

CHAPTER **ARTICLE** **8: FLOODPLAIN REGULATIONS**

8.01 Purpose and Definitions

8.01.1 General purpose.

- A. It is the purpose of this Article to meet or exceed the minimum standards for floodplain regulations in accordance with the Federal Emergency Management Agency (FEMA) 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, streets and bridges located in floodplains;
 6. Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and
 7. Ensure that potential buyers are notified that property is in a flood area.

8.01.2 Applicability

- A. The Legislature of the State of Colorado has, in Title 29, Article 20 of the Colorado Revised Statutes delegated the responsibility to local governments to adopt regulations designed to minimize flood loss.
- B. Applicability. This Section shall apply to all areas of special flood hazard and areas removed from the flood plain by the issuance of a FEMA Letter of Map Revision Based on Fill (LOMR-F) within the jurisdiction of the Town.

8.01.3 Methods of reducing flood losses.

- A. In order to accomplish its purposes, this Article uses the following methods:
1. Restricting or prohibiting uses which are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities;
 2. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
 3. Controlling the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters;

4. Controlling filling, grading, dredging and other development which may increase flood damage; and
5. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.

8.01.4 Definitions.

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

Alluvial fan flooding means flooding occurring on the surface of an alluvial fan or similar landform which originates at the apex and is characterized by high-velocity flows; active processes of erosion, sediment transport and deposition; and unpredictable flow paths.

Apex means a point on an alluvial fan or similar landform below which the flow path of the major stream that formed the fan becomes unpredictable and alluvial fan flooding can occur.

Area of shallow flooding means a designated AO ~~or AH or VO~~ zone on the community's Flood Insurance Rate Map (FIRM) with a one-percent chance or greater annual chance of flooding to an average depth of one (1) to three (3) feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

Area of special flood hazard means the land in the floodplain within the community subject to a one-percent or greater chance of flooding in any given year. The area may be designated as Zone A on the Flood Hazard Boundary Map (FHBM). After detailed ratemaking has been completed in preparation for publication of the FIRM, Zone A usually is refined into Zones A, AE, AH, AO, A1-99, ~~VO, V1-30, VE or V.~~

Base flood means the flood having a one-percent chance of being equaled or exceeded in any given year.

Basement means any area of the building having its floor sub-grade (below ground level) on all sides.

Critical feature means an integral and readily identifiable part of a flood protection system, without which the flood protection provided by the entire system would be compromised.

Development means any ~~man~~human-made change in improved and 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.

Elevated building means a non-basement building: (i) built, in the case of a building in Zones A, AE, AH, AO, A1-30, A99, B, C, D and X, to have the top of the elevated floor or, in the case of a building in Zones V1-30, VE or V, to have the bottom of the lowest horizontal structure member of the elevated floor elevated above the ground level by means of pilings, columns (posts and piers), or shear walls parallel to the floor

of the water; and (ii) adequately anchored so as not to impair the structural integrity of the building during a flood of up to the magnitude of the base flood. In the case of Zones A, AE, AH, AO, A1-30, A99, B, C, D and X, elevated building also includes a building elevated by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of floodwaters. In the case of Zones V1-30, VE or V, elevated building also includes a building otherwise meeting the definition of elevated building, even though the lower area is enclosed by means of breakaway walls if the breakaway walls met the standards of Section 60.3(e)(5) of the National Flood Insurance Program regulations.

Existing construction means, for the purposes of determining rates, structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975, for FIRMs effective before that date. Existing construction may also be referred to as existing structures.

Existing manufactured home park or subdivision means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.

Expansion to an existing manufactured home park or subdivision means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads).

Flood or flooding means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- ~~a. The overflow of inland or tidal waters, and/or~~
- a. The overflow of water from channels and reservoir spillways;
- b. The unusual and rapid accumulation or runoff of surface waters from any source, and/or
- c. Mudslides or mudflows that occur from excess surface water that is combined with mud or other debris that is sufficiently fluid so as to flow over the surface of normally dry land areas (such as earth carried by a current of water and deposited along the path of the current).

Flood Insurance Rate Map or FIRM means an official map of the community on which the Federal Emergency Management Agency has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

Flood insurance study means the official report provided by the Federal Emergency Management Agency. The report contains flood profiles and water surface elevation of the base flood, as well as the Flood Boundary-Floodway Map.

