Secs. 14-74—14-104. Reserved.

ARTICLE IV. PROVISIONS FOR FLOOD HAZARD REDUCTION

Sec. 14-105. General standards for all zones.

In all areas of special flood hazard, the following provisions are required:

(1) New construction and substantial improvements shall be anchored to prevent flotation, collapse and lateral movement of the structure.

(2) Manufactured homes shall be anchored to prevent flotation, collapse, and lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. Dry stacked blocks (stacked without the use of mortar or cement to bond them together) are not to be used as an anchor/elevation method. This standard shall be in addition to and consistent with applicable state requirements for resisting wind forces.

(3) New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(4) New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.

(5) Electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding, such facilities shall be located ~~at or~~ a minimum of 12 inches above the base flood elevation.

(6) New and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.

(7) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters.

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

(9) Any alteration, repair, reconstruction or improvements to a building that is in compliance with the provisions of this chapter shall meet the requirements of new construction as contained in this chapter.

(10) Any alteration, repair, reconstruction or improvements to a building that is not in compliance with the provisions of this chapter shall be undertaken only if said nonconformity shall meet the requirements of new construction as contained in this chapter.

(11) All gas and liquid storage tanks (both above and below ground) shall be adequately anchored to prevent floatation, lateral movement resulting from hydrodynamic forces, and the effects of buoyancy.

(12) When new construction and substantial improvements are located in multiple flood zones or in a flood zone with multiple base flood elevations, they shall meet the requirement for the more stringent flood zone and the highest base flood elevation.

(13) New construction and substantial improvement of any building (both in and outside the SFHA) shall have the lowest floor (including basement) at least one foot above the centerline of the designated floodplain administrator.

(14) All new horizontal additions must have the lowest floor and all HVAC elevated to the regulatory base flood elevation.

(15) New construction and substantial improvements of structures built on fill (only allowed outside of the CHHA and Coastal AE Zone) shall be constructed on properly designed and compacted fill that extends ten feet to 15 feet beyond the building walls before dropping below the base flood elevation, and shall have appropriate protection from erosion and scour as follows:

a. Fill sites, upon which structures will be constructed or placed, must be compacted to 95 percent of the maximum density obtainable with the standard Proctor test method or an acceptable equivalent method.

b. Fill slopes shall be no steeper than one foot vertical to two feet horizontal.

c. Adequate protection against erosion must be provided for fill slopes. When expected velocities during the occurrence of the base flood are greater than five feet per second, armoring with stone or rock protection or material that will provide equivalent resistance will be provided. When expected velocities during the base flood are five feet per second or more, appropriate protection shall be provided by covering them with vegetative cover at a minimum.

d. Fill shall be composed of clean granular or earthen material.

(16) Storage or processing of materials that are hazardous, flammable, explosive, or in time of flooding could become buoyant and pose an obstruction to flow, are prohibited within the community special flood hazard areas, to include identified floodways. Storage of material or equipment not otherwise prohibited shall be firmly anchored to prevent flotation.

(Ord. No. 2012-006, art. 5, § A, 5-7-2012; Res. No. 2020-042 , 8-4-2020; Res. No. 2021-031 , 6-1-2021)

Sec. 14-106. Specific standards for riverine zones.

In all areas of special flood hazard designated on the city's FIRM, where base flood elevation data have been provided (excluding CHHA and Coastal AE Zone), as set forth in section 14-32, the following provisions, in addition to the standards of section 14-105, are required:

(1) Residential construction. New construction and substantial improvement of any residential building (including manufactured homes) shall have the lowest floor, including basement, elevated ~~at or~~ to no lower than 12 inches above the base flood elevation. Should solid foundation perimeter walls be used to elevate a structure, flood openings sufficient to automatically equalize hydrostatic flood forces on exterior walls of enclosures that are subject to flooding shall be provided in accordance with standards of subsection (4) of this section. New development proposals will be designed, to the maximum extent practicable, so residential building sites, walkways, driveways, and roadways are located at natural grade with elevation not less than the base flood elevation and with evacuation routes leading directly out of the special flood hazard area.

