

FLOOD DAMAGE PREVENTION REGULATION

SECTION 1.0

1.1 STATEMENT OF PURPOSE

It is the purpose of the ordinance 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:

1. To protect human life and health.
2. To minimize expenditure of public money for costly flood control projects.
3. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the public.
4. To minimize prolonged business interruptions.
5. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard.
6. To help maintain a stable tax base by providing for the second use and development of areas of special flood hazard to minimize future flood blight areas.
7. To ensure that potential buyers are notified that property is in an area of special flood hazard.
8. To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

1.2 METHODS OF REDUCING FLOOD LOSSES

To accomplish its purposes, this ordinance includes methods and provisions for:

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

2.0 DEFINITIONS

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

Area of Special Flood Hazard: Means the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year. The Area of Special Flood Hazard is also called the Special Flood Hazard Area (SFHA). 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 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. SFHAs include, but are not necessarily limited to , the land shown as Zones A, AE, AO, AH on a

FIRM.

Base Flood: Means the flood having a one percent chance of being equaled or exceeded in any given year, also referred to as the one hundred (100) year flood, as published by the Federal Emergency Management Agency (FEMA) as part of a Flood Insurance Study (FIS) and depicted on a Flood Insurance Rate Map (FIRM).

Base Flood Elevation (BFE): Means 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.

Basement: Means any area of the building having its floor subgrade (below ground level) on all sides.

Cost: Means, 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 elements, structural elements, 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 landscaping, sidewalks, fences, yard lights, irrigation systems, and detached structures such as garages, sheds, and gazebos.

Development: means any man-made change to improved or unimproved real estate, including but not limited to, the construction of buildings or other structures, the construction of additions, alterations or substantial improvements to buildings or structures, the placement of buildings or structures, mining, dredging, filling, grading, paving, excavating or drilling operations or storage of equipment, the storage, deposition, or extraction of materials, and the installation, repair or removal of public or private sewage disposal systems or water supply facilities located within the area of special flood hazard.

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, as a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before November 1, 1984, the effective date of the flood plain management regulations adopted by the 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).

Federal Emergency Management Agency (FEMA): Is the federal agency that administers the National Flood Insurance Program (NFIP).

Finished Living Space: Means, as related to fully enclosed areas below the base flood elevation (BFE), a space that is, but is not limited to, heated and/or cooled, contains finished floors, has sheetrock walls that may or many not be painted or wallpapered, and other amenities such as furniture, appliances, bathrooms, fireplaces and other items that are easily damaged by floodwater and expensive to clean, repair or replace. The unfinished enclosed areas below the BFE should comply with FEMA Technical Bulletin 2, Flood-Damage Resistant Materials Requirements.

Flood or flooding: Means a general and temporary condition of partial or complete inundation of normally dry land areas as from either: (1) the overflow of inland or tidal waters, or (2) the unusual and rapid accumulation or runoff of surface waters from any source.

Flood Insurance Rate Map (FIRM): Means the official map of a community on which the Federal Emergency Management Agency (FEMA) has delineated both the areas of special flood hazards (100-year floodplain) and the insurance risk premium zones applicable to the community.

Flood Insurance Study (FIS): Means the official study of a community in which the Federal Emergency Management Agency (FEMA) has conducted an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations.

Floodway: Means the channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation by more than one foot. For the purposes of these regulations, the term “Regulatory Floodway” is synonymous in meaning with the term “Floodway”.

Functionally Dependent Use or Facility: Means a use or facility that 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 shipbuilding and ship repair facilities. The term does not include seafood processing facilities, long-term storage, manufacturing, sales, or service facilities.

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 historic 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: (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.

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 an area meets the design requirements specified in Section 5.2-4 of this regulation.

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 attached to the required utilities. The term also includes park trailers, travel trailers, recreational vehicles and other similar vehicles or transportable structure placed on a site for one hundred and eighty (180) consecutive days or longer and intended to be improved property.

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.

Market Value: Means, as related to substantial improvement and substantial damage, the market value of the structure shall be determined by the tax assessor’s appraised value minus land value prior to the start of the initial repair or improvement, or in the case of damage, the value of the structure prior to the damage occurring.

Mean Sea Level (MSL): Means 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.

Mobile home: Means a structure that is transportable in one or more sections, built on a permanent chassis, and designed to be used with or without a permanent foundation when connected to the required utilities. It does not include recreational vehicles or travel trailers.