Floodplain or flood-prone area means any land area susceptible to being inundated by water from any source (see definition of flooding).

Flood protection system means those physical structural works for which funds have been authorized, appropriated and expended and which have been constructed specifically to modify flooding in order to reduce the extent of the areas within a community subject to a special flood hazard and the extent of the depths of associated flooding. Such a system typically includes ~~hurricane tidal barriers~~, dams, reservoirs, levees or dikes. These specialized flood modifying works are those constructed in conformance with sound engineering standards.

Floodplain management means the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

Floodplain management regulations means this Chapter, Chapter [4715](#) of this Code, building codes, health regulations, special purpose ordinances (such as a floodplain ordinance, grading ordinance and erosion control ordinance) and other applications of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.

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

Floodway (regulatory floodway)- ~~means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. The Colorado statewide standard for the designated height to be used for all newly studied reaches shall be one-half foot (six inches). Letters of Map Revision to existing floodway delineations may continue to use the floodway criteria in place at the time of the existing floodway delineation.~~ ~~means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.~~

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, but does not include long-term storage or related manufacturing facilities.

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

Historic structure means any structure that is:

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

Levee means a ~~man~~human-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control or divert the flow of water ~~so as~~ to provide protection from temporary flooding. For a levee structure to be reflected on the FEMA FIRMs as providing flood protection, the levee structure must meet the requirements set forth in 44 CFR 65.10.

Levee system means a flood protection system which consists of a levee or levees and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices.

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 requirement of Section 60.3 of the National Flood Insurance Program regulations.

Manufactured home means a structure, transportable in one (1) or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. The term manufactured home does not include a recreational vehicle.

Manufactured home park or subdivision means a parcel (or contiguous parcels) of land divided into two (2) or more manufactured home lots for rent or sale.

Mean sea level means, for purposes of the National Flood Insurance Program, the ~~National Geodetic Vertical Datum (NGVD) of 1929 or other datum~~ North American Vertical Datum (NAVD) of 1988 or other Datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

New construction means, for the purpose of determining insurance rates, structures for which the start of construction commenced on or after the effective date of an initial FIRM 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 the community and includes any subsequent improvements to such structures.

New manufactured home park or subdivision means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by the community.

No-rise certification means record of the results of an engineering analysis conducted to determine whether a project will increase flood heights in a floodway. A No-Rise Certification must be supported by technical data and signed by a registered Colorado Professional Engineer. The supporting technical data should be based on the standard step-backwater computer model used to develop the 100-year floodway shown on the Flood Insurance Rate Map (FIRM) or Flood Boundary and Floodway Map (FBFM).

Recreational vehicle means a vehicle which is:

- a. Built on a single chassis;
- b. Four hundred (400) square feet or less when measured at the largest horizontal projections;
- c. Designed to be self-propelled or permanently towable by a light-duty truck; and
- d. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel or seasonal use.

Start of construction (for other than new construction or substantial improvements under the Coastal Barrier Resources Act [Pub. L. 97-348]) includes substantial improvement and means the date the building permit was issued, provided that the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement was within one hundred eighty (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.

~~Structural-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 fifty percent (50%) of the market value of the structure before the damage occurred.

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

Substantial improvement means any reconstruction, rehabilitation, addition or other improvement of a structure, the cost of which equals or exceeds fifty percent (50%) of the market value of the structure before start of construction of the improvement. This includes structures which have incurred substantial damage, regardless of the actual repair work performed. The term does not, however, include either:

- a. 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 Code Enforcement Officer and which are the minimum necessary conditions; or
- b. Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure.

Variance means a grant of relief to a person from the requirements of this Article when specific enforcement would result in unnecessary hardship. A variance, therefore, permits construction or development in a manner otherwise prohibited by this Article. (For full requirements, see Section 60.6 of the National Flood Insurance Program regulations.)

Violation means the failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications or other evidence of compliance required in Section 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4) or (e)(5) of the National Flood Insurance Program regulations is presumed to be in violation until such time as that documentation is provided.

