

Section 17

Flood Hazard Zone

17.1 Statutory Authorization, Findings of Fact, Purpose and Objective:

17.1.1 Statutory Authorization: The Legislature of the State of Connecticut has, in CGS Section 8-1, delegated the responsibility to local government units to adopt regulations designed to promote the public health, safety and general welfare of its citizenry. Therefore, the Planning and Zoning Commission of Clinton, Connecticut does regulate as follows:

(a) Severability: See Section 2.2 of these Regulations.

17.1.2 Designation of the Planning and Zoning Commission: The Planning and Zoning Commission is hereby appointed to administer and implement this Regulation by granting or denying Flood Hazard Area Permit applications in accordance with its provisions.

17.1.3 Finding of Fact:

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

(b) 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 the other areas. Uses that are inadequately flood-proofed, elevated or otherwise protected from flood damage also contribute to flood loss.

17.1.4 Statement of Purpose: It is the purpose of this Regulation to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

(a) To promote human life and health.

(b) To minimize expenditure of public money for costly flood control projects.

(c) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.

(d) To minimize prolonged business interruptions.

- (e) 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.
- (f) To help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas.
- (g) To ensure that potential buyers are notified that property is in an area of special flood hazard.
- (h) To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

17.1.5 Methods of Reducing Flood Losses: In order to accomplish its purposes, this Section includes methods and provisions for:

- (a) 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.
- (b) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction.
- (c) Controlling the alteration of natural flood plains, stream channels and natural protective barriers that help accommodate or channel flood waters.
- (d) Controlling filling, grading, dredging and other development which may increase flood damage; and
- (e) Preventing or regulating the construction of flood barriers that will unnaturally divert flood waters or which may increase flood hazards in other areas.

17.2 Definitions: For the specific purpose of this Section, the words below shall be interpreted so as to give them the meaning they have in common usage and to give this Section its most reasonable application.

17.2.1 Base Flood: The flood having a one percent (1%) chance of being equaled or exceeded in any given year.

17.2.2 Base Flood Elevation (BFE): The elevation of the crest of the base flood or 100-year flood. The height in relation to mean sea level expected to be reached by the waters of the base flood at pertinent points in the floodplains of coastal and riverine areas.

17.2.3 Basement: That portion of a building having its floor sub grade (below ground level) on all sides.

- 17.2.4 Breakaway Walls: A wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.
- 17.2.5 Coastal AE Zone: The portion of the Coastal High Hazard Area with wave heights between 1.5 feet and 3.0 feet bounded by a line labeled the "Limit of Moderate Wave Action" (LiMWA) on a Flood Insurance Rate Map (FIRM). VE Zone floodplain construction standards are applied to development, new construction and substantial improvements in the Coastal AE Zone.
- 17.2.6 Coastal High Hazard Area ("VE" and "Coastal AE" Zones): An area of Special Flood Hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. Coastal High Hazard Areas are designated as Zone VE and Zone AE bounded by a line labeled "Limit of Moderate Wave Action" (LiMWA) on a Flood Insurance Rate Map (FIRM).
- 17.2.7 Cost: As related to substantial improvements, the cost of any reconstruction, rehabilitation, addition, alteration, repair or other improvement of a structure shall be established by a detailed written contractor's estimate.

The estimate shall include, but not be limited to, the cost of materials (interior finishing components, structural components, utility and service equipment); sales tax on materials; building equipment and fixtures, including heating and air conditioning and utility meters; labor; built-in appliances; demolition and site preparation; repairs made to damaged parts of the building worked on at the same time; contractor's overhead; contractor's profit; and grand total.

Items to be excluded include: cost of plans and specifications; survey costs; permit fees; outside improvements such as septic systems, water supply wells, landscaping, sidewalks, fences, yard lights, irrigation systems; and detached structures such as garages, sheds and gazebos.