(2) Nonresidential construction. New construction and substantial improvement of any commercial, industrial, or nonresidential building (including manufactured buildings) shall have the lowest floor, including basement, elevated ~~at or~~ to no lower than 12 inches above the base flood elevation. Buildings located in all A zones may, together with attendant utility and sanitary facilities, be floodproofed in lieu of being elevated, provided that all areas of the building below the base flood elevation plus a minimum of 12 inches of freeboard are watertight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. Dry floodproofing is allowed only where flood velocities are less than or equal to five feet per second. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. A flood emergency operation plan and

an inspection and maintenance plan must be provided by the design professional for the building. Such certification shall be provided to the floodplain administrator. New development proposals will be designed, to the maximum extent practicable, so nonresidential building sites, walkways, driveways, and roadways are located at natural grade with elevation not less than the base flood elevation and with evacuation routes leading directly out of the special flood hazard area.

(3) In special flood hazard areas with base flood elevations (AE zones) but without floodways, no encroachments, including fill material or structures, shall be permitted unless certification by a registered professional engineer is provided demonstrating 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. The engineering certification must be supported by technical data that conforms to standard hydraulic engineering principles.

(4) Enclosures. New construction and substantial improvements that include fully enclosed areas formed by foundation and other exterior walls below the lowest floor shall be designed to preclude finished living space and designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls. Total enclosed areas will be limited to 299 square feet. Enclosed areas, including crawl spaces, shall be used solely for parking of vehicles, building access, and storage.

a. Designs for complying with this requirement must either be certified by a professional engineer or architect or meet or exceed the following criteria:

1. Provide a minimum of two openings, on different sides of each enclosed area; if a structure has more than one enclosed area below the base flood elevation, each shall have openings on exterior walls;

2. The total net area of all openings shall be at least one square inch for each square foot of enclosed area, or the openings shall be designed and the construction documents shall include a statement that the design and installation will provide for equalization of hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwaters;

3. The bottom of all openings shall be no higher than one foot above interior grade (which must be equal to in elevation or higher than the exterior grade);

4. Openings shall allow the passage of a three-inch sphere;

5. Openings may be equipped with screens, louvers, valves or other coverings or devices, provided they permit the automatic flow of floodwaters in both directions and automatically equalize hydrostatic flood loads on exterior walls; and

b. Access to the enclosed area shall be minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment used in connection with the premises (standard exterior door) or entry to the living area (stairway or elevator);

c. The interior portion of such enclosed area shall not be finished or partitioned into separate rooms; and

d. Property owners shall be required to execute a flood openings/venting affidavit acknowledging that all openings will be maintained as flood vents, and that the elimination or alteration of the openings in any way will violate the requirements of this section. Periodic inspections will be conducted by the floodplain administrator to ensure compliance.

(5) Detached storage buildings, sheds, or other like accessory improvements, excluding detached garages, carports, and boat houses, shall solely be used for parking of vehicles and storage, and will be allowed

up to no more than 299 square feet of unfinished, non-partitioned and enclosed storage space. Such storage space shall not be used for human habitation and shall be limited to storage of items that can withstand exposure to the elements and have low flood damage potential. The storage space shall be constructed of flood resistant or breakaway materials, and equipment and service utilities, such as electrical outlets, shall be limited to essential lighting and other incidental uses, and must be elevated or floodproofed. Flood openings in accordance with the standards of section 14-106(4) shall also be required. These accessory structures shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters. Accessory improvements and other appurtenant structures shall be firmly anchored to prevent flotation that may result in damage to other structures.

(6) Property owners shall be required to execute and record with the structure's deed a non-conversion agreement declaring that the area below the lowest floor of the structure or the detached accessory building shall not be improved, finished or otherwise converted; the community will have the right to inspect the enclosed area.

