

PART 22: FLOOD DAMAGE PREVENTION ORDINANCE  
TABLE OF CONTENTS

<u>Description</u>	<u>Page No.</u>
Ordinance	22-1

CITY OF COLUMBIA REGULATIONS  
PART 22  
FLOOD DAMAGE PREVENTION ORDINANCE  
ORDINANCE

Amending 1979 Code of Ordinances of The City of Columbia,  
South Carolina, Part 6, Chapter 12 Flood Damage Prevention

BE IT ORDAINED by the Mayor and Council this 3<sup>rd</sup> day of October, 1990, that the 1979 Code of Ordinances of The City of Columbia, South Carolina, Part 6, Chapter 12 Flood Damage Prevention, is amended as follows:

1. Article B, Section 6-12011 Definitions of terms, is amended by inserting the following:

(11) Existing construction means any structure for which the “Start of construction” commenced before August 26, 1981.

(12) Existing manufactured home park or subdivision means a manufactured home park or subdivision for which the construction of facilities for servicing the lots which the manufactured homes are to be affixed (including at a minimum the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before August 26, 1981.

(13) Expansion to an existing manufactured home park of 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).

2. (11) Flood or flooding through (18) Highest adjacent grade are renumbered (14) through (21).

3. (22) is added as follows:

(22) Historic structure means any structure that is:

- a. Listed individually in the National Register of Historic Places (a listing maintained by the Department of 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 preliminary 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.

4. (20) Manufactured home is re-numbered (23), (19) Mean sea level is re-numbered (24), (21) National geodetic vertical datum (NGVD) is re-numbered (25).

5. (22) is amended to read as follows:

(26) New construction means structures for which the “start of construction” commenced on or after the effective date of this chapter. The term also includes any subsequent improvements to such structure.

6. (27) and (28) are added as follows:

(27) 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 hereof.

(28) Recreational vehicle means a vehicle which is:

- a. built on a single chassis;
- b. 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 temporary living quarters for recreational, camping, travel or seasonal use.

7. (23) Start of construction is re-numbered (29), (24) Structure is renumbered (30).

8. (31) is added as follows:

(31) Substantial damage means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 per cent of the market value of the structure before the damage occurred.

9. (25) Substantial improvement is re-numbered (32).

10. (33) is added as follows:

(33) Substantially improved existing manufactured home parks or subdivision is where the repair, reconstruction, rehabilitation or improvement of the streets, utilities and pads equal or exceed 50 per cent of the value of the streets, utilities and pads before the repair, reconstruction or improvement commenced.

11. (26) is re-numbered (34).

12. Article E, Section 6-12052 Specific standards, is amended by inserting the following:

(4) Standards for manufactured homes and recreational vehicles.

- (a) All manufactured homes placed, or substantially improved, on individual lots or parcels, in expansions to existing manufactured home parks or subdivisions, or in substantially improved manufactured home parks or subdivisions, must meet all the requirements for new construction, including elevation and anchoring.
- (b) All manufactured homes placed or substantially improved in an existing manufactured home park or subdivision must be elevated so that:
  - (i) the lowest floor of the manufactured home is elevated no lower than two (2) feet above the level of the base flood elevation; or
  - (ii) the manufactured home chassis is supported by reinforced piers or other foundation elements of at least an equivalent strength, of no less than 36 inches in height above grade;
  - (iii) the manufactured home must be securely anchored to the adequately anchored foundation system to resist flotation, collapse and lateral movement;
  - (iv) in an existing manufactured home park or subdivision on which a manufactured home has incurred “substantial damage” as the result of a flood, any manufactured home placed or substantially improved must meet the standards of Article E, Section 6-12052 (4) (a) or (b) above.
- (c) All recreational vehicles placed on sites must either
  - (i) be fully licensed and ready for highway use, or
  - (ii) the recreational vehicle must meet all the requirements for new construction including anchoring and elevation requirements of Article E, Section 6-12052 (4) (b) (i) and (iii) above.

A recreation 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 structures.

13. (4) Floodways. Is re-numbered (5).