- 17.2.8 Development: Any man-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 equipment or materials located within the area of special flood hazard.
- 17.2.9 Elevated Building – A and AE Zones: A non-basement building built to have the top of the elevated floor elevated above the ground level by means of pilings, columns (posts and piers) or shear walls, or by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of flood waters.
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- 17.2.10 Elevated Building – VE and Coastal AE Zones: A non-basement building built to have the bottom of the lowest horizontal structural member of the elevated floor elevated above the ground level by means of pilings, columns (posts and piers) or shear walls parallel to the flow of water and adequately anchored so as not to impair the structural integrity of the building during a flood up to the magnitude of the base flood. “Elevated Building” also includes structures, which have the lower area enclosed by means of breakaway walls if the breakaway walls meet the standards of Subsection 17.9.2(d) (Construction Methods: Space Below the Lowest Floor).
- 17.2.11 Existing Manufactured Home Park or Subdivision: A manufactured home park or subdivision for which the construction of facilities for serving the lots on which the manufactured home 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) was completed before the effective date of the Flood Hazard Zone Regulations (September 3, 1980).
- 17.2.12 Expansion to an Existing Manufactured Home Park or Subdivision: The preparation of additional sites by the construction of facilities for serving 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).
- 17.2.13 Federal Emergency Management Agency (FEMA): The federal agency that administers the National Flood Insurance Program (NFIP).
- 17.2.14 Flood or Flooding: A general and temporary condition of partial or complete inundation of normally dry land areas from:
- (a) The overflow of inland or tidal wetlands and/or
 - (b) The unusual and rapid accumulation or runoff of surface waters from any source.
- 17.2.15 Flood Boundary and Floodway Map (FBFM): The official map of a community on which the Federal Emergency Management Agency (FEMA) has delineated the limits of the regulatory floodway and 100-year floodplain.
- 17.2.16 Flood Insurance Rate Map (FIRM): The official map of a community on which the administrator has delineated both the special hazard areas and the risk premium zones applicable to the community.
- 17.2.17 Flood Insurance Study (FIS): The official report provided in which the Federal Insurance Administration has provided flood profiles, as well as the Flood Hazard Boundary – Floodway Map and the water surface elevation of the base flood.
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- 17.2.18 Floodway: 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 (1').
- 17.2.19 Functionally Dependent Use or Facility: A use or facility that cannot perform its intended purpose unless it is located or carried out in close proximity to water. The terms 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. The term does not include seafood processing facilities, long-term storage, manufacturing, sales or service facilities.
- 17.2.20 Highest Adjacent Grade (HAG): The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.
- 17.2.21 Historic Structure: Any structure that is:
- (a) Listed individually in the National Register of Historic Places (a listing maintained by the Department of the Interior) or preliminary 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 places in states with historic preservation programs which have been approved by the Secretary of the Interior.
 - (d) Individually listed on a local inventory of historic communities with historic preservation programs that have been certified by either:
 - (1) By an approved state program as determined by the Secretary of the Interior; or
 - (2) Directly by the Secretary of the Interior in states without approved programs.
- 17.2.22 Limit of Moderate Wave Action (LiMWA): The approximate landward limit of the 1.5 foot breaking wave within a Coastal AE Zone. These areas are bounded by a line labeled "Limit of Moderate Wave Action" (LiMWA) on a Flood Insurance Rate Map (FIRM). The effects of wave hazards between the VE Zone and LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.
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- 17.2.23 Lowest Floor: 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 Regulation.
- 17.2.24 Manufactured Home: 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 connected to the required utilities. The term manufactured home does not include a recreational vehicle.
- 17.2.25 Manufactured Home Park or Subdivision: A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.
- 17.2.26 Market Value: As related to substantial improvement and substantial damage, the market value of the structure shall be determined by (1) the appraised building value of the structure as shown on the Assessor's Field Card prior to the start of the initial repair or improvement; or (2) in the case of damage, the value of the structure prior to the damage occurring.
- 17.2.27 Mean Sea Level (MSL): The North American Vertical Datum (NAVD) of 1988 or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map (FIRM) are referenced.
- 17.2.28 New Construction: Structures for which the "start of construction" commenced on or after the effective date of these Regulations, the initial FIRM, September 3, 1980, and includes any subsequent improvements to such structures.
- 17.2.29 Recreational Vehicle: A vehicle which is built on a single chassis; four hundred square feet (400 sq. ft.) or less when measured at the longest horizontal projections; designed to be self-propelled or permanently towable by a light duty truck; and designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel or seasonal use.
- 17.2.30 Sand Dunes: Naturally occurring accumulations of sand in ridges or mounds landward of the beach.
- 17.2.31 Special Flood Hazard Area: The land within the flood plain within a 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. After detailed ratemaking has been completed and prepared for publication of the FIRM, Zone A is usually refined into Zones A, A1-A30 or AE. The Special Flood Hazard Area also includes the Coastal High Hazard Area and all zones starting with an "A" or "V" designation.
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- 17.2.32 Start of Construction: For other than new construction or substantial improvements under the Coastal Barrier Resources Act (P.L. 97-348), includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction or improvement was within one hundred eighty (180) days of the permit date. The actual start means the first placement of permanent construction of a structure (including a manufactured home) on a site, such as the pouring of slabs or footings, installation of piles, construction of columns, or any work beyond the stage of excavation or placement of a manufactured home on a foundation. Permanent construction does not include the installation of streets and/or walkways; nor doesn't 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.
- 17.2.33 Structure: A walled and roofed building that is principally above ground, a manufactured home, a gas or liquid storage tank, including propane tanks or cylinders in excess of twenty pounds (20 lbs.).
- 17.2.34 Substantial Damage: Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damage condition would equal or exceed fifty percent (50%) of the market value of the structure before the damage occurred. "Substantial Damage" also means flood-related damages sustained by a structure on two separate occasions during a ten-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds twenty-five percent (25%) of the market value of the structure before the damage occurred.
- 17.2.35 Substantial Improvement: Any combination of repairs, re-construction, alteration or improvements to a structure taking place during a five-year (5) period, in which the cumulative cost equals or exceeds fifty percent (50%) of the market value of the structure. This term includes structures that have incurred "substantial damage", regardless of the actual repair work performed.
- For the purpose 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 dimension of the structure. The term does not, however, include any improvement project required to correct existing violations of State and local health, sanitary or safety code specifications which have been identified by the local code enforcement agent and are the minimum necessary to assure safe living conditions.
- 17.2.36 Variance: A grant of relief from the requirements of this Regulation, which permits construction in a manner that, would otherwise be prohibited by this Regulation.
- 17.2.37 Violation: Means the failure of a structure or other development to be fully compliant with the community's flood plain management certificate, other
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certifications, or other evidence of compliance required is presumed to be in violation until such time as that documentation is provided.