Water surface elevation means the height, in relation to the ~~National Geodetic Vertical Datum (NGVD)~~North American Vertical Datum (NAVD) oof 1988-of 1929 (or other datum, where specified), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

8.02 General Provisions

8.02.1 Basis for establishing areas of special flood hazard.

The areas of special flood hazard established by the Federal Emergency Management Agency in a scientific and engineering report entitled "The Flood Insurance Study for Larimer County, Colorado, and Incorporated Areas," dated February 6, 2013, with accompanying Flood Insurance Rate Maps and Flood Boundary-Floodway Maps (FIRM and FBFM), and any revisions thereto, are hereby adopted by reference and declared to be a part of this Article. The Flood Study and FIRM is on file at the Town Hall.

8.02.2 Compliance.

No structure or land shall hereafter be constructed, located, extended, converted or altered without full compliance with the terms of this Article and other applicable regulations.

8.02.3 Sec. 16-10-140. - Abrogation and greater restrictions.

This Article is not intended to repeal, abrogate or impair any existing easements, covenants or deed restrictions. However, where this Article and another Code provision, easement, covenant or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

8.02.4 Interpretation.

A. In the interpretation and application of this Article, all provisions shall be:

1. Considered as minimum requirements;
2. Liberally construed in favor of the Town; and
3. Deemed neither to limit nor repeal any other powers granted under state statutes.

8.02.5 Warning and disclaimer of liability.

The degree of flood protection required by this Article is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. On rare occasions, greater floods can and will occur and flood heights may be increased by man-made or natural causes. This Article does not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages. This Article shall not create liability on the part of the Town, any officer or employee thereof for any flood damages that result from reliance on this Article or any administrative decision lawfully made thereunder.

8.03 Administration

8.03.1 Floodplain Development Permit

A floodplain development permit shall be required to ensure conformance with the provisions of this Article.

8.03.2 Designation of Town official for administration.

The Town ~~Planning Director~~town Administrator or theirhis/her designee is hereby appointed to administer and implement this ~~Chapter~~Article by granting or denying development permit applications in

accordance with its provisions and other appropriate sections of 44 C.F.R. (National Flood Insurance Program Regulations) pertaining to floodplain management.

8.03.3 Duties and responsibilities of Floodplain Administrator.

A. Duties and responsibilities of the Floodplain Administrator shall include, but not be limited to, the following:

1. Maintain and hold open for public inspection all records pertaining to the provisions of this Article.
2. Review, approve, or deny all required floodplain development permit applications to determine whether the proposed building site, including the placement of manufactured homes, will be reasonably safe from flooding.
3. Review proposed development applications to assure that all necessary permits have been obtained from those federal state or local governmental agencies (including Section 404 of the Federal Water Pollution Control Act amendments of 1972, 33 U.S.C. § 1334) from which prior approval is required.
4. Where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), make the necessary interpretation.
5. Notify, in riverine situations, adjacent communities and the Colorado Water Conservation Board, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.
6. Assure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained.
7. When base flood elevation has not been provided in accordance with Section ~~16-10-1208.02.1~~ of this Article, obtain, review and reasonably utilize any base flood elevation data and floodway data available from a federal, state or other source, in order to administer the provisions of this ~~Chapter~~Article.
8. When a regulatory floodway has not been designated, require that no new construction, substantial improvements or other development, including fill, shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one-half (½) foot at any point within the community.

8.03.4 Permit procedures.

A. The ~~Town Clerk~~Floodplain Administrator shall accept applications on forms including but not limited to the following information: plans in duplicate drawn to scale showing the location, dimensions and elevation of proposed landscape alterations, existing and proposed structures, including the

placement of manufactured homes and the location of the foregoing in relation to areas of special flood hazard. Additionally, the following information is required:

1. Elevation (in relation to mean sea level) of the lowest floor (including basement) of all new and substantially improved structures;
 2. Elevation in relation to mean sea level to which any nonresidential structure shall be floodproofed;
 3. A certificate from a ~~registered Colorado~~ Professional Engineer or Architect that the nonresidential floodproofed structure shall meet the floodproofing criteria of Section ~~16-10-120~~ 18.04.02 ~~above~~;
 4. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.
- B. Approval or denial of a development permit by the Town shall be based on all of the provisions of this Article and the following relevant factors:
1. The danger to life and property due to flooding or erosion damage;
 2. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 3. The danger that materials may be swept onto other lands to the injury of others;
 4. The compatibility of the proposed use with existing and anticipated development;
 5. The safety of access to the property in times of flood for ordinary and emergency vehicles;
 6. The costs of providing governmental services during and after flood conditions, including maintenance and repair of streets and bridges and public utilities and facilities such as sewer, gas, electrical and water systems;
 7. The expected heights, velocity, duration, rate of rise and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site;
 8. The necessity to the facility of a waterfront location, where applicable;
 9. The availability of alternative locations not subject to flooding or erosion damage for the proposed use; and
 10. The relationship of the proposed use to the Comprehensive Plan for that area.
- C. All variances shall follow the procedures set forth in Section 2.22
1. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
 2. Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation 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.

3. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
4. Variances shall only be issued upon:
 - a. Showing a good and sufficient cause;
 - b. A determination that failure to grant the variance would result in exceptional hardship to the applicant; and
 - c. determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
5. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with the lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

8.04 Standards for Flood Hazard Reduction

8.04.1 General standards for flood hazard reduction.

In all areas of special flood hazards, the following provisions are required for all new construction and substantial improvements:

- A. Anchoring. All new construction or substantial improvements shall be designed or modified and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
 1. All manufactured homes shall be anchored to resist flotation, collapse, or lateral movement by providing over-the-top and frame ties to ground anchors as follows:
 2. Over-the-top ties shall be provided at each of the four (4) corners of the manufactured home, with two (2) additional ties per side at intermediate locations, with manufactured homes less than fifty (50) feet long requiring four (4) additional ties per side;
 3. Frame ties shall be provided at each corner of the home with five (5) additional ties per side at intermediate points, with manufactured homes less than fifty (50) feet long requiring four (4) additional ties per side;
 4. All components of the anchoring system be capable of carrying a force of four thousand four hundred (4,400) pounds; and
 5. Any structural additions to the manufactured home shall be similarly anchored.
- B. Construction materials and methods.

1. All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.
2. All new construction or substantial improvements shall be constructed with materials resistant to flood damage.
3. All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing and air-conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

C. Utilities.

1. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems;
2. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters; and
3. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

D. Subdivision proposals.

1. All subdivision proposals including the placement of manufactured home parks and subdivisions shall be consistent with this ~~Chapter Article~~;
2. Base flood elevation data shall be generated for subdivision proposals and other proposed development including the placement of manufactured home parks and subdivisions which is greater than fifty (50) lots or five (5) acres (whichever is less) if not otherwise provided pursuant to this Section.
3. All subdivision proposals including the placement of manufactured home parks and subdivisions shall have adequate drainage provided to reduce exposure to flood hazards; and
4. All subdivision proposals including the placement of manufactured home parks and subdivisions shall have public utilities and facilities, such as sewer, gas, electrical and water systems, located and constructed to minimize or eliminate flood damage.

- E. Encroachments. In Zones AE and AH the cumulative effect of any proposed development, when combined with all other existing and anticipated development, shall not increase the water surface elevation of the base flood more than one-half ($\frac{1}{2}$) foot at any point. In areas of special flood hazards, where base flood elevation data has not been provided, the cumulative effect of any proposed development, when combined with all other existing and anticipated development, shall not increase the water surface elevation of the base flood more than one ~~half (1/2)-(1)~~ foot at any point.

8.04.2 Specific standards for flood hazard reduction.

A. In all areas of special flood hazards where base flood elevation data has been provided as set forth herein, the following provisions are required:

1. *Residential construction.* New construction and substantial improvement of any residential structure shall have the lowest floor (including basement), electrical, heating, ventilation, plumbing and air condition equipment and other service facilities (including ductwork) elevated a minimum of twelve (12) inches above the base flood elevation. A registered professional engineer, architect or land surveyor shall submit a certification to the Floodplain Administrator that the standard of this Subsection is satisfied.
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 a minimum of twelve (12) inches above the base flood level or, together with attendant utility and sanitary facilities, be designed so that, below the base flood level, the structure 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. A registered professional engineer or architect shall develop and/or review structural design, specifications and plans for the construction and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this Subsection. A record of such certification which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained by the Floodplain Administrator.
3. Enclosures, new construction and substantial improvements, with fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding 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 meet or exceed the following minimum criteria:
 - a. A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided.
 - b. The bottom of all openings shall be no higher than one (1) foot above grade.
 - c. Openings may be equipped with screens, louvers, valves or other coverings or devices, provided that they permit the automatic entry and exit of floodwaters.
4. *Manufactured homes.*
 - a. All manufactured homes to be placed within Zone A on the Town's FHBM or FIRM shall be installed using methods and practices which minimize flood damage. For the purposes of this requirement, manufactured homes must be elevated and anchored to resist flotation,