Requested by:

\_\_\_\_\_  
Approved by:

/s \_\_\_\_\_  
City Manager

/s \_\_\_\_\_

ATTEST:

Approved as to form:

/s \_\_\_\_\_  
City Attorney

/s \_\_\_\_\_  
City Clerk

Introduced September 19, 1990

Final Reading October 3, 1990

ORDINANCE

Amending 1979 Code of Ordinances of The City of Columbia,  
South Carolina, Part 6, Chapter 12 Flood Damage Prevention,  
by Repealing Entire Chapter and Adopting new Chapter 12

BE IT ORDAINED by the Mayor and Council this 3<sup>rd</sup> day of February, 1988, that the 1979 Code of Ordinances of The City of Columbia, South Carolina, Part 6, Chapter 12 Flood Damage Prevention, is hereby repealed and new Chapter 12 is adopted as shown on attached.

Requested by:

\_\_\_\_\_

/s \_\_\_\_\_

MAYOR

Approved by:

/s \_\_\_\_\_

ATTEST:

Approved as to Form:

/s \_\_\_\_\_

City Attorney

/s \_\_\_\_\_

City Clerk

Introduced: 1/20/88

Final Reading: 2/3/88

FLOOD DAMAGE PREVENTION ORDINANCE

ARTICLE 1. STATUTORY AUTHROIZATION, FINDINGS OF FACT, PURPOSE AND OBJECTIVES

SECTION A. STATUTORY AUTHROIZATION

The Legislature of the State of South Carolina has in Act No. 283 of 1975 delegated the (statutes) responsibility to local governmental units to adopt regulations designed to promote the public health, safety and general welfare of its citizenry. Therefore, the City Council of (governing body) the City of Columbia, South Carolina does ordain as follows:

SECTION B. FINDINGS OF FACT

- (1) The flood hazard areas of the City of Columbia are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.
- (2) These flood losses are caused by the cumulative effect of obstructions in flood plains causing increases in flood heights and velocities, and by the occupancy in flood hazard areas by uses vulnerable to floods or hazardous to other lands which are inadequately elevated, flood-proofed, or otherwise protected from flood damages.

SECTION C. STATEMENT OF PURPOSE

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

- (1) restrict or prohibit uses which are dangerous to health, safety and property due to water, erosion, flood heights and velocities;
- (2) require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- (3) control the alteration of natural flood plains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters;
- (4) control filling, grading, dredging and other development which may increase erosion or flood damage; and ,
- (5) prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.

## SECTION D. OBJECTIVES

The objectives of this ordinance are:

- (1) to protect human life and health;
- (2) to minimize expenditures 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 general public;
- (4) to minimize prolonged 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 flood plains;
- (6) to help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize future flood blight areas; and,
- (7) to insure that potential home buyers are notified that property is in a flood area.

## ARTICLE 2. DEFINITIONS

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

“Addition (to an existing building)” means any walled and roofed expansion to the perimeter of a building in which the addition is connected by a common loadbearing wall other than a fire wall. Any walled and roofed addition which is connected by a fire wall or is separated by independent perimeter loadbearing walls is new construction.

“Appeal” means a request for a review of the \_\_\_\_\_ City Engineer’s  
(local administrator)

“Area of shallow flooding” means a designated AO Zone on a community’s Flood Insurance Rate Map (FIRM) with base flood depths from one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident.

“Area of special flood hazard” is the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year.

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

“Basement” means that portion of a building having its first floor subgrade (below ground level) on all sides.

“Breakaway wall” means 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 the supporting foundation system.

“Building” means any structure build for support, shelter, or enclosure for any occupancy or storage.

“Development” means any man-made changes to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation, drilling operations, or permanent storage of materials.

“Elevated building” means a non-basement building built to have the lowest floor elevated above the ground level by means of fill, solid foundation perimeter walls, pilings, columns (posts and piers), shear walls, or breakaway walls.

“Flood” or “flooding” means a general and temporary condition of partial or complete inundation of normally dry land areas from the unusual and rapid accumulation of surface waters from any source.

“Flood Hazard Boundary Map (FHBM)” means an official map of a community, issued by the Federal Emergency Management Agency, where the boundaries of the areas of special flood hazard have been defined as Zone A.

“Flood Insurance Rate Map (FIRM)” means an official map of a community, on which the Federal Emergency Management Agency has delineated both the areas of special flood hazard and the risk premium zones applicable to the community.

“Flood Insurance Study” is the official report provided by the Federal Emergency Management Agency. The report contains flood profiles, as well as the Flood Boundary and Floodway Map and the water surface elevation of the base flood.

“Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

“Floor” means the top surface of an enclosed area in a building (including basement), I.e., top of a slab in concrete slab construction or top of wood flooring in wood frame construction. The term does not include the floor of a garage used solely for parking vehicles.