New Construction: Means structures for which the “start of construction” commenced on or after November 1, 1984, the effective date of this ordinance, 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, November 1, 1984 of the floodplain management regulation adopted by the community.

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 projection; (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 a temporary living quarters for recreational, camping, travel, or seasonal use.

Start of Construction: Means, (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, rehabilitation, addition placement, substantial improvement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the state 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 erections 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.

Structure: Means a walled and roofed building that is principally above ground, including a manufactured home, a gas or liquid storage tank, or other man-made facilities or infrastructures.

Substantial Damage: Means damage of any origin sustained by a structure, whereby the cost of restoring the structure to its pre-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial Improvement: Means any combination of repairs, alteration, reconstruction, rehabilitation, addition, or other improvement of a structure taking place within a one (1) year period, the cumulative cost of which equals or exceeds 50 percent of the market value (as determined by the tax assessor's appraised value) of the structure before the "start of construction" of the improvement. This term includes structures that have incurred "substantial damage", regardless of the actual repair work performed. The market value of the structure should be (1) the tax assessor's appraised value of the structure, minus land value, prior to the start of the initial repair or improvement, or (2) in case of damage, the value of the structure prior to the damage occurring. For purposes of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include either (1) any project for improvement of a structure to correct existing state or local health, sanitary, or safety code specifications which have been previously identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or (2) any alteration of a "historic structure", provided that the alteration will not preclude the structure's continued designation as a "historic structure".

Variance: Means a grant of relief from the requirements of this ordinance which permits construction in a manner that would otherwise be prohibited by this ordinance.

Violation: Means a failure of a structure or other development to be fully compliant with the community's floodplain management ordinance. A structure or other development without required permits, lowest floor elevation documentation, flood-proofing certificates or required floodway encroachment calculations is presumed to be in violation until such time as that documentation is provided.

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

3.0 GENERAL PROVISIONS

3.1 LANDS TO WHICH THIS ORDINANCE APPLIES

This ordinance shall apply to all areas of special flood hazards within the jurisdiction of the Borough of Danielson

3.2 BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD

The areas of special flood hazard identified by the Federal Insurance Administration Federal Emergency management Agency (FEMA) in a its scientific and engineering report entitled Flood Insurance Study (FIS) for Windham County, Connecticut, dated September 7, 2023, with accompanying Flood Insurance Rate Maps (FIRM), dated September 7, 2023, and other supporting data applicable to the Borough of Danielson, 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 areas of special flood hazard include any area shown on the FIRM as Zones A, AE, AO, and AH, including areas designated as a floodway on a FIRM. Areas of special flood hazard 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 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 are areas of potential, demonstrable or historical flooding, including any area contiguous with but outside the areas of special flood hazard identified by FEMA, and where the land surface elevation is lower than the base flood elevation (BFE) as shown in the FIS, and the area is not protected from flooding by a natural or man-made feature. The FIRM and FIS are on file at the office of the Town Clerk.

3.3 COMPLIANCE

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

3.4 ABROGATION AND GREATER RESTRICTIONS

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

3.5 INTERPRETATION

In the interpretation and application of this ordinance, all provisions shall be:

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

3.6 WARNING AND DISCLAIMER OF LIABILITY

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations.

Larger floods can and will occur on rarer occasions. Flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This regulation shall not create liability on the part of the Borough of Danielson, any officer or employee thereof, or the Federal Emergency Management Agency (FEMA), for any flood damages that result reliance on this regulation, or any administrative decision lawfully made thereunder.

4.0 ADMINISTRATION

4.1 PERMITS REQUIRED

Prior to the beginning of any development, or any construction thereof, within any area of special flood hazard established in Section 3.2; the applicant must apply for the proper planning, zoning, and building permits as required by the Town of Killingly. Said applications are available in the Planning & Development Office at Town Hall. Included with the application should be a site plan (three copies thereof) drawn to scale showing the nature, location, dimension, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities; and the location of the forgoing.

Specifically, the following information is required.

1. Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures.
2. Elevation in relation to mean sea level to which any structure has been flood proofed.
3. Certification by a registered professional engineer or architect that the flood proofing methods for any nonresidential structure meet the flood proofing criteria in Section 5.2-2.
4. Description of the extent to which any watercourse will be altered or relocated because of the proposed development.
5. Applicant to pay all the appropriate fees for all the applications applied for.