collapse or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

- b. All manufactured homes that are placed or substantially improved within Zones A1-30, AH and AE on the Town's FIRM on sites (i) outside of a manufactured home park or subdivision, (ii) in a new manufactured home park or subdivision, (iii) in an expansion to an existing manufactured home park or subdivision, or (iv) in an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage as a result of a flood, shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated a minimum of twelve (12) inches above the base flood elevation, and be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movements.
 - c. Manufactured homes that are placed or substantially improved on sites in an existing manufactured home park or subdivision with Zones A1-30, AH and AE on the Town's FIRM that are not subject to the provisions of this Paragraph shall be elevated so that either:
 - i. The lowest floor of the manufactured home is a minimum of twelve (12) inches above the base flood elevation; or
 - ii. The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty-six (36) inches in height above grade and are securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.
5. *Recreational vehicles*. Recreational vehicles that are placed on sites within Zones A1-30, AH and AE on the Town's FIRM shall either:
- a. Be on the site for fewer than one hundred eighty (180) consecutive days;
 - b. Be fully licensed and ready for highway use; or
 - c. Meet the permit requirements of Section ~~16-10-2408.03.04~~ [03.04 Permit Procedures](#) of this Article and the elevation and anchoring requirements for manufactured homes in Paragraph (4) above. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick-disconnect types utilities and security devices and has no permanently attached additions.

8.04.3 Standards for areas of shallow flooding (AO/AH Zones).

- A. Located within the Special Flood Hazard Area are areas designated as shallow flooding. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and where

velocity flow may be evident. Such flooding is characterized by ponding or sheet flow; therefore, the following provisions apply:

1. *Residential construction.* All new construction and Substantial Improvements of residential structures must have the lowest floor (including basement), electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), elevated above the highest adjacent grade at least one foot above the depth number specified in feet on the community's FIRM (at least three feet if no depth number is specified). Upon completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a registered Colorado Professional Engineer, architect, or land surveyor. Such certification shall be submitted to the Floodplain Administrator.
2. *Nonresidential construction.* With the exception of critical facilities, all new construction and Substantial Improvements of non-residential structures, must have the lowest floor (including basement), electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), elevated above the highest adjacent grade at least one foot above the depth number specified in feet on the community's FIRM (at least three feet if no depth number is specified), or together with attendant utility and sanitary facilities, be designed so that the structure is watertight to at least one foot above the base flood level with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads of effects of buoyancy. A registered Colorado Professional Engineer or architect shall submit a certification to the Floodplain Administrator that the standards of this Section are satisfied.

B. Within Zones AH or AO, adequate drainage paths around structures on slopes are required to guide flood waters around and away from proposed structures.

8.04.4 Floodways.

A. Floodways are administrative limits and tools used to regulate existing and future floodplain development. The State of Colorado has adopted floodway standards that are more stringent than the FEMA minimum standard (see definition). Located within special flood hazard areas are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles and erosion potential, the following provisions shall apply:

1. Encroachments are prohibited, including fill, new construction, substantial improvements and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed by a licensed Colorado Professional Engineer and in accordance with standard engineering practice that the proposed encroachment

would not result in any increase (requires a no-rise certification) in flood levels within the community during the occurrence of the base flood discharge.

2. Under the provisions of 44 CFR Chapter 1, Section 65.12, of the National Flood Insurance Regulations, a community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that the community first applies for a CLOMR and floodway revision through FEMA.