- 17.2.38 Water Surface Elevation: Means the height, in relation to North American Vertical Datum of 1988 (NAVD 88) (or other datum, where specified) of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

17.3 General Provisions:

- 17.3.1 Lands to which this section applies: The provisions of this Section shall apply to all areas of special flood hazards within the jurisdiction of the Clinton Planning and Zoning Commission.

- 17.3.2 Basis for establishing the areas of Special Flood Hazard Area: The Special Flood Hazard Area (SFHA) identified by the Federal Emergency Management Agency (FEMA) in its Flood Insurance Study (FIS) for Middlesex County, Connecticut, dated February 6, 2013, with accompanying Flood Insurance Rate Maps (FIRM), dated February 6, 2013 (Panels 09007C0312J, 09007C0316J, 09007C0317J, 09007C0318J, 09007C0319J, 09007C0336J, 09007C0338J) and August 28, 2008 (Panels 09007C0304G, 09007C0310G), and other supporting data, and any subsequent revisions thereto, are adopted by reference and declared to be a part of this Regulation. Since mapping is legally adopted by reference into this Regulation it must take precedence when more restrictive until such time as a map amendment or map revision is obtained from FEMA.

The SFHA's include any area shown on the FIRM as Zones A, AE and VE, including areas designated as a floodway on a FIRM. The Zone VE and Coastal AE Zone bounded by a line labeled "Limit of Moderate Wave Action" (LiMWA) are also identified as a Coastal High Hazard Area on a FIRM. The SFHAs are determined utilizing the base flood elevations (BFE) provided on the flood profiles in the Flood Insurance Study (FIS) for a community. BFEs provided on a Flood Insurance Rate Map (FIRM) are only approximate (rounded up or down) and should be verified with the BFEs published in the FIS for a specific location. Also included in the SFHA are areas of potential, demonstrable or historical flooding, including any area contiguous with, but outside the SFHA identified by FEMA, and where the land surface elevation is lower than the base flood elevation (BFE) as shown in the FIS, and where the area is not protected from flooding by a natural or man-made feature. The FIRM and FIS are on file in the Planning and Zoning Office, Town Hall, Clinton.

- 17.3.3 Compliance: No structure or land shall hereafter be constructed, located, extended, converted or altered without full compliance with the terms of this Section or other applicable regulations.
- 17.3.4 Zone Determination in Regards to Building Location: When a structure is located or proposed to be located straddling flood zones the following apply:

- (a) Portion of Structure in Flood Zone: If any portion of a structure lies within the Special Flood Hazard Area (SFHA), the entire structure is considered to be in the SFHA. The entire structure must meet the construction requirements of the flood zone. The structure includes any attached additions, garages, decks, sunrooms, or any other structure attached to the main structure. Decks or porches that extend into a more restrictive flood zone will require the entire structure to meet the standards of the more restrictive zone.
 - (b) Structures in Two Flood Zones: If a structure lies within two or more flood zones, the construction standards of the most restrictive zone apply to the entire (i.e., V Zone is more restrictive than A zone; structure must be built to the highest BFE). The structure includes any attached additions, garages, decks, sunrooms, or any other structure attached to the main structure. (Decks or porches that extend into a more restrictive zone will require the entire structure to meet the requirements of the more restrictive zone.)
 - (c) No Structures Entirely or Partially Over Water: New construction, substantial improvements and repair to structures that have sustained substantial damage cannot be constructed or located entirely or partially over water.
- 17.3.5 Abrogation and Greater Restriction: This Section is not intended to repeal, abrogate or impair any existing easements, covenants, or deed restrictions. However, where this Section and another regulation easement, covenant or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.
- 17.3.6 Interpretation: In the interpretation and application of this Section, all provisions shall be:
- (a) Considered as minimum requirements.
 - (b) Liberally construed in favor of the governing body; and
 - (c) Deemed neither to limit nor repeal any other powers granted under state statutes.
- 17.3.7 Warning and Disclaimer of Liability: The degree of flood protection required by this Section is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This Section does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free of flooding or flood damages. This Section shall not create liability on the part of the Town of Clinton, any officer or employee thereof, or the Federal Insurance Administration for any flood damages that may result from reliance on this Section or any administration decision lawfully made there under.
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17.4 Administration:

17.4.1 Flood Hazard Area Permit: All necessary approvals shall be obtained from the Commission prior to applying to the ZEO for a Flood Hazard Permit Application for a Flood Hazard Area Permit shall be made on forms furnished by the PZC and shall include, but not be limited to: Plans drawn to scale not less than one inch equals twenty feet (1"=20'), one inch equals forty feet (1"=40') or other such scale as may be approved, 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 the basement) of all structures.
- (b) Elevation in relation to mean sea level to which any structure has been flood-proofed.
- (c) Elevation in relation to mean sea level of the bottom of the lowest structural member of the lowest floor (excluding pilings and columns) for structures in the Zones VE and Coastal AE Zones.
- (d) Certification by a registered professional engineer or architect that the flood-proofing methods for any structure meet the flood-proofing criteria in Subsection 17.6.: Specific Standards.
- (e) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.
- (f) Plans for any walls to be used to enclose space below the base flood level.

17.4.2 Application Review: The Commission shall review all applications to determine:

- (a) That the permit requirements of this Section have been satisfied.
 - (b) All necessary permits have been obtained from those federal, state or local governmental agencies from which prior approval is required.
 - (c) For all applications in the area of special flood hazard except in the coastal high hazard area, whether the proposed development adversely affects the flood carrying capacity of the area of special flood hazard. For the purposes of this Section, "adversely affects" means that the cumulative effect of the proposed development will not increase the water surface elevation of the base flood more than one foot at any point.
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- (d) For all applications in the coastal high hazard area of the area of special flood hazard, whether the proposed development alters sand dunes so as to increase potential flood damage.
- (e) Whether plans for walls to be used to enclose space below the base flood are in accordance with Subsection 17.9.2(d).

17.4.3 Additional Information:

- (a) 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.
- (b) For all new and substantially improved flood-proofed structures:
 - (1) Verify and record the actual elevation (in relation to mean sea level).
 - (2) Maintain the flood-proofing certifications required in Subsection 17.4.1(d).
- (c) In coastal high hazard areas, certification shall be obtained from a registered professional engineer or architect that the structure is securely anchored to adequately anchored pilings or columns in order to withstand velocity waters and hurricane wave wash.
- (d) Maintain for public inspection all records pertaining to the provisions of this Section.
- (e) Provide completed Elevation Certificates of all new or substantially improved structures signed and sealed by a Professional Engineer or Land Surveyor licensed to practice in the State of Connecticut, on forms provided by FEMA.

17.4.4 In AE Zones, where Base Flood Elevations have been determined, but before a floodway has been designated, no new construction, substantial improvement, or other development (including fill), shall be permitted which will increase base flood elevations more than one foot (1') at any point along the watercourse when all anticipated development is considered cumulatively with the proposed development.

17.4.5 Use of Other Base Flood Data: The Commission shall obtain, review, and reasonably utilize any base flood elevation data and any floodway data available from a federal, state or other source in order to administer Subsections 17.6.1: Specific Standards, Residential Construction and 17.6.2: Specific Standards, Nonresidential Construction. The Commission shall require base flood elevation (BFE) data to be provided with any application for new construction, substantial improvement or other development in Zone A without a FEMA-published BFE (un-numbered A Zone).