4.2 OFFICER'S DESIGNATED TO ADMINISTER AND IMPLEMENT THIS REGULATION

The Zoning officer of the Borough of Danielson is hereby appointed to administer and implement this ordinance by granting or denying development permit applications in accordance with its provisions.

4.3 DUTIES AND RESPONSIBILITIES OF THE BUILDING OFFICIAL AND ZONING ENFORCEMENT OFFICER

The duties of the Building Official and Zoning Enforcement Officer shall include but not be limited to:

4.3-1 PERMIT REVIEW

1. Review all permit applications to determine that the permit requirements of this ordinance have been satisfied and to determine whether the proposed building site will be reasonably safe from flooding.
2. Review all permit applications to determine that the permit requirements of this ordinance have been satisfied and to determine whether the proposed building site will be reasonably safe from flooding.

4.3-2 OTHER BASE FLOOD DATA

When base flood elevation data has not been provided in accordance with Section 3.2 BASIS FORESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD, the Building Official and Zoning Enforcement Officer shall obtain, review, and reasonably utilize any base flood elevation data available from a federal, state, or other source, in order to administer Section 5.2-1 SPECIFIC STANDARDS, Residential Construction, and Section 5.2-2, SPECIFIC STANDARDS, Nonresidential Construction.

4.3-3 INFORMATION TO BE OBTAINED AND MAINTAINED BY ZONING OFFICER

1. Obtain and record the actual elevation (in relation to mean sea level) of the lowest habitable floor (including basement) of all new or substantially improved structures.
2. For all new or substantially improved flood proofed structures
 - a. Verify and record the actual elevation (in relation to mean sea level), and
 - b. Maintain the flood proofing certifications required in Section 4.1 (3).
3. Maintain for public inspection all records pertaining to the provision of this ordinance.

4.3-4 ALTERATION OF WATERCOURSES

Approved: July 17, 2023; Effective: August 21, 2023

1. Notify adjacent communities and the Department of Energy and Environmental Protection prior to any alteration or relocation of a watercourse and submit evidence of said notification to the Federal Emergency Management Agency (FEMA).
2. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.

4.3-5.1 INTERPRETATION OF FIRM BOUNDARIES

Make interpretations where needed, as to the exact location of the boundaries of the areas or 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 a reasonable opportunity to appeal the interpretation as provided in Section 4.4.

4.4 VARIANCE PROCEDURE

4.3-1.1 APPEAL BOARD

1. The Zoning Board of Appeals as established by Town of Killingly, shall hear and decide appeals and request for variances from the requirements of this ordinance.
2. The Town of Killingly Zoning Board of Appeals shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the Building Official in the enforcement of this ordinance.
3. Any person aggrieved by the decision of the Town of Killingly Zoning Board of Appeals may appeal such decision to the Superior Court, as provided by law.
4. In passing upon such applications, The Town of Killingly Zoning Board of Appeals shall consider all technical evaluations, all relevant factors, standards specified in other sections of this ordinance, and
 - i. The danger that materials may be swept onto other lands to the injury of others;
 - ii. The danger of life and property due to flooding or erosion damage;
 - iii. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 - iv. The importance of the services provided by the proposed facility to the community;
 - v. The necessity to the facility of a waterfront location, where applicable;
 - vi. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
 - vii. The compatibility of the proposed use with existing and anticipated developments
 - viii. The relationship of the proposed use to the comprehensive plan and flood plain management program for that area
 - ix. The safety of access to the property in times of flood for ordinary and emergency vehicles;
 - x. 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; and,
 - xi. The costs of providing 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.

5. Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level providing items (i-xi) in Section 4.4-1(4) have been fully considered. As the lot size increases beyond the one-half acre, the technical justification required for issuing the variance increases.
6. Upon consideration of the factors of Section 4.4-1(4) and the purposes of this ordinance, the Town of Killingly Zoning Board of Appeals may attach such conditions as it deems necessary to further the purposes of this ordinance.
7. The Zoning Enforcement Officer shall maintain the records of all appeal actions and. report any variances to the Federal Emergency Management Agency (FEMA) upon request.

