

Article 24. Floodplain

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24-1 GENERAL PROVISIONS

A. Findings

1. The Federal Emergency Management Agency has identified special flood hazard areas within the boundaries of Calvert County. Special flood hazard areas are subject to periodic inundation which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare. Structures that are inadequately elevated, improperly floodproofed, or otherwise unprotected from flood damage also contribute to flood losses.
2. The Calvert County by resolution, agreed to meet the requirements of the National Flood Insurance Program and was accepted for participation in the program on September 28, 1984. As of that date or as of September 28, 1984 the initial effective date of the Calvert County Flood Insurance Rate Map, all development and new construction as defined herein, are to be compliant with these regulations.

B. Statutory Authorization

The Maryland General Assembly, in Md. Code Ann., Land Use Article, Title 4, has established as policy of the State that the orderly development and use of land and structures requires comprehensive regulation through the implementation of planning & zoning control, and that planning & zoning controls shall be implemented by local government in order to, among other purposes, secure the public safety, promote health and general welfare, and promote the conservation of natural resources. Therefore, the Board of County Commissioners of Calvert County does hereby adopt the following floodplain management regulations.

C. Purpose

It is the purpose of these regulations to promote the public health, safety, and welfare, and to:

1. Protect human life, health and welfare.
2. Encourage the utilization of appropriate construction practices in order to prevent or minimize flood damage in the future.
3. Minimize flooding of water supply and sanitary sewage disposal systems.
4. Maintain natural drainage.
5. Reduce financial burdens imposed on the community, its governmental units and its residents, by discouraging unwise design and construction of development in areas subject to flooding.
6. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.
7. Minimize prolonged business interruptions.
8. Minimize damage to public facilities and other utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges.
9. Reinforce that those who build in and occupy special flood hazard areas should assume responsibility for their actions.

10. Minimize the impact of development on adjacent properties within and near flood-prone areas.
11. Provide that the flood storage and conveyance functions of floodplains are maintained.
12. Minimize the impact of development on the natural and beneficial functions of floodplains.
13. Prevent floodplain uses that are either hazardous or environmentally incompatible.
14. Meet community participation requirements of the National Flood Insurance Program as set forth in the Code of Federal Regulations (CFR) at 44 CFR Section 59.22.

D. Areas to Which These Regulations Apply

These regulations shall apply to all special flood hazard areas within the jurisdiction of the Calvert County, and identified in item E below.

E. Basis for Establishing Special Flood Hazard Areas and Base Flood Elevation (BFE)

1. For the purposes of these regulations, the minimum basis for establishing special flood hazard areas and base flood elevations is the Flood Insurance Study for Calvert County, Maryland dated March 28, 1984, or the most recent revision thereof, and the accompanying Flood Insurance Rate Map(s) and all subsequent amendments and revisions to the FIRMs. The FIS and FIRMs are retained on file and available to the public at the Department of Planning & Zoning.
2. Where field surveyed topography or digital topography indicates that ground elevations are below the closest applicable base flood elevation, even in areas not delineated as a special flood hazard on the FIRM, the area shall be considered as special flood hazard area.
3. To establish base flood elevations in special flood hazard areas that do not have such elevations shown on the FIRM, the Floodplain Administrator may provide the best available data for base flood elevations, may require the applicant to obtain available information from Federal, State or other sources, or may require the applicant to establish special flood hazard areas and base flood elevations as set forth in Section 24-2.B.

F. Abrogation and Greater Restrictions

These regulations are not intended to repeal or abrogate any existing regulations and ordinances, including subdivision regulations, zoning ordinances, building codes, or any existing easements, covenants, or deed restrictions. In the event of a conflict between these regulations and any other ordinance, the more restrictive shall govern.

G. Interpretation

1. In the interpretation and application of these regulations, all provisions shall be:
 - a. Considered as minimum requirements.
 - b. Liberally construed in favor of the governing body.
 - c. Deemed neither to limit nor repeal any other powers granted under State statutes.
2. Notes referencing publications of the Federal Emergency Management Agency refer to the most recent edition of those publications, are intended only as guidance, and do not bind or alter the authority of the Floodplain Administrator to interpret and apply these regulations.

