

2020 FDPO Amendments

Pitt County has participated in the National Flood Insurance Program (NFIP) since 1980.

Participation in the NFIP allows Pitt County citizens to purchase flood insurance.

Communities must adopt and enforce FEMA's minimum floodplain regulations.

The NC Floodplain Management Branch created a model ordinance that meets FEMA requirements which has been used by Pitt County since 2001.

This model was updated last year to meet FEMA standards, prompting these revisions to the Pitt County Ordinance.

Section 1. Statutory Authorization:

Removed individual county and municipal authorizations and replaced them with a blanket authorization to cover both and avoid redundancy.

Section 4. Objectives:

Added three new objectives;

F. Minimize damage to private and public property due to flooding;

G. Make flood insurance available to the community through the National Flood Insurance Program;

H. Maintain the natural and beneficial functions of floodplains;

Section 5. Definitions:

Added the following definitions:

Alteration of a watercourse: A dam, impoundment, channel relocation, change in channel alignment, channelization, or change in cross-sectional area of the channel or the channel capacity, or any other form of modification which may alter, impede, retard or change the direction and/or velocity of the riverine flow of water during conditions of the base flood.

Area of Future-Conditions Flood Hazard: The land area that would be inundated by the 1-percent-annual-chance (100- year) flood based on future-conditions hydrology.

Design Flood: See “Regulatory Flood Protection Elevation.”

Development Activity: Any activity defined as Development which will necessitate a Floodplain Development Permit. This includes buildings, structures, and non-structural items, including (but not limited to) fill, bulkheads, piers, pools, docks, landings, ramps, and erosion control/stabilization measures.

Digital Flood Insurance Rate Map (DFIRM): The digital official map of a community, issued by the Federal Emergency Management Agency (FEMA), on which both the Special Flood Hazard Areas and the risk premium zones applicable to the community are delineated.

Flood-resistant material: Any building product [material, component or system] capable of withstanding direct and prolonged contact (minimum 72 hours) with floodwaters without sustaining damage that requires more than low-cost cosmetic repair. Any material that is water-soluble or is not resistant to alkali or acid in water, including normal adhesives for above-grade use, is not flood-resistant. Pressure-treated lumber or naturally decay-resistant lumbers are acceptable flooring materials. Sheet-type flooring coverings that restrict evaporation from below and materials that are impervious, but dimensionally unstable are not acceptable. Materials that absorb or retain water excessively after submergence are not flood-resistant. Please refer to Technical Bulletin 2, *Flood Damage-Resistant Materials Requirements*, and available from the FEMA. Class 4 and 5 materials, referenced therein, are acceptable flood-resistant materials.

Floodway encroachment analysis: An engineering analysis of the impact that a proposed encroachment into a floodway or non-encroachment area is expected to have on the floodway boundaries and flood levels during the occurrence of the base flood discharge. The evaluation shall be prepared by a qualified North Carolina licensed engineer using standard engineering methods and models.

Letter of Map Change (LOMC): An official determination issued by FEMA that amends or revises an effective Flood Insurance Rate Map or Flood Insurance Study. Letters of Map Change include:

- A. Letter of Map Amendment (LOMA): An official amendment, by letter, to an effective National Flood Insurance Program map. A LOMA is based on technical data showing that a property had been inadvertently mapped as being in the floodplain, but is actually on natural high ground above the base flood

elevation. A LOMA amends the current effective Flood Insurance Rate Map and establishes that a specific property, portion of a property, or structure is not located in a special flood hazard area.