“Functional dependent facility” means a facility which cannot be used for its intended purpose unless it is located or carried out in close proximity to water, such as a dock. The term does not include long-term storage, manufacture, sales, or service facilities.

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

“Mean Sea Level” means the average height of the sea for all stages of the tide. It is used as a referenced for establishing various elevations within the flood plain. For the purpose of this ordinance, the term is synonymous with National Geodetic Vertical Datum (NGVD).

“Manufactured home” means a structure, transportable in one or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. The term also includes park trailers, travel trailers, and similar transportable structures placed on a site for 180 consecutive days or longer and intended to “be improved property.

“National Geodetic Vertical Data (NGVD)” as corrected in 1929 is a vertical control used as a reference for establishing various elevations within the flood plain.

“New construction” means structures for which the “start of construction” commenced on or after the effective date of this ordinance.

“Start of construction” includes substantial improvements, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, or improvement was within 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 the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading or filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for 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.

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

“Substantial improvement” means any combination of repairs, reconstruction, alteration, or improvements to a structure in which the cumulative cost equals or exceeds fifty percent of the market value of the structure. The market value of the structure should be (1) the appraised value of the structure 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. For the purposes of this definition, “substantial improvement” is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include any project for improvement of a structure required to comply with existing health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions.

“Variance” is a grant of relief from the requirements of this ordinance which permits construction in a manner otherwise prohibited by this ordinance where specific enforcement would result in unnecessary hardship.

ARTICLE 3.           GENERAL PROVISIONS

SECTION A.           LANDS TO WHICH THIS ORDINANCE APPLIES

This ordinance shall apply to all areas of special flood hazard within the jurisdiction of the City of Columbia.

SECTION B.           BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD

The areas of special flood hazard identified by the Federal Emergency Management Agency in its Flood Insurance Study for the City of Columbia, and any other supporting data, and any revisions thereto, are adopted by reference and declared to be a part of this ordinance.

SECTION C.           ESTABLISHMENT OF DEVELOPMENT PERMIT

A Development Permit shall be required in conformance with the provisions of this ordinance prior to the commencement of any development activities.

SECTION D.           COMPLIANCE

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

SECTION E.           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 conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

SECTION F.           INTERPRETATION

In the interpretation and application of this ordinance all provisions shall be: (1) considered as minimum requirements; (2) liberally construed in favor of the governing body, and; (3) deemed neither to limit nor repeal any other powers granted under state statutes.

SECTION G.           WARNING AND DISCLAIMER OF LIABILITY

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

SECTION H.           PENALTIES FOR VIOLATION

Violation of the provisions of this ordinance or failure to comply with any of its requirements, including violation of conditions and safeguards established in connection with grants of variance or special exceptions, shall constitute a misdemeanor. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the City of Columbia from taking such other lawful action as is necessary to prevent or remedy any violation.

ARTICLE 4.           ADMINISTRATION

SECTION A.           DESIGNATION OF CITY ENGINEER  
(local administrator)

The City Engineer is hereby appointed to administer and implement the provisions (local administrator) of this ordinance.

## SECTION B. PERMIT PROCEDURES

Application for a Development Permit shall be made to the City Engineer on forms (local administrator) furnished by him or her prior to any development activities, and may include, but not be limited to, the following; plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage, facilities, and the location of the foregoing. Specifically, the following is required:

- (1) Application Stage.
  - (a) Elevation in relation to mean sea level of the proposed lowest floor (including basement) of all structures;
  - (b) Elevation in relation to mean sea level to which any non-residential structure will be flood-proofed;
  - (c) Certification from a registered professional engineer or architect that the non-residential flood-proofed structure will meet the flood-proofing criteria in Article 5, Section B (2);
  - (d) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development, and;
- (2) Construction Stage.

Provide a floor elevation or flood-proofing certification after the lowest floor is completed. Upon placement of the lowest floor or flood-proofing by whatever construction means, it shall be the duty of the permit holder to submit to the City Engineer a (local administrator) certification of the elevation of the lowest floor or flood-proofed elevation, asbuilt, in relation to mean sea level. Said certification shall be prepared by or under the direct supervision of a registered land surveyor or professional engineer and certified by same. When flood-proofing is utilized for a particular building, said certification shall be prepared by or a under the direct supervision of a professional engineer of architect and certified by same. Any work undertaken prior to submission of the certification shall be at the permit holder's risk. The City Engineer shall review the floor elevation survey data submitted. Deficiencies (local administrator) detected by such review shall be corrected by the permit holder immediately and prior to further progressive work being permitted to proceed. Failure to submit the survey or failure to make said corrections required hereby, shall be cause to issue a stop-work order for the project.