H. Warning and Disclaimer of Liability

The degree of flood protection required by these regulations is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur, and flood heights may be increased by man-made or natural causes. These regulations do not imply that land outside of the special flood hazard areas or uses that are permitted within such areas will be free from flooding or flood damage.

These regulations shall not create liability on the part of Calvert County, any officer or employee thereof, the Maryland Department of the Environment (MDE) or the Federal Emergency Management Agency (FEMA), for any flood damage that results from reliance on these regulations or any administrative decision lawfully made hereunder.

I. Severability

Should any section or provision of these regulations be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the regulations as a whole, or any part thereof other than the part so declared to be unconstitutional or invalid.

24-2 ADMINISTRATION

A. Floodplain Administrator

1. Designation

The Director of the Department of Planning & Zoning is hereby appointed to administer and implement these regulations and is referred to herein as the Floodplain Administrator. The Floodplain Administrator may:

- a.** Delegate duties and responsibilities set forth in these regulations to qualified technical personnel, plan examiners, inspectors, and other employees.
- b.** Enter into a written agreement or written contract with another Maryland community or private sector entity to administer specific provisions of these regulations. Administration of any part of these regulations by another entity shall not relieve the community of its responsibilities pursuant to the participation requirements of the National Flood Insurance Program as set forth in the Code of Federal Regulations (CFR) at 44 CFR Section 59.22.

2. Duties and Responsibilities

The duties and responsibilities of the Floodplain Administrator include, but are not limited to:

- a.** Review applications for permits to determine whether proposed activities will be located in flood hazard areas.
- b.** Interpret floodplain boundaries and provide available base flood elevation and flood hazard information. Review applications to determine whether proposed activities will be reasonably safe from flooding and require new construction and substantial improvements to meet the requirements of these regulations.
- c.** Review applications to determine whether all necessary permits have been obtained from the Federal, State or local agencies from which prior or concurrent approval is required; in particular, permits from MDE for any construction, reconstruction, repair, or alteration of a dam, reservoir, or waterway obstruction (including bridges, culverts, structures), any alteration of a watercourse, or any change of the course, current, or cross section of a stream or body of water, including any change to the 100-year frequency floodplain of free-flowing nontidal waters of the State.
- d.** Verify that applicants proposing an alteration of a watercourse have notified adjacent communities and MDE (NFIP State Coordinator) and have submitted copies of such notifications to FEMA.
- e.** Advise applicants for new construction or substantial improvement of structures that are located within an area of the Coastal Barrier Resources System established by the Coastal Barrier Resources Act that Federal flood insurance is not available on such structures; areas subject to this limitation are shown on Flood Insurance Rate Maps as Coastal Barrier Resource System Areas (CBRS) or Otherwise Protected Areas (OPA).
- f.** Approve applications and issue permits to develop in flood hazard areas if the provisions of these regulations have been met or disapprove applications if the provisions of these regulations have not been met.
- g.** Inspect or cause to be inspected, buildings, structures, and other development for which permits have been issued to determine compliance with these regulations or to determine if non-compliance has occurred or violations have been committed.
- h.** Review Elevation Certificates and require incomplete or deficient certificates to be corrected.
- i.** Submit to FEMA, or require applicants to submit to FEMA, data and information necessary to maintain FIRMs, including hydrologic and hydraulic engineering analyses prepared by or for the Calvert County,

within six months after such data and information becomes available if the analyses indicate changes in base flood elevations or boundaries.