- B. Letter of Map Revision (LOMR): A revision based on technical data that may show changes to flood zones, flood elevations, special flood hazard area boundaries and floodway delineations, and other planimetric features.
- C. Letter of Map Revision Based on Fill (LOMR-F): A determination that a structure or parcel of land has been elevated by fill above the BFE and is, therefore, no longer located within the special flood hazard area. In order to qualify for this determination, the fill must have been permitted and placed in accordance with the community's floodplain management regulations.
- D. Conditional Letter of Map Revision (CLOMR): A formal review and comment as to whether a proposed project complies with the minimum NFIP requirements for such projects with respect to delineation of special flood hazard areas. A CLOMR does not revise the effective Flood Insurance Rate Map or Flood Insurance Study; upon submission and approval of certified as-built documentation, a Letter of Map Revision may be issued by FEMA to revise the effective FIRM.

Light Duty Truck: Any motor vehicle rated at 8,500 pounds Gross Vehicular Weight Rating or less which has a vehicular curb weight of 6,000 pounds or less and which has a basic vehicle frontal area of 45 square feet or less as defined in 40 CFR 86.082-2 and is:

- A. Designed primarily for purposes of transportation of property or is a derivation of such a vehicle, or
- B. Designed primarily for transportation of persons and has a capacity of more than 12 persons; or
- C. Available with special features enabling off-street or off-highway operation and use.

Manufactured Home Park or Subdivision: A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

Map Repository: The location of the official flood hazard data to be applied for floodplain management. It is a central location in which flood data is stored and managed; in North Carolina, FEMA has recognized that the application of digital flood hazard data products carry the same authority as hard copy products. Therefore, the NCEM's Floodplain Mapping Program websites house current and historical flood hazard data. For effective flood hazard data the NC FRIS website (<http://FRIS.NC.GOV/FRIS>) is the map repository, and for historical flood hazard data the FloodNC website (<http://FLOODNC.GOV/NCFLOOD>) is the map repository.

Technical Bulletin and Technical Fact Sheet: A FEMA publication that provides guidance concerning the building performance standards of the NFIP, which are

contained in Title 44 of the U.S. Code of Federal Regulations at Section 60.3. The bulletins and fact sheets are intended for use primarily by State and local officials responsible for interpreting and enforcing NFIP regulations and by members of the development community, such as design professionals and builders. New bulletins, as well as updates of existing bulletins, are issued periodically as needed. The bulletins do not create regulations; rather they provide specific guidance for complying with the minimum requirements of existing NFIP regulations.

It should be noted that Technical Bulletins and Technical Fact Sheets provide guidance on the minimum requirements of the NFIP regulations. State or community requirements that exceed those of the NFIP take precedence. Design professionals should contact the community officials to determine whether more restrictive State or local regulations apply to the building or site in question. All applicable standards of the State or local building code must also be met for any building in a flood hazard area.

Temperature Controlled: Having the temperature regulated by a heating and/or cooling system, built-in or appliance.

The following existing definitions were updated:

Area of Shallow Flooding: A designated Zone AO or AH on a community's Flood Insurance Rate Map (FIRM) with base flood depths determined to be from one (1) to three (3) feet. These areas are located where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident.

~~**Existing building and existing structure” means any building and/or structure for which the “start of construction” commenced before January 6, 1983.**~~

Existing building and existing structure: Any building and/or structure for which the “start of construction” commenced before 1/6/1983, the effective date of the initial FIRM.

~~**Existing Manufactured Home Park or Manufactured Home Subdivision:** 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) was completed before the initial effective date of the Floodplain Management Regulations adopted by the community.~~

Existing Manufactured Home Park or Manufactured Home Subdivision: 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) was completed before 8/18/1980, the initial effective date of the floodplain management regulations adopted by the community.

~~**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 (1) foot.~~

Floodway: the channel of a river or other watercourse, including the area above a bridge or culvert when applicable, 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 (1) foot.

Lowest Adjacent Grade (LAG): The lowest elevation of the ground, sidewalk or patio slab immediately next to the building, or deck support, after completion of the building.

~~**New Construction:** Structures for which the “start of construction” commenced on or after the effective date of the initial floodplain management regulations and includes any subsequent improvements to such structures.~~

New Construction: Structures for which the “start of construction” commenced on or after 8/18/1980, the effective date of the initial floodplain management regulations and includes any subsequent improvements to such structures.