## SECTION C. DUTIES AND RESPONSIBILITIES OF THE CITY ENGINEER

Duties of the City Engineer shall include, but not be limited to: (local administrator)

- (1) Review all development permits to assure that the permit requirements of this ordinance have been satisfied.
- (2) Advise permittee that additional federal or state permits may be required, and if specific federal or state permit requirements are known, require that copies of such permits be provided and maintained on file with the development permit.
- (3) Notify adjacent communities and the Water Resources Commission prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.
- (4) Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.
- (5) Verify and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures in accordance with Article 4, Section B (2).
- (6) Verify and record the actual elevation (in relation to mean sea level) to which the new or substantially improved structures have been flood-proofed, in accordance with Article 4, Section B (2).
- (7) When flood-proofing is utilized for a particular structure, the City Engineer  
(local administrator)  
shall obtain certification from a registered professional engineer or architect, in accordance with Article 5, Section B (2).
- (8) Where interpretation is needed as to the location of boundaries of the areas of special flood hazard (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the City Engineer  
(local administrator)  
the necessary interpretation. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this article.
- (9) When base flood elevation data or floodway data have not been provided in accordance with Article 3, Section B, then the City Engineer  
(local administrator)  
review, and reasonably utilize any base flood elevation data available from a federal, state or other source, in order to administer the provisions of Article 5.
- (10) All records, pertaining to the provisions of this ordinance shall be maintained in the office of the City Engineer  
(local administrator)

SECTION D. VARIANCE PROCEDURES

- (1) The Building Board of Adjustments and Appeals as established by  
(appeal board)  
Columbia City Council shall hear and decide appeals and requests for variances  
(local unit)  
from the requirements of this ordinance.

(2) The Building Board of Adjustments and Appeals shall hear and decide  
(appeal board)  
appeals when it is alleged there is an error in any requirement, decision, or determination  
made by the City Engineer in the enforcement of  
(local administrator)  
administration of this ordinance.

(3) Any person aggrieved by the decision of the  
Building Board of Adjustment and Appeals or any taxpayer may appeal such  
(appeal board)  
decision to the Court of Common Pleas, as provided by State Law.  
(name of appropriate court)

(4) 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,  
except for Article 4, Section D (8) (a) and (d), and provided the proposed reconstruction,  
rehabilitation or restoration will not result in the structure losing its historical designation.

(5) In passing upon such applications, the Building Board of Adjustments and Appeals  
(appeal board)  
shall consider all technical evaluations, all relevant factors, all standards specified in  
other sections of this ordinance, 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 of the facility to a waterfront location, in the case of a functionally  
dependent facility;
- (f) the availability of alternative locations, not subject to flooding or erosion damage,  
for the proposed use;
- (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 for 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, and;

(k) the cost 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.

(6) Upon consideration of the factors listed above, and the purposes of this ordinance, the Building Board of Adjustments and Appeals may attach such  
(appeal board)

conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.

(7) Variance shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

(8) Conditions for Variances:

(a) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief; and in the instance of a historical building, a determination that the variance is the minimum necessary so as not to destroy the historic character and design of the building;

(b) 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, 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 nuisance, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

(c) Any applicant to whom a variance is granted shall be given written notice specifying the difference between the base flood elevation and the elevation to which the structure is to be built and stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

(d) The City Engineer shall maintain the records of all appeal  
(local administrator)  
actions and report any variances to the Federal Emergency Management Agency upon request.

Article 5.

PROVISIONS FOR FLOOD HAZARD REDUCTION

SECTION A.

GENERAL STANDARDS

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

- (1) New construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure;
- (2) Manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state requirements for resisting wind forces.
- (3) New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;
- (4) New construction and substantial improvements shall be constructed by methods and practices that minimize flood damage;
- (5) Electrical, heating, ventilation, plumbing, air conditioning, equipment, and other service facilities shall be designated and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- (6) New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
- (7) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters;
- (8) On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding, and;
- (9) Any alteration, repair, reconstruction or improvements to a structure which is in compliance with the provisions of this ordinance, shall meet the requirements of “new construction” as contained in this ordinance.