The Commission shall obtain, review and reasonably utilize any BFE and floodway data available from a federal, state or other source, including data developed for subdivision proposals, as criteria for requiring the new construction, substantial improvements or other development in un-numbered A Zones on the community's Flood Insurance Rate Map(FIRM) meet the standards in Sections 17.5, 17.6, 17.7, 17.8 and 17.9.

17.4.6 Alteration of Watercourses: In the event of a proposal to alter or relocate a watercourse, the Commission shall:

- (a) Notify adjacent communities, along with the Town's appropriate commissions and the Department of Environmental Protection prior to any such alteration or relocation and shall 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.

17.4.7 Interpretation of FIRM Boundaries: If any questions should arise with regard to FIRM Boundaries, the ZEO shall interpret 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). The person contesting the location of the boundary shall be given reasonable opportunity to appeal the interpretation as provided in Section 17.11: Variance Procedures – Zoning Board of Appeals. If an applicant can show just cause that a structure is not flood prone due to circumstances, such as being situated on a knoll, said applicant, in addition and as an alternative to the provisions afforded in Section 17.11, may file for a Letter of Amendment (LOMA) from FEMA acknowledging said fact as a basis for issuance of a LOMA. To be effective as a waiver of the application of the FIRM Boundaries, the LOMA must describe the waiver with sufficient particularity so that the Commission can determine the precise area of applicability. Neither the Commission or the Zoning Board of Appeals shall make any determination that would relieve any requirement set forth in Section 17.

17.4.8 See Section 4: Application Requirements, Procedures and Decision Process for all other permit requirements.

17.5 Provision for Flood Hazard Reduction: In all areas of special flood hazards, the following standards are required:

17.5.1 Anchoring:

- (a) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
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- (b) All manufactured homes to be placed or substantially improved within Zones A, AE and VE shall be elevated on a permanent foundation and be securely anchored to an adequately anchored foundation system in accordance with the provisions of this Section:
- (1) Over-the-top ties 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 feet (50') long requirement one (1) additional tie per side.
 - (2) Frame ties be provided at each corner of the home with five (5) additional ties per side at intermediate points, with manufactured homes less than fifty feet (50') long requiring four (4) additional ties per side.
 - (3) All components of the anchoring system be capable of carrying a force of four thousand eight hundred pounds (4,800 lbs).
 - (4) Any additions to the manufactured home be similarly anchored.
- (c) Aboveground Oil Tanks: Aboveground storage tanks (oil, propane, etc.) which are located outside or inside of the structure must be either elevated above the base flood elevation (BFE) on a concrete pad, or be securely anchored with tie-down straps to prevent flotation or lateral movement, have the top of the fill tank extended above the BFE, and have a screw fill cap that does not allow for the infiltration of flood water.
- (d) Flood Vents: Flood vents shall be used in all structures with breakaway walls, open/shallow foundations and crawl spaces. There shall be a minimum of two vents and shall be installed no more than one foot (1') above the finished grade inside and outside the structure.
- (1) Foundation walls and other enclosure walls of A, AE Zone buildings (including Coastal AE Zone buildings) must be equipped with opening that allow the automatic entry and exit of floodwaters.
 - (2) Flood opening must be provided in at least two of the walls forming the enclosures.
 - (3) The bottom of each opening is to be located no higher than one foot (1') above the grade that is immediately under each opening. If the interior and exterior grades are different, the higher of the final interior grade and the finished exterior grade that is immediately under each opening is used to make the determination.
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- (4) Louvers, screens or covers may be installed over flood openings as long as they do not interfere with the operation of the openings during a flood.
 - (5) Flood openings may be sized according to either a prescriptive method (one square inch of flood opening per square foot of enclosed area) or an engineering method (which must be certified by a registered engineer or architect).
 - (6) Details concerning the flood openings can be found in FEMA (2008c) Technical Bulletin 1-08, *Openings in Foundation Walls and Walls of Enclosures*, as may be amended from time to time.
- (e) Finished grades shall slope away from the structure to the greatest extent possible. If this is not possible, the finished grades shall be sloped around the structure to a discharge point.

17.5.2 Construction Materials and Methods: All new construction and substantial improvements shall be designed and constructed in accordance with all Federal, State and local building codes and its Coastal Construction Manual #55, prepared by FEMA. If there is a conflict between standards, the most stringent shall apply.

