood hazard established as Coastal High Hazard Areas, designated as zones V1-30, VE, and/or V. These areas have special flood hazards associated with high velocity waters from surges and, therefore, in addition to meeting all provisions in this ordinance, the following provisions also apply:

1. All new construction and substantial improvements in zones V1-30 and VE (V if base flood elevation data is available) on the community's FIRM must be elevated on pilings and columns so that:

a. Elevation:

i. Residential Buildings. The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated one foot or more above the base flood level;

ii. Nonresidential buildings. The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated one foot or more above the base flood level or meets the elevation requirements of ASCE 24, whichever is higher; and

iii. The pile or column foundation and structure attached thereto is anchored to resist flotation, collapse, and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values must each have a one percent chance of being equaled or exceeded in any given year (100-year mean recurrence interval).

A registered professional engineer or architect must develop or review the structural design, specifications, and plans for the construction, and must certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions of subsections (1)(a)(i) and (2)(a)(ii).

2. The elevation (in relation to mean sea level) of the bottom of the lowest structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in zones V1-30, VE, and V on the community's FIRM and whether or not such structures contain a basement, must be provided to the Floodplain Administrator, who shall maintain a record of all such information.

3. All new construction within zones V1-30, VE, and V on the community's FIRM must be located landward of the reach of mean high tide.

4. All new construction and substantial improvements within zones V1-30, VE, and V on the community's FIRM must have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. For the purposes of this section, a breakaway wall must have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local or state codes) may be permitted only if a registered professional engineer or architect certifies that the design proposed meets the following conditions:

a. Breakaway wall collapse must result from water load less than that which would occur during the base flood; and

b. The elevated portion of the building and supporting foundation system must not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and non-structural). Maximum wind and water loading values to be used in this determination must each have a one percent chance of being equaled or exceeded in any given year (100-year mean recurrence interval).

If breakaway walls are utilized, such enclosed space must be useable solely for parking of vehicles, building access, or storage. Such space may not be used for human habitation.

5. The use of fill for structural support of buildings within zones V1-30, VE, and V on the community's FIRM is prohibited.
6. Man-made alteration of sand dunes within zones V1-30, VE, and V on the community's FIRM which would increase potential flood damage is prohibited.
7. All manufactured homes to be placed or substantially improved within zones V1-30, V, and VE on the community's FIRM on sites:
  - a. Outside of a manufactured home park or subdivision;
  - b. In a new manufactured home park or subdivision;
  - c. In an expansion to an existing manufactured home park or subdivision; or
  - d. In an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood;

must meet the standards of paragraphs (1) through (6) of this section and manufactured homes placed or substantially improved on other sites in an existing manufactured home park or subdivision within zones V1-30, V, and VE on the FIRM must meet the requirements of OMC 16.70.050(B)(3).

8. Recreational vehicles placed on sites within V or VE zones on the community's FIRM must either:
  - a. Be on the site for fewer than 180 consecutive days;
  - b. Be fully licensed and ready for highway use, on its wheels or jacking system, 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 subsections (1) and (3) above and the anchoring requirements for manufactured homes, OMC 16.70.050(A)(1)(b).

**Section 2. Corrections.** The City Clerk and codifiers of this Ordinance are authorized to make necessary corrections to this Ordinance, including the correction of scrivener/clerical errors, references, ordinance numbering, section/subsection numbers and any references thereto.

**Section 3. Severability.** If any provision of this Ordinance or its application to any person or circumstance is held invalid, the remainder of the Ordinance or application of the provisions to other persons or circumstances shall remain unaffected.

**Section 4. Ratification.** Any act consistent with the authority and prior to the effective date of this Ordinance is hereby ratified and affirmed.

**Section 5.** This Ordinance is for the preservation of public peace, health, safety, and welfare and takes immediate effect upon adoption, as provided by law.

\_\_\_\_\_  
MAYOR

**ATTEST:**

\_\_\_\_\_  
CITY CLERK

**APPROVED AS TO FORM:**

*Michael M. Young*  
\_\_\_\_\_  
DEPUTY CITY ATTORNEY

**PASSED:**

**APPROVED:**

**PUBLISHED:**