- j. Maintain and permanently keep records that are necessary for the administration of these regulations, including:
 - i. Flood Insurance Studies, Flood Insurance Rate Maps (including historic studies and maps and current effective studies and maps) and Letters of Map Change.
 - ii. Documentation supporting issuance and denial of permits, Elevation Certificates, documentation of the elevation (in relation to the datum on the FIRM) to which structures have been floodproofed, other required design certifications, variances, and records of enforcement actions taken to correct violations of these regulations.
- k. Enforce the provisions of these regulations, investigate violations, issue notices of violations or stop work orders, and require permit holders to take corrective action.
- l. Advise the Board of Appeals regarding the intent of these regulations and, for each application for a variance, prepare a staff report and recommendation.
- m. Administer the requirements related to proposed work on existing buildings:
 - i. Make determinations as to whether buildings and structures that are located in flood hazard areas and that are damaged by any cause have been substantially damaged.
 - ii. Make reasonable efforts to notify owners of substantially damaged structures of the need to obtain a permit to repair, rehabilitate, or reconstruct, and prohibit the non-compliant repair of substantially damaged buildings except for temporary emergency protective measures necessary to secure a property or stabilize a building or structure to prevent additional damage.
- n. Undertake, as determined appropriate by the Floodplain Administrator due to the circumstances, other actions which may include but are not limited to: issuing press releases, public service announcements, and other public information materials related to permit requests and repair of damaged structures; coordinating with other Federal, State, and local agencies to assist with substantial damage determinations; providing owners of damaged structures information related to the proper repair of damaged structures in special flood hazard areas; and assisting property owners with documentation necessary to file claims for Increased Cost of Compliance (ICC) coverage under NFIP flood insurance policies.
- o. Notify the Federal Emergency Management Agency when the corporate boundaries of the Calvert County have been modified and:
 - i. Provide a map that clearly delineates the new corporate boundaries or the new area for which the authority to regulate pursuant to these regulations has either been assumed or relinquished through annexation; and
 - ii. If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in these regulations, prepare amendments to these regulations to adopt the FIRM and appropriate requirements, and submit the amendments to the governing body for adoption; such adoption shall take place within six months of the date of annexation and a copy of the amended regulations shall be provided to MDE (NFIP State Coordinator) and FEMA.
- p. Upon the request of FEMA, complete and submit a report concerning participation in the NFIP which may request information regarding the number of buildings in the SFHA, number of permits issued for development in the SFHA, and number of variances issued for development in the SFHA.

B. Use and Interpretation of FIRMs

The Floodplain Administrator shall make interpretations, where needed, as to the exact location of special flood hazard areas, floodplain boundaries, and floodway boundaries. The following shall apply to the use and interpretation of FIRMs and data:

1. Where field surveyed topography indicates that ground elevations:

- a. Are below the base flood elevation, even in areas not delineated as a special flood hazard area on a FIRM, the area shall be considered as special flood hazard area and subject to the requirements of these regulations;
 - b. Are above the base flood elevation, the area shall be regulated as special flood hazard area unless the applicant obtains a Letter of Map Change that removes the area from the special flood hazard area.
2. In FEMA-identified special flood hazard areas where base flood elevation and floodway data have not been identified and in areas where FEMA has not identified special flood hazard areas, any other flood hazard data available from a Federal, State, or other source shall be reviewed and reasonably used.
3. Base flood elevations and designated floodway boundaries on FIRMs and in FISs shall take precedence over base flood elevations and floodway boundaries by any other sources if such sources show reduced floodway widths and/or lower base flood elevations.
4. Other sources of data shall be reasonably used if such sources show increased base flood elevations and/or larger floodway areas than are shown on FIRMs and in FISs.
5. If a Preliminary Flood Insurance Rate Map and/or a Preliminary Flood Insurance Study has been provided by FEMA:
 - a. Upon the issuance of a Letter of Final Determination by FEMA, if the preliminary flood hazard data is more restrictive than the effective data, it shall be used and shall replace the flood hazard data previously provided from FEMA for the purposes of administering these regulations.
 - b. Prior to the issuance of a Letter of Final Determination by FEMA, the use of preliminary flood hazard data shall be deemed the best available data pursuant to Section 24-1.E.3 and used where no base flood elevations and/or floodway areas are provided on the effective FIRM.
 - c. Prior to issuance of a Letter of Final Determination by FEMA, the use of preliminary flood hazard data is permitted where the preliminary base flood elevations, floodplain or floodway boundaries exceed the base flood elevations and/or designated floodway widths in existing flood hazard data provided by FEMA. Such preliminary data may be subject to change and/or appeal to FEMA.