~~**Non-Encroachment Area:** 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 (1) foot as designated in the Flood Insurance Study report.~~

Non-Encroachment Area (NEA): The channel of a river or other watercourse, including the area above a bridge or culvert when applicable, 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 (1) foot as designated in the Flood Insurance Study report.

~~**Post-FIRM:** Construction or other development for which the “start of construction” occurred on or after the effective date of the initial Flood Insurance Rate Map.~~

Post-FIRM: Construction or other development for which the “start of construction” occurred on or after 1/6/1983, the effective date of the initial Flood Insurance Rate Map.

~~**Pre-FIRM:** Construction or other development for which the “start of construction” occurred before the effective date of the initial Flood Insurance Rate Map.~~

Pre-FIRM: Construction or other development for which the “start of construction” occurred before 1/6/1983, the effective date of the initial Flood Insurance Rate Map.

Recreational Vehicle (RV): 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; ~~and~~
- E. Is fully licensed and ready for highway use.

(For the purpose of this ordinance, “Tiny Homes/Houses” and Park Models that do not meet the items listed above are not considered Recreational Vehicles and should meet the standards of and be permitted as Residential Structures.)

Reference Level: The top of the lowest floor for structures within Special Flood Hazard Areas designated as Zone AH, AE, A, A99 or AO.

Substantial Damage: Damage of any origin sustained by a structure during any one-year period whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. **Substantial damage also means flood-related damage sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before the damage occurred.** See definition of **Substantial Improvement**.

The following definition was removed:

~~**Mean Sea Level:** For purposes of this Ordinance, the National Geodetic Vertical Datum (NGVD) as corrected in 1929, the North American Vertical Datum (NAVD) as corrected in 1988, or other vertical control datum used as a reference for establishing varying elevations within the floodplain, to which Base Flood Elevations (BFEs) shown on a FIRM are referenced. Refer to each FIRM panel to determine datum used.~~

Section 6. Lands to Which this Ordinance Applies

The language for this section was altered to include and clarify Extra-Territorial Jurisdictions.

~~This Ordinance shall apply to all Special Flood Hazard Areas within the jurisdiction, of Pitt County and within the jurisdiction of any other community, including Extra-Territorial Jurisdictions (ETJs), whose governing body agrees, by resolution, to such applicability.~~

This Ordinance shall apply to all Special Flood Hazard Areas within the jurisdiction, including Extra-Territorial Jurisdictions (ETJs), as allowed by law, of Pitt County and within the jurisdiction of any other community, including Extra-Territorial Jurisdictions (ETJs), whose governing body agrees, by resolution, to such applicability.

Section 7. Basis for Establishing the Special Flood Hazard Areas

The language for this section was altered to state that any Digital Flood Insurance Rate Maps panels are declared a part of this ordinance, as well as any future revisions of those panels will automatically become a part of this ordinance. Future revisions to the FIS and DFIRM panels that do not

change flood hazard data within the jurisdictional authority Pitt County are also adopted by reference and declared a part of this ordinance.

~~The Special Flood Hazard Areas are those identified under the Cooperating Technical State (CTS) agreement between the State of North Carolina and FEMA in its Flood Insurance Study (FIS) and its accompanying Flood Insurance Rate Maps (FIRM), for Pitt County dated July 7, 2014, which are adopted by reference and declared to be a part of this ordinance. Future revisions to the FIS or FIRM panels that do not change flood hazard data within the jurisdictional authority of Pitt County are also adopted by reference and declared to be part of this ordinance. Subsequent revisions to the FIRM should be adopted within six months.~~ The Special Flood Hazard Areas are those identified under the Cooperating Technical State (CTS) agreement between the State of North Carolina and FEMA in its Flood Insurance Study (FIS) dated June 19, 2020 for Pitt County and associated Digital Flood Insurance Rate Maps (DFIRM) panels, including any digital data developed as part of the FIS, which are adopted by reference and declared a part of this ordinance, and all revisions thereto after January 1, 2021. Future revisions to the FIS and DFIRM panels that do not change flood hazard data within the jurisdictional authority Pitt County are also adopted by reference and declared a part of this ordinance. Subsequent Letter of Map Revisions (LOMRs) and/or Physical Map Revisions (PMRs) shall be adopted within 3 months.