(7) Standards for manufactured homes and recreational vehicles.

a. All manufactured homes placed, or substantially improved, on individual lots or parcels, in existing manufactured home parks or subdivisions, in expansions to existing manufactured home parks or subdivisions, in new manufactured home parks or subdivisions or in substantially improved manufactured home parks or subdivisions, must meet all the requirements for new construction, including elevation and anchoring and the flood openings requirements of subsection (4) of this section. Manufactured homes must be:

1. Elevated on a permanent foundation to have its lowest floor elevated ~~at or~~ to no lower than 12 inches above the base flood elevation; and

2. Securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

~~b. All manufactured homes placed or substantially improved, excepting manufactured homes that have incurred substantial damage as a result of a flood, in an existing manufactured home park or subdivision must be elevated so that:~~

~~1. The lowest floor of the manufactured home is elevated at or to no lower than 12 inches above the base flood elevation and be securely anchored to an adequately anchored foundation support system to resist floatation, collapse, and lateral movement; or~~

~~2. The manufactured home chassis is supported by reinforced piers or other foundation elements of at least an equivalent strength, of no less than 36 inches in height above the highest adjacent grade and adequately anchored foundation support system to resist floatation, collapse, and lateral movement.~~

b. All recreational vehicles placed on sites must either:

1. Be on site for fewer than 60 consecutive days and shall leave the site for at least seven consecutive days and obtain a new permit before returning to the same site;

2. Be fully licensed and ready for highway use; or

3. Must meet all the requirements for new construction, including anchoring and elevation requirements of subsection (7)a or b.1 of this section.

A recreational vehicle is ready for highway use if it is licensed and insured in accordance with the state motor vehicle regulations, is 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.

(8) Floodways. Located within areas of special flood hazard adopted by reference in section 14-32 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles and has erosion potential, the following provisions shall apply:

a. Prohibit encroachments, including fill, new construction, substantial improvements, and other developments unless certification (with supporting technical data) by a registered professional engineer is provided demonstrating that encroachments shall not result in any increase in flood levels during occurrence of the base flood discharge;

b. If subsection (8)a of this section is satisfied, all new construction and substantial improvements shall comply with all applicable flood damage prevention standards of this article.

c. Prohibit the placement of manufactured homes (mobile homes), except in an existing manufactured home (mobile home) park or subdivision. A replacement manufactured home may be placed on a lot in an existing manufactured home park or subdivision provided the anchoring standards of section 14-105(2), and the standards of subsections (1) through (3) of this section and the encroachment standards of subsection (8)a of this section are met.

(Ord. No. 2012-006, art. 5, § B, 5-7-2012; Res. No. 2020-042 , 8-4-2020; Res. No. 2021-031 , 6-1-2021)

Sec. 14-107. Standards for streams without base flood elevations and floodways.

When base flood elevation data and floodway data are not available in accordance with section 14-32, in special flood hazard areas and community flood hazard areas without base flood elevation data, new construction and substantial improvements shall be elevated or floodproofed to elevations established by the community. The following provisions in addition to the standards of section 14-105 and the enclosure standards of section 14-106(4) shall apply:

(1) Require that all new subdivision proposals and other proposed developments (including proposals for manufactured home parks and subdivisions) greater than five lots or five acres, whichever is lesser; include within such proposals base flood elevation data;

(2) The floodplain administrator 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 the provisions of this article. When such data is available, standards of section 14-106(4) shall apply. If data is not available from subsection (1) of this section or outside sources, then the following provisions shall apply:

a. No encroachments, including fill material or other development, shall be located within a distance of the stream bank equal to five times the width of the stream at the top of the bank or 20 feet each side from the top of the bank, whichever is greater, unless certification by a registered professional engineer is provided demonstrating that such encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge. The enclosure standards of section 14-106(4) shall apply.

b. The floodplain administrator shall require that a single lot applicant develop the base flood elevation for the development site, utilizing accepted engineering practices and procedures. Upon review of the submitted data, the administrator may accept or reject the proposed base flood elevation. When such data is accepted, standards of section 14-106 shall apply.

(3) Fill within the area of special flood hazard shall result in no net loss of natural floodplain storage. The volume of loss of floodwater storage due to filling in the special flood hazard area shall be offset by providing an equal volume of flood storage by excavation or other compensatory measures at or adjacent to the development site.

(4) The floodplain administrator shall notify, in riverine situations, adjacent communities and the state coordinating office prior to any alteration or relocation of a watercourse, and submit copies of such notifications to FEMA. Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.