## SECTION B. SPECIFIC STANDARDS

In all areas of special flooding hazard where base flood elevation data have been provided, as set forth in Article 3, Section B, or Article 4, Section C (9), the following provisions are required:

- (1) Residential Construction – New construction or substantial improvement of any residential structure shall have the lowest floor, including basement, elevated no lower than two (2) feet above the base flood elevation. Should solid foundation perimeter walls be used to elevate a structure, openings sufficient to facilitate the unimpeded movements of flood waters shall be provided in accordance with standards of Article 5, Section B (3).
- (2) Non-residential Construction – New construction or substantial improvement of any commercial, industrial, or non-residential structure shall have the lowest floor, including basement, elevated no lower than two (2) feet above the level of the base flood elevation. Structures located in all A-zones may be flood-proofed in lieu of being elevated provided that all areas of the structures below the required elevation are water tight walls substantially impermeable to the passage of water, and use structural components having the capability

of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the official as set forth in Article 4, Section B (2).

- (3) Elevated buildings – New construction or substantial improvements of elevated building that include fully enclosed areas formed by foundation and other exterior walls below the base flood elevation shall be designed to preclude finished living space and designed to allow for the entry and exit of flood waters to automatically equalize hydrostatic flood forces on exterior walls.
  - (a) Designs for complying with this requirement must either be certified by a professional engineer or architect or meet the following minimum criteria:
    - (i) Provide a minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;
    - (ii) the bottom of all opening shall be no higher than one foot above grade; and,
    - (iii) Openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of flood waters in both directions.
  - (b) Electrical, plumbing and other utility connections are prohibited below the base flood elevation;
  - (c) Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment used in connection with the premises (standard exterior door) or entry to the living area (stairway or elevator); and
  - (d) The interior portion of such enclosed area shall not be partitioned or finished into separate rooms
- (4) Floodways – Located within areas of special flood hazard established in Article 3, Section B, are areas designed as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and has erosion potential, the following provisions shall apply;
  - (a) Prohibited encroachments, including fill, new construction, substantial improvements and other developments unless certification (with supporting technical data) by a professional engineer is provided demonstrating that encroachment shall not result in any increase in flood levels during the base flood discharge;

- (b) If Article 5, Section B (4) (a) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Article 5.
- (c) Prohibit the placement of manufactured homes (mobile homes), except in an existing manufactured homes (mobile homes) park or subdivision. A replacement manufactured home may be placed on a lot in an existing manufactured home park or subdivision provided the anchoring standards or Article 5, Section A (2), and the elevation standards of Article 5, Section B (1) are met.

**SECTION C. STANDARDS FOR STREAMS WITHOUT ESTABLISHED BASE FLOOD ELEVATIONS AND/OR FLOODWAYS.**

Located within the areas of special flood hazard established in Article 3, Section B, where small streams exist but where no base flood data have been provided or where no floodways have been provided, the following provisions apply:

- (1) No encroachments, including fill material or structures shall be located within a distance of the stream bank equal to five (5) times the width of the stream at the top of the bank or twenty feet each side from top to bank, whichever is greater, unless certification by a professional engineer is provided demonstrating that such encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.
- (2) New construction or substantial improvements of structures shall be elevated or flood-proofed to elevations established in accordance with Article 4, Section C (9).

**SECTION D. STANDARDS FOR 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 hazards, and;
- (4) Base flood elevation data shall be provided for subdivision proposals and other proposed development (including manufactured homes parks and subdivisions) which is greater than the lesser of fifty lots or five acres.

**SECTION E. STANDARDS FOR AREAS OF SHALLOW FLOODING (AO ZONES)**

Located within the areas of special flood hazard established in Article 3, Section B, are areas designed as shallow flooding areas. These areas have special flood hazards associated with base flood depths of one to three feet (1'-3') where a clearly defined channel does not exist and the path of flooding is unpredictable and indeterminate; therefore, the following provisions apply:

- (1) All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to the depth number on the Flood Insurance Rate Map, in feet, above the highest adjacent grade. If not depth number is specified, the lowest floor, including basement, shall be elevated, at least two (2) feet above the highest adjacent grade.
- (2) All new construction and substantial improvements of non-residential structures shall:
  - (a) have the lowest floor, including basement, elevated to the depth number specified on the Flood Insurance Rate Map, in feet, above the highest adjacent grade. If no depth number is specified, the lowest floor, including basement shall be elevated at least two (2) feet above the highest adjacent grade, or;
  - (b) together with attendant utility and sanitary facilities be completely flood-proofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.