Section 13. Penalties for Violation

Clarification was added to specify the type of misdemeanor and the amount of the fine.

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 **Class 1** misdemeanor pursuant to NC G.S. § 143-215.58. Any person who violates this Ordinance or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than ~~\$50.00~~ (\$100.00) or imprisoned for not more than thirty (30) days, or both. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent Pitt County from taking such other lawful action as is necessary to prevent or remedy any violation.

Section 15. Floodplain Development Application, Permit and Certification Requirements

A. Application Requirements

“Mean sea level” was removed and replaced with “NAVD 1988” to establish consistent and accurate data.

“Zone AE, A or AO” was replaced with “Zone A, AE, AH, AO, and A99” to ensure all Special Flood Hazard Areas are covered under the ordinance.

“FEMA Form 81-65” was replaced with “FEMA Form 086-0-34.”

B. Permit Requirements

The following requirements were changed:

1. A **complete** description of **all** the development to be permitted under the floodplain development permit. (e.g. house, garage, pool, septic, bulkhead, cabana, pier, bridge, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials, etc.).
6. A statement that no fill material or other development shall encroach into the floodway or non-encroachment area of any watercourse, ~~as applicable.~~ **unless the requirements of Section 23 (A) have been met.**
7. The flood openings requirements, if in ~~Zones A, AO, AE or A1-30~~ **Zones A, AE, AH, AO and A99.**

The following requirements were added:

8. **Limitations of below BFE enclosure uses (if applicable). (i.e., parking, building access and limited storage only).**
9. **A statement, that all materials below BFE/RFPE must be flood resistant materials.**

C. Certification Requirements

“Mean sea level” was removed and replaced with “NAVD 1988” to establish consistent and accurate data.

“FEMA Form 81-31” was replaced with “FEMA Form 086-0-33.”

“FEMA Form 81-65” was replaced with “FEMA Form 086-0-34.”

The following definitions were changed:

A final as-built Elevation Certificate (~~FEMA Form 81-31~~) (**FEMA Form 086-0-33**) is required after construction is completed and prior to Certificate of Compliance/Occupancy issuance. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of final as-built construction of the elevation of the reference level and all attendant utilities. The Floodplain

Administrator shall review the certificate data submitted. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to Certificate of Compliance/Occupancy issuance. In some instances, another certification may be required to certify corrected as-built construction. Failure to submit the certification or failure to make required corrections shall be cause to withhold the issuance of a Certificate of Compliance/Occupancy. The Finished Construction Elevation Certificate certifier shall provide at least 2 photographs showing the front and rear of the building taken within 90 days from the date of certification. The photographs must be taken with views confirming the building description and diagram number provided in Section A. To the extent possible, these photographs should show the entire building including foundation. If the building has split-level or multi-level areas, provide at least 2 additional photographs showing side views of the building. In addition, when applicable, provide a photograph of the foundation showing a representative example of the flood openings or vents. All photographs must be in color and measure at least 3" x 3". Digital photographs are acceptable.