4.4-2 CONDITIONS FOR VARIANCES

1. Variances may be issued for the reconstruction, rehabilitation or restoration structures listed on the National Register of Historic Places or State Inventory of Historic Places, without regard to the procedures set forth in the remainder of this section.
2. Variances shall not be issued within any designated floodway if any -increase in flood levels during the base flood discharge would result.
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:
 - i. A showing of good and sufficient cause;
 - ii. A determination that failure to grant the variance would result in exceptional hardship to the applicant; and,
 - iii. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public as identified on Section 4.4-1(4), 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 a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk from the reduced lowest floor elevation.
6. Such applicant must record such variance in the town land records before it shall become effective.

5.0 PROVISIONS FOR FLOOD REDUCTION

5.1 GENERAL STANDARDS

In all areas of special flood hazards the following standards are required:

5.1-1 ANCHORING

1. All new construction and substantial improvement shall be anchored to prevent flotation, collapse, or lateral movement of the structure, resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

2. All manufactured (mobile) homes shall be placed on a permanent foundation which itself is securely anchored to resist flotation, collapse, or lateral movement, hydrodynamic pressures, and impact from floating debris by providing over-the-top ties to ground anchors. The foundation and anchorage of manufactured homes to be located in floodways shall be designed and constructed in accordance with ASCE 24. Specific requirements for manufactured (mobile) homes are listed in Section 5.2-3.

5.1-2 CONSTRUCTION MATERIALS AND METHODS

1. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage. Materials shall conform to the provisions of FEMA Technical Bulletin 2, Flood Damage-Resistant Material Requirements. This includes, but is not limited to, flooring, interior, and exterior walls, wall coverings and other materials installed below the base flood elevation plus one (1.0) foot. The bottom of all electrical, heating, plumbing, ventilation and air conditioning equipment, appliances, fixtures and components, HVAC duct work and duct systems, and any other utility service equipment, facilities, machinery, or connections servicing a structure shall be elevated at least one foot (1.0 ft) above the base flood elevation (BFE). This includes, but is not limited to, furnaces, oil or propane tanks, air conditioner, heat pumps, hot water heaters, ventilation duct work, washer and dryer hook-ups, electrical junction boxes, and circuit breaker boxes. Connections or other equipment that must be located below the BFE plus one foot (1.0 ft) elevation are permitted only when no other elevation alternative is available and provided they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of the base flood event. Electrical wiring systems that must be located below the BFE plus one foot (1.0 ft) shall conform to the standards for wet locations.
2. All new construction and substantial improvements shall be constructed using methods and practices that minimized flood damage.

1.3-3 UTILITIES

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

5.1-4 SUBDIVISION PROPOSALS

1. All subdivision proposals shall be consistent with the need to minimize flood damage.
2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.
3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage,
4. Base flood elevation data shall be provided for all subdivision proposals and other proposed development, including manufactured home parks and subdivisions. In all areas of special flood hazard where base flood elevation data is not available, the applicant shall provide a hydrologic

and hydraulic engineering analysis performed by a registered professional engineer that generates base flood elevations for all subdivision proposals and other proposed development, including manufactured home parks and subdivisions.

1.1-5 **ADDITIONAL STANDARDS**

1. Underground tanks shall be anchored to prevent flotation, collapse, and lateral movement under conditions of the base flood. The bottom of above-ground storage tanks which are located outside or inside of a structure must be elevated one (1.0) foot above the base flood elevation or shall be securely anchored to prevent flotation, collapse, or lateral movement under conditions of the base flood. Where elevated on plat forms, the platforms shall be cantilevered from, or knee braced to the building, or shall be supported on elevated foundations that conform to the standards for the particular flood zone as described in Section 5.3. Anchored tanks must have the top of the fill pipe located at least one (1.0) foot above the BFE and have a screw fill cap that does not allow for the infiltration of flood water.
2. New construction, substantial improvements and repair to structures that have sustained substantial damage cannot be constructed or located entirely or partially over water unless they are a functionally dependent use or facility.
3. If any portion of a structure lies within the area of special flood hazard, the entire structure is considered to be located within the area of special flood hazard and must meet the construction requirements of the flood zone. The structure includes any structurally attached additions, garages, decks, porches, sunrooms, patios, or any other structure attached to the main structure.
4. If a structure lies within two or more flood zones, the construction standards of the most restrictive zone apply to the entire structure (i.e., the structure must be built to the highest base flood elevation). The structure includes any structurally attached additions, garages, decks, porches, patios, sunrooms, or any other structure attached to the main structure.
5. Compensatory Storage. The water holding capacity of the floodplain, except those areas which are tidally influenced, shall not be reduced. Any reduction caused by filling, new construction or substantial improvements involving an increase in 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.
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 any (0.00) feet increase in flood levels (base flood elevation – BFE). 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.