C. Permits Required and Expiration

1. It shall be unlawful for any person to begin any development or construction which is wholly within, partially within, or in contact with any flood hazard area established in Section 24-1.E, including but not limited to: filling; grading; construction of new structures; the substantial improvement of buildings or structures, including repair of substantial damage; placement or replacement of manufactured homes, including substantial improvement or repair of substantial damage of manufactured homes; erecting or installing a temporary structure, or alteration of a watercourse, until a permit is obtained from the Calvert County. No such permit shall be issued until the requirements of these regulations have been met.
2. In addition to the permits required in item 1 above, applicants for permits in nontidal waters of the State are advised to contact MDE. Unless waived by MDE, pursuant to Code of Maryland Regulations 26.17.04, Construction on Nontidal Waters and Floodplains, MDE regulates the "100-year frequency floodplain of free-flowing waters," also referred to as nontidal waters of the State. To determine the 100-year frequency floodplain, hydrologic calculations are based on the ultimate development of the watershed, assuming existing zoning. The resulting flood hazard areas delineated using the results of such calculations may be different than the special flood hazard areas established in Section 24-1.E of these regulations. A permit from Calvert County is still required in addition to any State requirements.
3. A permit is valid provided the actual start of work is within 180 days of the date of permit issuance. Requests for extensions shall be submitted in writing and justifiable cause demonstrated. The Floodplain Administrator may grant, in writing, one or more extensions of time, for additional periods not exceeding 90 days each and provided there has been no amendment or revision to the basis for establishing special flood hazard areas and BFEs set forth in Section 24-1.E.

D. Application Required

Application for a permit shall be made by the owner of the property or the owner's authorized agent (herein referred to as the applicant) prior to the start of any work. The application shall be on a form furnished for that purpose.

1. Application Contents

At a minimum, applications shall include:

- a. Site plans drawn to scale showing the nature, location, dimensions, and existing and proposed topography of the area in question, and the location of existing and proposed structures, excavation, filling, storage of materials, drainage facilities, and other proposed activities.
- b. Elevation of the existing natural ground where buildings or structures are proposed, referenced to the datum on the FIRM.
- c. Delineation of flood hazard areas, designated floodway boundaries, flood zones, base flood elevations, and flood protection setbacks. Base flood elevations shall be used to delineate the boundary of flood hazard areas and such delineations shall prevail over the boundary of SFHAs shown on FIRMs.
- d. Where floodways are not delineated or base flood elevations are not shown on the FIRMs, the Floodplain Administrator has the authority to require the applicant to use information provided by the Floodplain Administrator, information that is available from Federal, State, or other sources, or to determine such information using accepted engineering practices or methods approved by the Floodplain Administrator. [Note: See "Managing Floodplain Development in Approximate Zone A Areas: A Guide for Obtaining and Developing Base (100-Year) Flood Elevations" (FEMA 265).]
- e. Determination of the base flood elevations, for development proposals and subdivision proposals in special flood hazard areas where base flood elevations are not shown on the FIRM; if hydrologic and hydraulic engineering analyses are submitted, such analyses shall be performed in accordance with the requirements and specifications of MDE and FEMA.
- f. Hydrologic and hydraulic engineering analyses for proposals in special flood hazard areas where FEMA has provided base flood elevations but has not delineated a floodway; such analyses shall demonstrate that the cumulative effect of proposed development, when combined with all other existing and anticipated development will not increase the water surface elevation of the base flood by more than one foot, or a lower increase if required by MDE.
- g. For encroachments in floodways, an evaluation of alternatives to such encroachments, including different uses of the site or portion of the site within the floodway, and minimization of such encroachment. If fill is proposed to be placed for a purpose other than to elevate structures, the applicant shall indicate the intended purpose for the fill.
- h. For proposed buildings and structures, including substantial improvement and repair of substantial damage, and placement and replacement of manufactured homes, including substantial improvement and repair of substantial damage:
 - i. The proposed elevation of the lowest floor, including basement, referenced to the datum on the FIRM and a signed Agreement to Submit an Elevation Certificate.
 - ii. The signed Declaration of Land Restriction (Nonconversion Agreement) that shall be recorded on the property deed prior to issuance of the Certificate of Occupancy, if the application includes an enclosure below the lowest floor or a crawl/underfloor space that is more than four (4) feet in height.
 - iii. A written evaluation of alternative methods considered to elevate structures and manufactured homes, if the location is in nontidal waters of the State and fill is proposed to achieve the elevation required in Section 24-4.D.1 and Section 24-4.E.1.
- i. For accessory structures that are 300 square feet or larger in area (footprint) but no larger than 600 square feet in area (footprint) and that are below the base flood elevation, a variance is required as set forth in Section 24-6. If a variance is granted, a signed Declaration of Land Restriction (Nonconversion Agreement) shall be recorded on the property deed prior to issuance of the Certificate of Occupancy.
- j. For temporary structures and temporary storage, specification of the duration of the temporary use.
- k. For proposed work on existing buildings, structure, and manufactured homes, including any improvement, addition, repairs, alterations, rehabilitation, or reconstruction, sufficient information to

determine if the work constitutes substantial improvement or repair of substantial damage, including but not limited to:

- i. If the existing building or structure was constructed after September 28, 1984, evidence that the work will not alter any aspect of the building or structure that was required for compliance with the floodplain management requirements in effect at the time the building or structure was permitted.
 - ii. If the proposed work is a horizontal addition, a description of the addition and whether it will be independently supported or structurally connected to the base building and the nature of all other modifications to the base building, if any.
 - iii. Documentation of the market value of the building or structure before the improvement or, if the work is repair of damage, before the damage occurred.
 - iv. Documentation of the actual cash value of all proposed work, including the actual cash value of all work necessary to repair and restore damage to the before-damaged condition, regardless of the amount of work that will be performed. The value of work performed by the owner or volunteers shall be valued at market labor rates; the value of donated or discounted materials shall be valued at market rates.
 - v. The substantial improvement calculations shall be cumulative for a ten year period after the first expenditure.
- I. Certifications and/or technical analyses prepared or conducted by a licensed professional engineer or licensed architect, as appropriate, including:
- i. The determination of the base flood elevations or hydrologic and hydraulic engineering analyses prepared by a licensed professional engineer that are required by the Floodplain Administrator or are required by these regulations in: Section 24-3.B for certain subdivisions and development; Section 24-4.C.1 for development in designated floodways; Section 24-4.C.3 for development in flood hazard areas with base flood elevations but no designated floodways; and Section 24-4.C.5 for deliberate alteration or relocation of watercourses.
 - ii. The Floodproofing Certificate for nonresidential structures that are floodproofed as required in Section 24-4.E.2.
 - iii. Certification that engineered flood openings are designed to meet the minimum requirements of Section 24-4.D.3.c to automatically equalize hydrostatic flood forces.
 - iv. Certification that the proposed elevation, structural design, specifications and plans, and the methods of construction to be used for structures in coastal high hazard areas (V Zones) and Coastal A Zones, are in accordance with accepted standards of practice and meet the requirements of Section 24-5.C.3.
- m. For nonresidential structures that are proposed with floodproofing, an operations and maintenance plan as specified in Section 24-4.E.2.c.
- n. Such other material and information as may be requested by the Floodplain Administrator and necessary to determine conformance with these regulations.

2. New Technical Data

- a. The applicant may seek a Letter of Map Change by submitting new technical data to FEMA, such as base maps, topography, and engineering analyses to support revision of floodplain and floodway boundaries and/or base flood elevations. Such submissions shall be prepared in a format acceptable to FEMA and any fees shall be the sole responsibility of the applicant. A copy of the submittal shall be attached to the application for a permit.
- b. If the applicant submits new technical data to support any change in floodplain and designated floodway boundaries and/or base flood elevations but has not sought a Letter of Map Change from FEMA, the applicant shall submit such data to FEMA as soon as practicable, but not later than six months after the date

such information becomes available. Such submissions shall be prepared in a format acceptable to FEMA and any fees shall be the sole responsibility of the applicant.

E. Review of Application

The Floodplain Administrator shall:

1. Review applications for development in special flood hazard areas to determine the completeness of information submitted. The applicant shall be notified of incompleteness or additional information that is required to support the application.
2. Notify applicants that permits from MDE and the U.S. Army Corps of Engineers, and other State and Federal authorities may be required.
3. Review all permit applications to assure that all necessary permits have been received from the Federal, State or local governmental agencies from which prior approval is required. The applicant shall be responsible for obtaining such permits, including permits issued by:
 - a. The U.S. Army Corps of Engineers under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act.
 - b. MDE pursuant to COMAR 26.23 (Nontidal Wetlands) and Section 401 of the Clean Water Act.
 - c. MDE for construction on nontidal waters of the State pursuant to COMAR 26.17.04.
 - d. MDE pursuant to COMAR 26.24 (Tidal Wetlands).
4. Review applications for compliance with these regulations after all information required in item E of these regulations or identified and required by the Floodplain Administrator has been received.