The following condition was added under *Floodproofing Certificate*:

A final Finished Construction Floodproofing Certificate (FEMA Form 086-0-34), with supporting data, an operational plan, and an inspection and maintenance plan are required prior to the issuance of a Certificate of Compliance/Occupancy. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the floodproofed design elevation of the reference level and all attendant utilities, in relation to NAVD 1988. Floodproofing certificate shall be prepared by or under the direct supervision of a professional engineer or architect and certified by same. The Floodplain Administrator shall review the certificate data, the operational plan, and the inspection and maintenance plan. Deficiencies detected by such review shall be corrected by the applicant prior to Certificate of Occupancy. Failure to submit the certification or failure to make required corrections shall be cause to deny a Floodplain Development Permit. Failure to construct in accordance with the certified design shall be cause to deny a Certificate of Compliance/Occupancy.

The additional condition of “or \$5000 or less” for Accessory Structures was added under “5. *Certification Exemptions.*”

The following subheading was added:

6. Determinations for existing buildings and structures.

For applications for building permits to improve buildings and structures, including alterations, movement, enlargement, replacement, repair, change of occupancy, additions, rehabilitations, renovations, substantial improvements, repairs of substantial damage, and any other improvement of or work on such

buildings and structures, the Floodplain Administrator, in coordination with the Building Official, shall:

- a. Estimate the market value, or require the applicant to obtain an appraisal of the market value prepared by a qualified independent appraiser, of the building or structure before the start of construction of the proposed work; in the case of repair, the market value of the building or structure shall be the market value before the damage occurred and before any repairs are made;
- b. Compare the cost to perform the improvement, the cost to repair a damaged building to its pre-damaged condition, or the combined costs of improvements and repairs, if applicable, to the market value of the building or structure;
- c. Determine and document whether the proposed work constitutes substantial improvement or repair of substantial damage; and
- d. Notify the applicant if it is determined that the work constitutes substantial improvement or repair of substantial damage and that compliance with the flood resistant construction requirements of the NC Building Code and this ordinance is required.

Section 16. Duties and Responsibilities of the Floodplain Administrator

“Mean sea level” was removed and replaced with “NAVD 1988” to establish consistent and accurate data.

“Zone AE, A or AO” was replaced with “Zone A, AE, AH, AO, and A99” to ensure all Special Flood Hazard Areas are covered under the ordinance.

The following duties were changed:

~~C.—Notify adjacent communities and the North Carolina Department of Crime Control and Public Safety, Division of Emergency Management, State Coordinator for the National Flood Insurance Program prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency (FEMA).~~ Notify adjacent communities and the North Carolina Department of Public Safety, Division of Emergency Management, State Coordinator for the National Flood Insurance Program prior to any alteration or relocation of a watercourse, and submit

evidence of such notification to the Federal Emergency Management Agency (FEMA).

U. Maintain a current map repository to include, but not limited to, ~~the~~ historical and effective FIS Report, historical and effective FIRM and other official flood maps and studies adopted in accordance with the provisions of Section 7 of this Ordinance, including any revisions thereto including Letters of Map Change, issued by FEMA. Notify State and FEMA of mapping needs.

Section 17. Corrective Procedures

Clarification was added to specify the type of misdemeanor and the fine.

Section 19. Provisions for Flood Hazard Reduction – General Standards

The following provisions were changed:

- D. All new Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding to the Regulatory Flood Protection Elevation. These include, but are not limited to, HVAC equipment, water softener units, bath/kitchen fixtures, ductwork (~~cross over ductwork is excluded and must meet the BFE only by definition of RFPE~~), electric/gas meter panels/boxes, utility/cable boxes, hot water heaters, and electric outlets/switches.
 - (a) Replacements part of a substantial improvement, electrical, heating, ventilation, plumbing, air conditioning equipment, and other service equipment shall also meet the above provisions.
 - (b) Replacements that are for maintenance and not part of a substantial improvement, may be installed at the original location provided the addition and/or improvements only comply with the standards for new construction consistent with the code and requirements for the original structure.

The following definition was removed:

- H. ~~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 20. Provisions for Flood Hazard Reduction – Specific Standards

“Zone AE, A or AO” was replaced with “Zone A, AE, AH, AO, and A99” to ensure all Special Flood Hazard Areas are covered under the ordinance.