- (a) All new construction and substantial improvements shall be constructed with materials 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 located so as to prevent water from entering or accumulating within the components during conditions of flooding.

17.5.3 Utilities:

- (a) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
- (b) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters; and into the systems and discharge from the systems into flood waters.
- (c) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

17.5.4 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 flood damage.
- (c) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage.
- (d) Base flood elevation data shall be provided for subdivision proposals and other proposed development which contain at least three (3) lots or two (2) acres (whichever is less).

17.5.5 Compensatory Storage: The water holding capacity of the floodplain, except those areas that are tidally influenced, shall not be reduced. Any reduction caused by filling, new construction or substantial improvements involving an increase to the footprint to the structure shall be compensated for by deepening and/or widening of the floodplain. Storage shall be provided on-site, unless easements have been gained from adjacent property owners; it shall be provided within the same hydraulic reach and a volume not previously used for flood storage; it shall be hydraulically comparable and incrementally equal to the theoretical volume of flood water at each elevation, up to and including the 100-year flood elevation, which would be displaced by the proposed project. Such compensatory volume shall have an unrestricted hydraulic connection to the same waterway or water body. Compensatory storage can be provided off-site if approved by the municipality.

17.5.6 Equal Conveyance: Within the floodplain, except those areas which are tidally influenced, as designated on the Flood Insurance Rate Map (FIRM) for the community, encroachments resulting from filling, new construction or substantial improvements involving an increase in footprint of the structure, are prohibited unless the applicant provides certification by a registered professional engineer demonstrating, with supporting hydrologic and hydraulic analyses performed in accordance with standard engineering practice, that such encroachments shall not result in an (0.0 feet) increase in flood levels (base flood elevation). Work within the floodplain and the land adjacent to the floodplain, including work to provide compensatory storage shall not be constructed in such a way so as to cause an increase in flood stage or flood velocity.

17.6 Specific Standards: In areas of special flood hazard where base flood elevation data has been provided as set forth in Subsection 17.3.2: Basis for Establishing the Areas of Special Flood Hazard or in Subsection 17.4.5: Use of Other Base Flood Data, the following standards are required:

- 17.6.1 Residential Construction: New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to the level of one foot (1') above the base flood elevation.
- 17.6.2 Nonresidential Construction: New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated to the level of one foot (1') above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:
- (a) Be flood proofed to one foot (1') above the base flood level so that the structure is watertight with walls substantially impermeable to the passage of water.
 - (b) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effect of buoyancy.
 - (c) Be certified by a registered professional engineer or architect that the standards of this subsection are satisfied. Such certifications shall be provided to the official as set forth in Subsection 17.4.1(d).
- 17.6.3 Residential and Nonresidential Construction: As of August 28, 2008, no fully enclosed area below the lowest floor shall be allowed.

17.7 Manufactured Homes:

- 17.7.1 Manufactured homes shall be anchored in accordance with Subsection 17.5.1(b), such that the lowest floor of the manufactured home is one foot (1') above the base flood elevation.
- 17.7.2 Recreational vehicles placed on site within Zones A, AE and VE 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
 - (1) 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 type utilities and security devices, and has no permanently attached additions.
 - (c) Meet all the general standards of Section 17.5 including the elevation and anchoring requirements of Subsection 17.5.1. Recreational vehicles located in VE Zones and Coastal AE Zones must comply with standards provided in Section 17.8.
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- 17.7.3 For existing manufactured home parks where the repair, reconstruction or improvement of the streets, utilities and pads equal or exceeds fifty percent (50%) of value of the streets, utilities and pads before the repair, reconstruction or improvement has commenced, require that:
- (a) Stands or lots are elevated on compact fill or on piling so that the lowest floor of the manufactured home will be one foot (1') above the base flood level.
 - (b) Adequate surface drainage and access for a hauler are provided.
 - (c) In the instance of elevation on pilings, that lots are large enough to permit steps, piling foundations are placed in stable soil no more than ten feet (10') apart, and reinforcement is provided for pilings no more than six feet (6') above the ground level.
- 17.7.4 No manufactured home, or substantial improvement thereof, shall be placed in a coastal high hazard area except in an existing manufactured home park in accordance with Section 17.9.
- 17.7.5 No manufactured home, or substantial improvement thereof, shall be placed in a floodway except in an existing manufactured home park in accordance with Sections 17.5.1(b) and 17.10.
- 17.8 Coastal High Hazard Area: Coastal high hazard areas (VE Zones and Coastal AE Zones bounded by a line labeled "Limit of Moderate Wave Action" (LiMWA)) are located within the areas of special flood hazard established in Subsection 17.3.2. These areas have special flood hazards associated with high velocity waters from tidal surges and hurricane wave wash; therefore, the following provisions shall apply:
- 17.8.1 Location of Structures:
- (a) All buildings or structures shall be located landward of the reach of the Connecticut Coastal Jurisdiction line as defined in CGS Section 22a-359 as amended and in accordance with the recommendations as set forth in FEMA's Coastal Construction Manual (FEMA #55), Chapter 8 "Siting" and Chapter 11 "Determining Site Specific Loads".
 - (b) The placement of manufactured homes shall be prohibited except in an existing manufactured home park.
- 17.8.2 Construction Methods:
- (a) Elevation: All buildings or structures shall be elevated so that the lowest supporting member is located no lower than one foot (1') above the base flood elevation level, with all space below the lowest supporting member open so
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as not to impede the flow of water, except for breakaway walls as provided for in Subsection 17.8.2(d).