F. Inspections

The Floodplain Administrator shall make periodic inspections of development permitted in special flood hazard areas, at appropriate times throughout the period of construction in order to monitor compliance. Such inspections may include:

- a. Stake-out inspection, to determine location on the site relative to the flood hazard area and designated floodway.
- b. Foundation inspection, upon placement of the lowest floor and prior to further vertical construction, to collect information or certification of the elevation of the lowest floor.
- c. Inspection of enclosures below the lowest floor, including crawl/underfloor spaces, to determine compliance with applicable provisions.
- d. Utility inspection, upon installation of specified equipment and appliances, to determine appropriate location with respect to the base flood elevation.
- e. Final inspection prior to issuance of the certificate of occupancy.

G. Submissions Required Prior to Final Inspection

Pursuant to the Agreement to Submit an Elevation Certificate submitted with the application, the permittee shall have an Elevation Certificate prepared and submitted prior to framing the structure, the final inspection and issuance of a Certificate of Occupancy for elevated structures and manufactured homes, including new structures and manufactured homes, substantially improved structures and manufactured homes, and additions to structures and manufactured homes.

24-3 REQUIREMENTS IN ALL FLOOD HAZARD AREAS

A. Applicability

The general requirements of this section apply to all development proposed within all special flood hazard areas identified in Section 24-1.E.

B. Subdivision Proposals and Development Proposals

1. In all flood zones:
 - a. Subdivision proposals and development proposals shall be consistent with the need to minimize flood damage and are subject to all applicable standards in these regulations.
 - b. Subdivision proposals and development proposals shall have utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.
 - c. Subdivision proposals and development proposals shall have adequate drainage paths provided to reduce exposure to flood hazards and to guide floodwaters around and away from proposed structures.
 - d. Subdivision proposals and development proposals that are wholly or partially in flood hazard areas where base flood elevation data are not provided by the Floodplain Administrator or available from other sources, shall be supported by determinations of base flood elevations as required in Section 24-1.E of these regulations.
 - e. Subdivision access roads shall have the driving surface at or above the flood protection elevation. The access road shall not be approved unless analysis demonstrates no harmful diversion of floodwaters or wave runoff and wave reflection that would increase damage to adjacent structures.
2. In special flood hazard areas of nontidal waters of the State:
 - a. Subdivision proposals shall be laid out such that proposed building pads are located outside of the special flood hazard area and any portion of platted lots that include land areas that are below the base flood elevation shall be used for other purposes, deed restricted, or otherwise protected to preserve it as open space.
 - b. Subdivision access roads shall have the driving surface at or above the flood protection elevation. The access road shall not be approved unless analysis demonstrates no harmful diversion of floodwaters or wave runoff and wave reflection that would increase damage to adjacent structures. .

C. Protection of Water Supply and Sanitary Sewage Systems

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

D. Buildings and Structures

New buildings and structures (including the placement and replacement of manufactured homes) and substantial improvement of existing structures (including manufactured homes) that are located, in whole or in part, in any special flood hazard area shall:

1. Be designed (or modified) and constructed to safely support flood loads. The construction shall provide a complete load path capable of transferring all loads from their point of origin through the load-resisting elements to the foundation. Structures shall be designed, connected and anchored to resist flotation, collapse or permanent lateral movement due to structural loads and stresses, including hydrodynamic and hydrostatic loads and the effects of buoyancy, from flooding equal to the flood protection elevation or the elevation required by these regulations or the building code, whichever is higher.
2. Be constructed by methods and practices that minimize flood damage.
3. Use flood damage-resistant materials below the elevation of the lowest floor required in Section 24-4.D.1 or Section 24-4.E.1 (for A Zones) or Section 24-5.C.2 (for V Zones and Coastal A Zones).