The following definitions and/or conditions were changed:

- B. *Non-Residential Construction.* ~~New construction and substantial improvement of any commercial, industrial, or other non-residential structure shall have the reference level, including basement, elevated no lower than the Regulatory Flood Protection Elevation, as defined in Section 5 of this Ordinance. Structures located in A, AE, AO, and A1-30 Zones may be floodproofed to the Regulatory Flood Protection Elevation in lieu of elevation provided that all areas of the structure, together with attendant utility and sanitary facilities, below the Regulatory Flood Protection Elevation are watertight with walls substantially impermeable to the passage of water, using structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the floodproofing standards of this subsection are satisfied. Such certification shall be provided to the Floodplain Administrator as set forth in Section 15(C), along with the operational plan and the inspection and maintenance plan.~~ New construction and substantial improvement of any commercial, industrial, or other non-residential structure shall have the reference level, including basement, elevated no lower than the Regulatory Flood Protection Elevation, as defined in Section 5 of this Ordinance. Structures located in Zones A, AE, AH, AO, A99 may be floodproofed to the Regulatory Flood Protection Elevation in lieu of elevation provided that all areas of the structure, together with attendant utility and sanitary facilities, below the Regulatory Flood Protection Elevation are watertight with walls substantially impermeable to the passage of water, using structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. For AO Zones, the floodproofing elevation shall be in accordance with Section 24B. A registered professional engineer or architect shall certify that the floodproofing standards of this subsection are satisfied. Such certification shall be provided to the Floodplain Administrator as set forth in Section 15(C), along with the operational plan and the inspection and maintenance plan.

E. Additions/Improvements

1.
 - b. ~~A substantial improvement, both the existing structure and the addition and/or improvements must comply with the standards for new construction.~~ A substantial improvement, with modifications/rehabilitations/improvements to the existing structure or the common wall is structurally modified more than installing a doorway, both the existing structure and the addition must comply with the standards for new construction.

- ~~2. Additions to post-FIRM structures with no modifications to the existing structure other than a standard door in the common wall shall require only the addition to comply with the standards for new construction.~~ Additions to pre-FIRM or post-FIRM structures that are a substantial improvement with no modifications/rehabilitations/improvements to the existing structure other than a standard door in the common wall, shall require only the addition to comply with the standards for new construction.

F. *Recreational Vehicles.* Recreational vehicles shall either:

- ~~1. Be on site for fewer than 180 consecutive days and be fully licensed and ready for highway use (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 has no permanently attached additions); or~~
- ~~2. Meet all the requirements for new construction.~~

1. Temporary Placement

- a. Be on site for fewer than 180 consecutive days; or

- b. Be fully licensed and ready for highway use. (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 has no permanently attached additions.)

2. Permanent Placement. Recreational vehicles that do not meet the limitations of Temporary Placement shall meet all the requirements for new construction.

H. *Accessory Structures.*

~~An accessory structure with a footprint less than 150 square feet that satisfies the criteria outlined above does not require an elevation or floodproofing certificate. Elevation or floodproofing certifications are required for all other accessory structures in accordance with Section 7.~~ An accessory structure with a footprint less than 150 square feet or that is a minimal investment of \$5000 or less and satisfies the criteria outlined above is not required to meet the elevation or floodproofing standards of Section 20 B. Elevation or floodproofing certifications are required for all other accessory structures in accordance with Section 15 C.