(b) Structural Support:

- (1) All buildings or structures shall be securely anchored on piling or columns.
- (2) Pilings or columns used as structural support shall be designed and anchored so as to withstand all applied loads of the base flood flow.
- (3) There shall be no fill used for structural support.
- (4) No open/shallow foundations as described in Section 10.7 of FEMA's Coastal Construction Manual (FEMA 55) are permitted.

(c) Certification: Compliance with the provisions of Subsections 17.8.2(a) and (b)(1) and (2) shall be certified by a registered professional engineer or architect. The Certification shall include calculations for scouring.

(d) Space Below the Lowest Floor:

- (1) Any alteration, repair, reconstruction or improvement to a structure started after the enactment of this Section shall not enclose the space below the lowest floor unless breakaway walls are used as provided in this Section.
 - (2) Breakaway walls shall be allowed below the base flood elevation provided they are not a part of the structural support of the building and are designed so as to break away under abnormally high tides or wave action without damage to the structural integrity of the building on which they are to be used and shall include flood vents.
 - (3) Design safe loading resistance of each wall shall not be less than ten (10) nor more than twenty pounds per square foot (20 lbs./sq. ft.).
 - (4) If more than twenty pounds per square foot (20 lbs./sq. ft.), a registered professional engineer or architect shall certify that the designed wall collapse would result from a water load less than that which would occur during the base flood event, and 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 during the base flood event. Maximum wind and water loading values to be used in this determination shall have one
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percent (1%) chance of being equaled or exceeded in any given year (100 year mean recurrence interval).

- (5) If breakaway walls are utilized, such enclosed space shall not be used for human habitation.
- (6) Prior to construction, placement for any structure that will have breakaway walls must be submitted to the Commission for approval.

17.8.3 Sand Dunes: There shall be no alteration of sand dunes which would increase potential flood damage.

17.9 Coastal AE Zone with Moderate Wave Action: High hazard areas (AE Zones) are located within the areas of special flood hazard established in Subsection 17.3.2. These areas have special flood hazards associated with moderate wave action from tidal surges and hurricane wave wash; therefore, the following provisions shall apply:

17.9.1 Location of Structures:

- (a) All buildings or structures shall be located landward of the reach of the Connecticut Coastal Jurisdiction Line as defined in CGS Section 22a-359, as amended by Public Act 12-101 and in accordance with the recommendations set forth in FEMA's Coastal Construction Manual (FEMA #55), Chapter 8 "Siting" and Chapter 11 "Determining Site Specific Loads".
- (b) The placement of manufactured homes shall be prohibited except in an existing manufactured home park.