4. Have electrical systems, equipment and components, and mechanical, heating, ventilating, air conditioning, and plumbing appliances, plumbing fixtures, duct systems, and other service equipment located at or above the elevation of the lowest floor required in Section 24-4.D.1 or Section 24-4.E.1 (for A Zones) or Section 24-5.C.2 (V Zones and Coastal A Zones). Electrical wiring systems are permitted to be located below elevation of the lowest floor provided they conform to the provisions of the electrical part of the building code for wet locations. If replaced as part of a substantial improvement, electrical systems, equipment and components, and heating, ventilation, air conditioning, and plumbing appliances, plumbing fixtures, duct systems, and other service equipment shall meet the requirements of this section.
5. As an alternative to item 4, electrical systems, equipment and components, and heating, ventilating, air conditioning, and plumbing appliances, plumbing fixtures, duct systems, and other service equipment are permitted to be located below the elevation of the lowest floor 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 flooding to that elevation. Have the electric panelboard elevated at least five feet above the BFE.
6. If located in flood hazard areas (A Zones) that are not identified as Coastal A Zones and coastal high hazard areas (V Zones), comply with the specific requirements of Section 24-4.
7. If located in Coastal A Zone, comply with the specific requirements of Section 24-5 for new construction and placement of new manufactured homes; or Section 24-4 for substantial improvements (including repair of substantial damage) and replacement manufactured homes).
8. If located in coastal high hazard areas (V Zones), comply with the specific requirements of Section 24-4.
9. Comply with the requirements of the most restrictive designation if located on a site that has more than one flood zone designation (A Zone, designated floodway, Coastal A Zone, V Zone).

E. Placement of Fill

1. Disposal of fill, including but not limited to earthen soils, rock, rubble, construction debris, woody debris, and trash, shall not be permitted in special flood hazard areas.
2. Fill shall not be placed in Coastal A Zones or coastal high hazard areas (V Zones) except as provided in Section 24-5.B.
3. Fill proposed to be placed to elevate structures in flood hazard areas (A Zones) that are not Coastal A Zones or coastal high hazard areas (V Zones) shall comply with the floodways requirements in Section 24-4.C.1, Section 24-4.C.2, and Section 24-4.C.3 and the limitations of Section 24-4.D.2.
4. Wherever fill is used to raise the ground level to support a building or structure, a structural or geotechnical engineer licensed by the State of Maryland shall certify that soil conditions will support the proposed construction.

F. Historic Structures

1. Substantial Improvement

Repair, alteration, addition, rehabilitation, or other improvement of historic structures shall be subject to the requirements of these regulations if the proposed work is determined to be a substantial improvement, unless a determination is made that the proposed work will not preclude the structure's continued designation as a historic structure. The Floodplain Administrator may require documentation of a structure's continued eligibility and designation as a historic structure.

G. Manufactured Homes

1. New manufactured homes shall not be placed or installed in floodways or coastal high hazard areas (V Zones).
2. For the purpose of these regulations, the lowest floor of a manufactured home is the bottom of the lowest horizontal supporting member (longitudinal chassis frame beam).

3. New manufactured homes located outside of floodways and coastal high hazard areas (V Zones), replacement manufactured homes in any flood hazard areas, and substantial improvement (including repair of substantial damage) of existing manufactured homes in all flood hazard area, shall:

- a. Be elevated on a permanent, reinforced foundation in accordance with Section 24-4 or Section 24-5, as applicable to the flood zone.
- b. Be installed in accordance with the anchor and tie-down requirements of the building code or the manufacturer's written installation instructions and specifications.
- c. Have enclosures below the lowest floor of the elevated manufactured home, if any, including enclosures that are surrounded by rigid skirting or other material that is attached to the frame or foundation, that comply with the requirements of Section 5.0 or Section 6.0, as applicable to the flood zone.

[Note: See "Protecting Manufactured Homes from Floods and Other Hazards: A Multi-Hazard Foundation and Installation Guide" (FEMA P-85).]

H. Recreational Vehicles

Recreational vehicles shall:

1. Meet the requirements for manufactured homes in item G above; or
2. Be fully licensed and ready for highway use; or
3. Be on a site for less than 180 consecutive days.

I. Critical and Essential Facilities

Critical and essential facilities shall:

1. Not be located in coastal high hazard areas (V Zones), Coastal A Zones or floodways.
2. If located in flood hazard areas other than coastal high hazard areas, Coastal A Zones and floodways, be elevated to the higher of elevation required by these regulations plus one (1) foot, the elevation required by the building code, or the elevation of the 0.2% chance (500-year) flood.