8.04.5 Alteration of a watercourse.

A. For all proposed developments that alter a watercourse within a special flood hazard area, the following standards apply:

1. Channelization and flow diversion projects shall appropriately consider issues of sediment transport, erosion, deposition, and channel migration and properly mitigate potential problems through the project as well as upstream and downstream of any improvement activity. A detailed analysis of sediment transport and overall channel stability should be considered, when appropriate, to assist in determining the most appropriate design.
2. Channelization and flow diversion projects shall evaluate the residual 100-year floodplain.
3. Any channelization or other stream alteration activity proposed by a project proponent must be evaluated for its impact on the regulatory floodplain and be in compliance with all applicable Federal, State and local floodplain rules, regulations and ordinances.
4. Any stream alteration activity shall be designed and sealed by a registered Colorado Professional Engineer or Certified Professional Hydrologist.
5. All activities within the regulatory floodplain shall meet all applicable Federal, State and Town floodplain requirements and regulations.
6. Within the regulatory floodway, stream alteration activities shall not be constructed unless the project proponent demonstrates through a floodway analysis and report, sealed by a registered Colorado Professional Engineer, that there is not more than a 0.00-foot rise in the proposed conditions compared to existing conditions floodway resulting from the project, otherwise known as a no-rise certification, unless the community first applies for a CLOMR and floodway revision.
7. Maintenance shall be required for any altered or relocated portions of watercourses so that the flood-carrying capacity is not diminished.

8.04.6 Properties removed from the floodplain by fill.

A. A floodplain development permit shall not be issued for the construction of a new structure or addition to an existing structure on a property removed from the floodplain by the issuance of a FEMA Letter of Map Revision Based on Fill (LOMR-F), unless such new structure or addition complies with the following:

1. *Residential construction.* The lowest floor (including basement), electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), must be elevated to one foot above the base flood elevation that existed prior to the placement of fill.
2. *Nonresidential construction.* The lowest floor (including basement), electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), must be elevated to one foot above the base flood elevation that existed prior to the placement of fill, or together with attendant utility and sanitary facilities be designed so that the structure or addition is watertight to at least one foot above the base flood level that existed prior to the placement of fill with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads of effects of buoyancy.

8.04.7 Standards for critical facilities.

- A. A critical facility is a structure or related infrastructure, but not the land on which it is situated, as specified in Rule 6 of the Rules and Regulations for Regulatory Floodplains in Colorado, that if flooded may result in significant hazards to public health and safety or interrupt essential services and operations for the community at any time before, during and after a flood.
- B. Classification of critical facilities. It is the responsibility of the Town Board of Trustees to identify and confirm that specific structures in their community meet the following criteria:
- C. Critical facilities are classified under the following categories: (a) essential services; (b) hazardous materials; (c) at-risk populations; and (d) vital to restoring normal services.
- D. Essential services facilities include:
 1. Public safety (police stations, fire and rescue stations, emergency vehicle and equipment storage, and, emergency operation centers);
 2. Emergency medical (hospitals, ambulance service centers, urgent care centers having emergency treatment functions, and non-ambulatory surgical structures but excluding clinics, doctors' offices, and non-urgent care medical structures that do not provide these functions);
 3. Designated emergency shelters;
 4. Communications (main hubs for telephone, broadcasting equipment for cable systems, satellite dish systems, cellular systems, television, radio, and other emergency warning systems, but excluding towers, poles, lines, cables, and conduits);
 5. Public utility plant facilities for generation and distribution (hubs, treatment plants, substations and pumping stations for water, power and gas, but not including towers, poles, power lines, buried pipelines, transmission lines, distribution lines, and service lines); and
 6. Air transportation lifelines (airports (municipal and larger), helicopter pads and structures serving emergency functions, and associated infrastructure (aviation control towers, air traffic control centers, and emergency equipment aircraft hangars).