The following definitions and/or conditions were added:

D. *Elevated Buildings*

2. Shall not be temperature-controlled or conditioned;

E. *Additions/Improvements*

4. Any combination of repair, reconstruction, rehabilitation, addition or improvement of a building or structure taking place during a one (1) year period, the cumulative cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started must comply with the standards for new construction. For each building or structure, the one (1) year period begins on the date of the first improvement or repair of that building or structure subsequent to the effective date of this ordinance. If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The requirement does not, however, include either:
 - a. Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that are the minimum necessary to assume safe living conditions.
 - b. Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.
- I. *Tanks*. When gas and liquid storage tanks are to be placed within a Special Flood Hazard Area, the following criteria shall be met:
1. Underground tanks. Underground tanks in flood hazard areas shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads during conditions of the design flood, including the effects of buoyancy assuming the tank is empty;
 2. Above-ground tanks, elevated. Above-ground tanks in flood hazard areas shall be elevated to or above the Regulatory Flood Protection Elevation on a supporting structure that is designed to prevent flotation, collapse or lateral movement during conditions of the design flood. Tank-supporting structures shall meet the foundation requirements of the applicable flood hazard area;
 3. Above-ground tanks, not elevated. Above-ground tanks that do not meet

the elevation requirements of Section B (2) of this ordinance shall be permitted in flood hazard areas provided the tanks are designed, constructed, installed, and anchored to resist all flood-related and other loads, including the effects of buoyancy, during conditions of the design flood and without release of contents in the floodwaters or infiltration by floodwaters into the tanks. Tanks shall be designed, constructed, installed, and anchored to resist the potential buoyant and other flood forces acting on an empty tank during design flood conditions.

4. Tank inlets and vents. Tank inlets, fill openings, outlets and vents shall be:
 - a. At or above the Regulatory Flood Protection Elevation or fitted with covers designed to prevent the inflow of floodwater or outflow of the contents of the tanks during conditions of the design flood; and
 - b. Anchored to prevent lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the design flood.

J. *Other Development*

1. Fences in regulated floodways and NEAs that have the potential to block the passage of floodwaters, such as stockade fences and wire mesh fences, shall meet the limitations of Article 5, Section F of this ordinance.
2. Retaining walls, sidewalks and driveways in regulated floodways and NEAs. Retaining walls and sidewalks and driveways that involve the placement of fill in regulated floodways shall meet the limitations of Section 23 of this Ordinance.
3. Roads and watercourse crossings in regulated floodways and NEAs. Roads and watercourse crossings, including roads, bridges, culverts, low-water crossings and similar means for vehicles or pedestrians to travel from one side of a watercourse to the other side, that encroach into regulated floodways shall meet the limitations of Section 23 of this Ordinance.
4. Commercial storage facilities are not considered “limited storage” as noted in this ordinance, and shall be protected to the Regulatory Flood Protection Elevation as required for commercial structures.

The following Sections were added:

Section 24. Standards for Areas of Shallow Flooding (Zone AO)

Located within the Special Flood Hazard Areas established in Section 7 are areas designated as shallow flooding areas. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate. In addition to Sections 19 and 20, all new construction and substantial improvements shall meet the following requirements:

- A. The reference level shall be elevated at least as high as the depth number specified on the Flood Insurance Rate Map (FIRM), in feet, plus a freeboard of two feet, above the highest adjacent grade; or at least two feet above the highest adjacent grade if no depth number is specified.
- B. Non-residential structures may, in lieu of elevation, be floodproofed to the same level as required in Section 24, Heading A, so that the structure, together with attendant utility and sanitary facilities, below that level shall be 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. Certification is required in accordance with Section 15, Heading C and Section 20, Heading B.
- C. Adequate drainage paths shall be provided around structures on slopes, to guide floodwaters around and away from proposed structures.

Section 25. Standards for Areas of Shallow Flooding (ZONE AH)

Located within the Special Flood Hazard Areas established in Section 7, are areas designated as shallow flooding areas. These areas are subject to inundation by 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are one (1) to three (3) feet. Base Flood Elevations are derived from detailed hydraulic analyses are shown in this zone. In addition to Section 20, headings A and B, all new construction and substantial improvements shall meet the following requirements:

- A. Adequate drainage paths shall be provided around structures on slopes, to guide floodwaters around and away from proposed structures.