5.2 SPECIFIC STANDARDS

In all areas of special flood hazards where base flood elevation (BFE) data has been provided as set forth in Section 3.2 BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD or Section 4.3-2 OTHER BASE FLOOD DATA, the following provisions are required.

5.2-1 RESIDENTIAL CONSTRUCTION

New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to or above the base flood elevation (BFE) plus one (1.0) foot.

5.2-2 NON-RESIDENTIAL CONSTRUCTION

New construction and substantial improvement of any commercial, industrial, or other nonresidential structure shall either have the lowest floor, including basement, elevated to one (1.0) foot above the level of the base flood elevation (BFE); or, together with attendant utility and sanitary facilities, shall.

1. Be dry flood proofed so that below the base flood elevation plus one(1.0) foot level the structure is watertight with walls substantially impermeable to the passage of water.
2. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and,
3. Be certified by a registered professional engineer or architect that the standards of this subsection are satisfied. *Structural design specifications and plans for the construction must be in accordance with acceptable standards of practice for meeting the provisions of this section.* Such certifications shall be provided to the official as set forth in Section 4.3-3(2) on the *FEMA Floodproofing Certificate. Electrical, plumbing, machinery, or other utility equipment that service the structure must be elevated one (1.0) foot above the base flood elevation.*

1.2-3 MANUFACTURED (MOBILE) HOMES AND RECREATIONAL VEHICLES

1. All manufactured homes (including “mobile” homes placed on site for 180 consecutive days or longer) to be newly placed, undergoing a substantial improvement or repaired as a result of substantial damage shall be elevated so that the bottom of the frame is located one (1.0) foot above the base flood elevation (BFE). This includes manufactured homes located outside a manufactured home park or subdivision, in a new manufactured home park or subdivision, in an existing manufactured home park or subdivision, in an expansion to an existing manufactured home park or subdivision, or on a site in an existing manufactured home park in which a manufactured home has incurred substantial damage as a result of a flood.
2. The manufactured home must also meet all the general standards per Section 5.1-2 and 5.1-3.
3. All manufactured homes shall be placed on a permanent foundation which itself is securely anchored and to which the structure is securely anchored so that it will resist flotation, lateral movement, hydrodynamic pressures, and impact from floating debris. Anchoring may include, but not be limited to, the use of over-the-top or frame ties to ground anchors.
4. Manufactured homes shall be anchored in accordance with Section 5.1-1(2).
5. No manufactured homes shall be placed in a floodway.
6. All manufactured (mobile) homes shall be installed using methods and practices which minimize flood damage. Adequate access and drainage should be provided. Elevation construction standards include piling foundations placed no more than ten (10) feet apart, and reinforcement is provided for piers more than six (6) feet above ground level.
7. Recreational vehicles shall meet the following requirements: either be on the site for fewer than 180 consecutive days and be fully licensed and ready for highway use or meet all the elevation and anchoring requirements for a manufactured home listed 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 type utilities and security devices and has no permanently attached additions.