- E. Specific exemptions to this category include wastewater treatment plants (WWTP), non-potable water treatment and distribution systems, and hydroelectric power generating plants and related appurtenances.
- F. Public utility plant facilities may be exempted if it can be demonstrated to the satisfaction of the Town Board of Trustees that the facility is an element of a redundant system for which service will not be interrupted during a flood. At a minimum, it shall be demonstrated that redundant facilities are available (either owned by the same utility or available through an intergovernmental agreement or other contract) and connected, the alternative facilities are either located outside of the 100-year floodplain or are compliant with the provisions of this Article, and an operations plan is in effect that states how redundant systems will provide service to the affected area in the event of a flood. Evidence of ongoing redundancy shall be provided to the Town Board of Trustees on an as-needed basis upon request.
- G. Hazardous materials facilities are comprised of facilities that produce or store highly volatile, flammable, explosive, toxic and/or water-reactive materials and may include:
1. Chemical and pharmaceutical plants (chemical plant, pharmaceutical manufacturing);
 2. Laboratories containing highly volatile, flammable, explosive, toxic and/or water-reactive materials;
 3. Refineries;
 4. Hazardous waste storage and disposal sites; and
 5. Above ground gasoline or propane storage or sales centers.
- H. Facilities shall be determined to be critical facilities if they produce or store materials in excess of threshold limits. If the owner of a facility is required by the Occupational Safety and Health Administration (OSHA) to keep a Material Safety Data Sheet (MSDS) on file for any chemicals stored or used in the work place, and the chemical(s) is stored in quantities equal to or greater than the threshold planning quantity (TPQ) for that chemical, then that facility shall be considered to be a Critical Facility. The TPQ for these chemicals is: either five hundred (500) pounds or the TPQ listed (whichever is lower) for the three hundred fifty-six (356) chemicals listed under 40 C.F.R. § 302 (2010), also known as Extremely Hazardous Substances (EHS); or 10,000 pounds for any other chemical. This threshold is consistent with the requirements for reportable chemicals established by the Colorado Department of Health and Environment. OSHA requirements for MSDS can be found in 29 C.F.R. § 1910 (2010). The Environmental Protection Agency (EPA) regulation "Designation, Reportable Quantities, and Notification," 40 C.F.R. § 302 (2010) and OSHA regulation "Occupational Safety and Health Standards," 29 C.F.R. § 1910 (2010) are incorporated herein by reference and include the regulations in existence at the time of the promulgation this ordinance, but exclude later amendments to or editions of the regulations.

- I. Specific exemptions to this category include:
 1. Finished consumer products within retail centers and households containing hazardous materials intended for household use, and agricultural products intended for agricultural use.
 2. Buildings and other structures containing hazardous materials for which it can be demonstrated to the satisfaction of the local authority having jurisdiction by hazard assessment and certification by a qualified professional (as determined by the local jurisdiction having land use authority) that a release of the subject hazardous material does not pose a major threat to the public.
 3. Pharmaceutical sales, use, storage, and distribution centers that do not manufacture pharmaceutical products.
- J. These exemptions shall not apply to buildings or other structures that also function as critical facilities under another category outlined in this Article.
 1. At-risk population facilities include medical care, congregate care, and schools. These facilities consist of:
 - a. Elder care (nursing homes);
 - b. Congregate care serving twelve (12) or more individuals (day care and assisted living);
 - c. Public and private schools (pre-schools, K-12 schools), before-school and after-school care serving twelve (12) or more children);
 2. Facilities vital to restoring normal services including government operations. These facilities consist of:
 - a. Essential government operations (public records, courts, jails, building permitting and inspection services, community administration and management, maintenance and equipment centers);
 - b. Essential structures for public colleges and universities (dormitories, offices, and classrooms only).
- K. These facilities may be exempted if it is demonstrated to the Town Board of Trustees that the facility is an element of a redundant system for which service will not be interrupted during a flood. At a minimum, it shall be demonstrated that redundant facilities are available (either owned by the same entity or available through an intergovernmental agreement or other contract), the alternative facilities are either located outside of the 100-year floodplain or are compliant with this ordinance, and an operations plan is in effect that states how redundant facilities will provide service to the affected area in the event of a flood. Evidence of ongoing redundancy shall be provided to the Town Board of Trustees on an as-needed basis upon request.
- L. *Protection of critical facilities.* All new and substantially improved critical facilities and new additions to critical facilities located within the special flood hazard area shall be regulated to a higher standard

than structures not determined to be critical facilities. For the purposes of this Article, protection shall include one of the following:

1. Location outside the special flood hazard area; or
2. Elevation of the lowest floor or floodproofing of the structure, together with attendant utility and sanitary facilities, to at least two feet above the base flood elevation.

M. Ingress and egress for new critical facilities. New critical facilities shall, when practicable as determined by the Town Board of Trustees, have continuous non-inundated access (ingress and egress for evacuation and emergency services) during a 100-year flood event.

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