(5) The floodplain administrator shall require that all manufactured homes be placed or installed using methods and practices which minimize flood damage. Manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Dry stacked blocks (stacked without the use of mortar or cement to bond them together) are not allowed within the special flood hazard area.

(Ord. No. 2012-006, art. 5, § C, 5-7-2012)

Sec. 14-108. Standards for accessory buildings in all VE zones.

For all accessory buildings in SFHA designated ~~"VE,"~~ Coastal AE and VE Zones, all requirements stated in section ~~14-111~~ 14-110 will apply.

(Ord. No. 2012-006, art. 5, § D, 5-7-2012)

Sec. 14-109. Standards for subdivision proposals and other proposed development.

The following are standards for subdivision proposals and other proposed development:

(1) All subdivision proposals shall be consistent with the need to minimize flood damage.

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

(3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards.

(4) Base flood elevation data shall be provided for all new subdivision proposals and other proposed development (including manufactured home parks and subdivisions), which is greater than five lots or five acres, whichever is the lesser.

(5) All subdivision and other development proposals which involve disturbing more than 1,000 square feet of land shall include a stormwater management plan which is designed to limit peak runoff from the site to predevelopment levels for the one-, ten-, and 100-year rainfall event. These plans shall be designed to limit adverse impacts to downstream channels and floodplains. Single residential lots involving less than one acre of land disturbance are not subject to this regulation.

(6) All preliminary plans for platted subdivisions shall identify the flood hazard area and the elevation of the base flood.

(7) All final subdivision plats will provide the boundary of the special flood hazard area, the floodway boundary, and the base flood elevations.

(8) In platted subdivisions, all proposed lots or parcels that will be future building sites shall have a minimum buildable area outside the natural (non-filled) one-percent chance annual floodplain. The buildable area shall be large enough to accommodate any primary structure and associated structures such as sheds, barns, swimming pools, detached garages, on-site sewage disposal systems, and water supply wells, where applicable.

(9) Where only a small portion of the subdivision lot or lots is in an A zone special flood hazard area inundated by one percent chance flood with no base flood elevations determined and there is sufficient ground slope on the site to avoid possible flooding of structures in X zones (unshaded)

determined to be outside 0.2 chance flood floodplain. The floodplain administrator may waive the requirement for a study to determine the base flood elevations.

(10) In order for the floodplain administrator to consider waiving the requirement of section 14-110(4), the applicant must provide an accurate topographic data and map for the lot in question (certified by a licensed land surveyor and/or professional civil engineer) indicating that each lot in a new subdivision is on natural high ground, out of the regulatory floodplain.

(11) Each proposed parcel must have a designated buildable pad or site above the one percent chance floodplain. The distance of the buildable pad or site above the one percent chance floodplain shall depend on the slope of the ground and in accordance with the following table:

Distance in Feet from Zone A 100-Year Floodplain	*Minimum Slope from Zone A—100-Year Floodplain to Ground Level at Pad*
20	5%
30	3.33%
40	2.50%
50	2.00%
60	1.67%
70	1.43%
80	1.25%
90	1.11%
100	1.00%

Residential and nonresidential structures lowest floor elevation also must be elevated 1½ feet above the ground level on the buildable pad or site.

(12) The subdivider/applicant must comply with the following:

a. File restrictive covenants on the lot or lots prohibiting construction within the designated special flood hazard area and requirement for lowest floor elevation.

b. Place a statement on the face of the final plat prohibiting construction in the designated area of special flood hazard.

(Ord. No. 2012-006, art. 5, § E, 5-7-2012)

Sec. 14-110. Coastal high hazard areas.

Located within areas of special flood hazard areas established in section 14-32 are coastal high hazard areas, designated as Coastal AE zones and VE zones. These areas have special flood hazards associated with high velocity waters from wave action due to hurricanes, tsunamis, or other seismic sources. The following provisions, in addition to the standards of sections 14-105, 14-106 (except 14-106(8)), 14-107, and 14-108, shall also apply:

(1) All new construction and substantial improvements in Coastal AE zones and VE zones shall be elevated on pilings and columns so that:

a. The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is ~~at or~~ elevated to no lower than 12 inches above the base flood level; and

b. 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. Water loading values used shall be those associated with the base flood. Wind loading values used shall be those requirements by state or local building codes.