17.9.2 Construction Methods:

- (a) Elevation: All buildings or structures shall be elevated so that the lowest supporting member is located no lower than one foot (1') above the base flood elevation level, with all space below the lowest supporting member open so as not to impede the flow of water, except for breakaway walls as provided in Subsection 17.8.2(d).
 - (b) Structural Support:
 - (1) All buildings or structures shall be securely anchored on piling or columns.
 - (2) Pilings or columns used as structural support shall be designed and anchored so as to withstand all applied loads of the base flood flow.
 - (3) There shall be no fill used for structural support.
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- (4) Open/shallow foundations as described in Section 10.7 of FEMA's Coastal Construction Manual (FEMA #55) are permitted.
- (c) Certification: Compliance with the provisions of Subsection 17.9.2(a) and (b)(1) and (2) shall be certified by a registered professional engineer or architect, including calculations for scouring.
- (d) Space Below the Lowest Floor:
 - (1) Any alteration, repair, reconstruction or improvement to a structure started after the enactment of this Section shall not enclose the space below the lowest floor unless breakaway walls are used as provided in this Section.
 - (2) Breakaway walls shall be allowed below the base flood elevation provided they are not a part of the structural support of the building and are designated so as to break away under abnormally high tides or wave action without damage to the structural integrity of the building on which they are to be used and shall include flood vents.
 - (3) Design safe loading resistance of each wall shall not be less than ten (10) nor more than twenty pounds per square foot (20 lbs./sq. ft.).
 - (4) If more than twenty pounds per square foot (20 lbs./sq. ft.), a registered professional engineer or architect shall certify that the designed wall collapse would result from a water load less than that which would occur during the base flood event, and 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 during the base flood event. Maximum wind and water loading values to be used in this determination shall have one percent (1%) change of being equaled or exceeded in any given year (100 year mean recurrence interval).
 - (5) If breakaway walls are utilized, such enclosed space shall not be used for human habitation.
 - (6) Prior to construction, placement for any structure that will have breakaway walls must be submitted to the Commission for approval.

17.10 Floodways: Located within areas of special flood hazard established in Subsection 17.3.2 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, the following provisions apply:

- 17.10.1 Prohibit encroachments, including fill, new construction, substantial improvements and other development unless certification by a registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.
- 17.10.2 If Section 17.8 and 17.9 are satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 17.5: Provisions for Flood Hazard Reduction.

The Town may request floodway data of an applicant for the watercourses without FEMA-published floodways. When such data is provided by an applicant or whenever such data is available from any other source (in response to the Town's request or not), the Town shall adopt a regulatory floodway based on the principle that the floodway must be able to convey the waters of the base flood without increasing the water surface elevation more than one foot (1') at any point at any point along the watercourse.

17.11 Variance Procedure – Zoning Board of Appeals:

- 17.11.1 The Board shall hear and decide appeals when it is alleged there is an error in any requirement, decision or determination made by the ZEO in the enforcement or administration of the provisions of Section 17.
- 17.11.2 Those aggrieved by the decision of the Board, or any taxpayer, may appeal such decision to the Superior Court of the County of Middlesex, Middletown, Connecticut, as provided in CGS Section 8-8.
- 17.11.3 In passing upon such applications, the Board shall consider all technical evaluations, all relevant factors, standards specified in other provisions of Section 17 and:
- (a) The danger that materials may be swept onto other lands to the injury of others.
 - (b) The danger to life and property due to flooding or erosion damage.
 - (c) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.
 - (d) The importance of the services provided by the proposed facility to the community.
 - (e) The necessity to the facility of a waterfront location where applicable.
 - (f) The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage.
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- (g) The compatibility of the proposed use with existing and anticipated development.
- (h) The relationship of the proposed use to the comprehensive plan and flood plain management program of that area.
- (i) The safety of access to the property in times of flood for ordinary and emergency vehicles.
- (j) The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site.
- (k) The costs of provided governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems and streets and bridges.

17.11.4 Generally, variances may be issued for new construction and substantial improvements to be erected on a lot one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood elevation level, providing items (a) – (k) in Subsection 17.11.3 have been fully considered, and not located or partially located in Flood Hazard Areas designated Zone V, VE or designated coastal barriers. As the lot size increases beyond the one-half acre, the technical justification required for issuing the variance increases.

17.11.5 Upon consideration of the factors of Subsection 17.11.3 and the purposes of this regulation, the Board may attach such conditions to the granting of variances, as it deems necessary to further the purposes of Section 17.

17.11.6 The records of all appeal actions shall be maintained in the Planning and Zoning Office and the Commission shall report any variances to the Federal Emergency Management Agency (FEMA) in its biennial report.

17.11.7 Conditions for Variances:

- (a) Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or the state Inventory of Historic Places, without regard to the procedures set forth in the remainder of this Section.
 - (b) Variances should not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
 - (c) Variances shall only be issued upon determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
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- (d) Variances shall only be issued upon:
 - (1) A showing of good and sufficient cause.
 - (2) A determination that failure to grant the variance would result in exceptional hardship to the applicant.
 - (3) A determination that the granting of a variance will not result in increased flood heights, increase flood insurance rates, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public as identified in Section 17.5 or conflict with existing local laws or ordinances.
- (e) Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest flood elevation, up to amounts as high as \$25 for \$100 of insurance coverage.

17.12 Enforcement: Enforcement of this Section shall be in accordance with Section 5 of these Regulations.