5.2-4 ELEVATED BUILDINGS

1. All new construction, substantial improvements, or repair to structures that have sustained substantial damage, whether residential or non-residential, that include fully enclosed areas formed by a foundation and other exterior walls shall have the lowest floor elevated to one (1.0) foot above the base flood elevation (BFE). The elevated building shall be designed to preclude finished living space below the lowest floor and be designed to allow for the entry and exit of flood waters to automatically equalize hydrostatic flood forces on exterior walls (wet flood-proofing). Designs for complying with this requirement must either be certified by a registered professional engineer or architect as meeting the requirements of ASCE 24 Section 2.6.2.2, or meet the following minimum criteria listed in sections a-h below:
 - a. Provide a minimum of two (2) openings (hydraulic flood vents) having a total net area of not less than one square inch for every one square foot of enclosed area subject to flooding. The enclosed area is measured on the exterior of the enclosure walls. These hydraulic openings must be located on at least two different exterior walls of each enclosed area. If the structure has more than one enclosed area, openings must be installed in the exterior walls of each enclosed area so that flood waters can enter directly from the outside.
 - b. The bottom of all openings shall be no higher than one (1.0) foot above the higher of either the final interior grade or floor elevation, or the finished exterior grade adjacent to the outside of the foundation wall. At least one side of the structure's fully enclosed area must be at or above grade. Filled place around the foundation walls must be graded so that the elevation inside the enclosed area is equal to or higher than the adjacent outside elevation on at least one side of the building. The finished floor of the enclosed area shall be no lower than the bottom of the foundation openings. The foundation slab of a residential structure, including the slab or a crawlspace, must be set equal to the outside finished grade on at least one side of the building.
 - c. The openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic entry and exit of flood waters in both directions without any external influence or control such as human intervention, including the use of electrical and other non-automatic mechanical means. These coverings must not block or impede the automatic flow of floodwaters into and out of the enclosed area. Other coverings may be designed and certified by a registered professional engineer or approved by the Building Official.
 - d. Openings shall not be less than three (3) inches in any direction in the plane of the wall.
 - e. The area cannot be used as finished living space. The use of the enclosed area shall be the minimum necessary and shall only be used for the parking of vehicles, building access or limited storage. Access to the enclosed area shall be the minimum necessary to allow for the parking of vehicles (garage door) or limited storage of maintenance equipment used in connection with the premises (standard exterior door) or entry to the living area (stairway or elevator). The enclosed area shall not be used for human habitation.
 - f. All interior walls, floor, and ceiling materials located below the base flood elevation plus one (1.0) foot elevation shall be unfinished and resistant to flood damage-resistant in accordance with FEMA Technical bulletin 2. Flood Damage-Resistant

Requirements.

- g. Electrical plumbing, HVAC ductwork, machinery or other utility equipment and connections that service the structure (including, but not limited to, furnaces, oil or propane tanks, air conditioner, heat pumps, hot water heaters, ventilation, washers and dryer hook-ups, electrical junction boxes, circuit breaker boxes and food freezers) are prohibited in the fully enclosed area below the base flood elevation plus one (1.0) foot elevation. Utilities or service equipment located in this enclosed area, even if elevated one (1.0) foot above the base flood elevation in the space, will subject the structure to increased flood insurance rates.
- h. A residential building with a structurally attached garage having its floor slab below the base flood elevation is considered an enclosed area below the base flood elevation and must meet the standards of Section 5.2-4 a-g. A garage attached to a residential structure, constructed with the garage floor slab below the base flood elevation, must be designed to allow for the automatic entry and exit of floodwaters in both directions. Flood openings or vents are required in the exterior walls of the garage or in the garage doors. Garage doors that must be manually opened do not meet the flood vent opening requirement in Section 5.2-4 a-c. In addition to the automatic entry of flood water, the areas of the garage below the base flood elevation plus one (1.0) foot must be constructed with flood damage-resistant materials per the requirements of FEMA Technical Bulletin 2. Garages attached to non-residential structures must also meet the aforementioned requirement or be dry flood proofed as per the requirement of Section 5.2-2.

5.3 FLOODWAYS

Located within areas of special flood hazard established in Section 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:

1. Encroachments, including fill, new construction, substantial improvement, and other development is prohibited unless certification (*with supporting technical data*) by a registered professional engineer is provided demonstrating, *through hydrologic and hydraulic analyses performed in accordance with standard engineering practice*, that such encroachment will not result in any (0.00 feet) increase in flood levels during the occurrence of the base flood discharge *published by FEMA. Buildings and structures meeting the standard above and located in whole or in part in the floodway shall be designed and constructed in accordance with ASCE 24. Fences in the floodway must be aligned with the flow and be of an open design. A permit may be given which allows encroachments resulting in increases in base flood elevations provided the community first obtains a conditional floodway revision by meeting the requirement of C.F.R. 44, Chapter 1, Subsection 65.12.*
2. If Section 5.3(1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 5.0 PROVISION FOR FLOOD HAZARD REDUCTION.
3. *The Building Official may request floodway data of an applicant for 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 municipality's request or not), the community 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 (1.0) foot at any point within the community.*
4. *When base flood elevations (BFEs) have been determined within Zone AE on the community's*

Flood Insurance Rate Map (FIRM) but a regulatory floodway has not been designated, the Building Official must require that no new construction, substantial improvements, repairs to structures which have sustained substantial damage or other development, including fill, shall be permitted which will increase the water surface elevation of the base flood more than one (1.0) foot at any point within the community when all existing and anticipated development is considered cumulatively with the proposed development.