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

(3) In Coastal AE Zones and VE Zones, property owners shall be required to execute and record with the structre's deed a flood openings/venting affidavit acknowledging that all openings in breakaway walls will be maintained as flood vents, and that the elimination or alteration of the openings in any way will violate the requirements of Article 5, Section B. The community will have the right to inspect the openings/vents.

(4) Property owners shall be required to execute and record with the structure's deed a non-conversion agreement declaring that the area below the lowest floor of the structure or the detached accessory building shall not be improved, finished or otherwise converted. The community will have the right to inspect the enclosed area.

(5) Obtain 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 Coastal AE and VE zones. The floodplain administrator shall maintain a record of all such information.

(6) All new construction shall be located landward of the reach of mean high tide.

(7) All new construction and substantial improvements in Coastal AE and VE zones shall have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood latticework, 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 purpose of this section, a breakaway wall shall have a design safe loading resistance of not less than ten and no more than 20 pounds per square foot. Breakaway wall enclosures shall not exceed 299 square feet. 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 codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

   a. Breakaway wall collapse shall 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 shall 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 nonstructural). Water loading values used shall be those associated with the base flood. Wind loading values used shall be those requirements by state or local building codes. The lowest horizontal structural member should be oriented perpendicular to the expected wave crest.

(8) If breakaway walls are utilized, such enclosed space shall be useable solely for storage, parking of vehicles, or building access. Such space shall not be used for human habitation and finished or partitioned into separate rooms.

(9) Prohibit the use of fill for structural support of buildings. Under the buildings or structures, no fill may be used except for minor site grading for drainage purposes. Nonstructural fill may be used on coastal building sites for minor landscaping and site grading for drainage purposes as long as the fill does not interfere with the free passage of floodwaters and debris underneath the building or cause changes in flow direction during coastal storms such that will cause additional damage to buildings on the site or to any adjacent buildings. Certification by a professional engineer or architect shall be submitted along with design calculations demonstrating that no adverse impacts will result. (For guidance, see FEMA Technical Bulletin #5 Free of Obstruction Requirements.) An example of unacceptable placement of fill would be construction of a small berm or retaining wall that is backfilled and used for landscaping

purposes when it has been determined that wave ramping or deflection will adversely affect adjacent buildings and thereby create additional flood damage potential.

(10) Prohibit manmade alteration of sand dunes that would increase potential flood damage.

(11) All manufactured homes to be placed or substantially improved within Coastal AE zones and VE zones on the city'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;

shall meet the standards of subsections (1) through (8) of this section and that manufactured homes placed or substantially improved on other sites in an existing manufactured home park or subdivision with VE zones on the FIRM meet the requirements of section 14-106(8)a and b.

(12) All new structures shall be located on the lot so as to minimize exposure to coastal hazards and shoreline erosion. Structures shall be located outside the coastal high hazard area, to the greatest extent possible.

(13) Recreational vehicles placed on sites within Coastal AE and VE zones on the community's FIRM either:

a. Be on site for fewer than 60 consecutive days and shall leave the site for at least seven consecutive days and obtain a new permit before returning to the same site;

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) through (8) of this section.

(Ord. No. 2012-006, art. 5, § F, 5-7-2012; Res. No. 2020-042 , 8-4-2020; Res. No. 2021-031 , 6-1-2021)

Sec. 14-111. Critical facilities.

Construction of new and substantially improved critical facilities shall be located outside the limits of the special flood hazard area (one percent chance floodplain). Construction of new critical facilities shall be permissible within the SFHA only if no feasible alternative site is available and access to the facilities remains available during a 0.2 percent chance flood. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet, six inches above the base flood elevation at the site (or to the 0.2 percent chance flood elevation, whichever is greater). Floodproofing and sealing measures must be implemented to ensure that toxic substances will not be displaced by or released into floodwaters. Multiple access routes, elevated to or above the 0.2 percent flood elevation, shall be provided to all critical facilities to the maximum extent possible. Critical facilities must not only