J. Temporary Structures and Temporary Storage

In addition to the application requirements of Section 24-1.E, applications for the placement or erection of temporary structures and the temporary storage of any goods, materials, and equipment, shall specify the duration of the temporary use. Temporary structures and temporary storage in floodways shall meet the limitations of Section 24-4.C.1 of these regulations. In addition:

1. Temporary structures shall:
 - a. Be designed and constructed to prevent flotation, collapse or lateral movement resulting from hydrodynamic loads and hydrostatic loads during conditions of the base flood.
 - b. Have electric service installed in compliance with the electric code.
 - c. Comply with all other requirements of the applicable State and local permit authorities.
2. Temporary storage shall not include hazardous materials.

K. Gas or Liquid Storage Tanks

1. Underground tanks in flood hazard areas shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the base flood.
2. Above-ground tanks in flood hazard areas shall be anchored to a supporting structure and elevated to or above the base flood elevation, or shall be anchored or otherwise designed and constructed to prevent flotation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the base flood.

3. In flood hazard areas, tank inlets, fill openings, outlets and vents shall be:
 - a. At or above the 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 base flood; and
 - b. Anchored to prevent lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the base flood.

L. Functionally Dependent Uses

Applications for functionally dependent uses that do not conform to the requirements of these regulations shall be approved only by variances issued pursuant to Section 24-6. If approved, functionally dependent uses shall be protected by methods that minimize flood damage during the base flood, including measures to allow floodwaters to enter and exit, use of flood damage-resistant materials, and elevation of electric service and equipment to the extent practical given the use of the building.

24-4 REQUIREMENTS IN FLOOD HAZARD AREAS (A ZONES) THAT ARE NOT COASTAL HIGH HAZARD AREAS (V ZONES) OR COASTAL A ZONES

A. General Requirements

In addition to the general requirements of Section 24-3, the requirements of this section shall:

1. Apply in flood hazard areas that are not identified as coastal high hazard areas (V Zones) and Coastal A Zones. These flood hazard areas, referred to collectively as "A Zones," include special flood hazard areas along nontidal waters of the State, landward of coastal high hazard areas (V Zones), and landward of Coastal A Zones (if delineated).
2. Apply to all development, new construction, substantial improvements (including repair of substantial damage), and placement, replacement, and substantial improvement (including repair of substantial damage) of manufactured homes.

B. Flood Protection Setbacks

Within areas defined by flood protection setbacks along nontidal waters of the State:

1. No new buildings, structures, or other development shall be permitted unless the applicant demonstrates that the site cannot be developed without such encroachment into the flood protection setback and the encroachment is the minimum necessary after consideration of varying other siting standards such as side, front, and back lot line setbacks.
2. Disturbance of natural vegetation shall be minimized and any disturbance allowed shall be vegetatively stabilized.
3. Public works and temporary construction may be permitted.

C. Development that Affects Flood-Carrying Capacity of Nontidal Waters of the State

1. Development in Designated Floodways

For proposed development that will encroach into a designated floodway, the applicant is required to submit an evaluation of alternatives to such encroachment, including different uses of the site or the portion of the site within the floodway, and minimization of such encroachment. This requirement does not apply to fences that do not block the flow of floodwaters or trap debris. Proposed development in a designated floodway may be permitted only if:

- a. The applicant has been issued a permit by MDE; and
- b. The applicant has developed hydrologic and hydraulic engineering analyses and technical data prepared by a licensed professional engineer reflecting such changes, and the analyses, which shall be submitted to the Floodplain Administrator, demonstrate that the proposed activity will not result in any increase in the base flood elevation; or

c. If the analyses demonstrate that the proposed activities will result in an increase in the base flood elevation, the applicant has obtained a Conditional Letter of Map Revision and a Letter of Map Revision from FEMA upon completion of the project. Submittal requirements and fees shall be the responsibility of the applicant.

2. Development that Includes the Placement of Fill in Nontidal Waters of the State

For proposed development that includes the placement of fill in nontidal waters of the State, other than development that is subject to paragraph (D), a hydraulically-equivalent volume of excavation is required. Such excavations shall be designed to drain freely.

3. Development in Areas with Base Flood Elevations but No Designated Floodways

For development in special flood hazard areas of nontidal waters of the State with base flood elevations but no designated floodways:

a. The applicant shall develop hydrologic and hydraulic engineering analyses and technical data reflecting the proposed activity and shall submit such technical data to the Floodplain Administrator. The analyses shall be prepared by a licensed professional engineer in a format required by FEMA for a Conditional Letter of Map Revision and a Letter of Map Revision upon completion of the project. Submittal requirements and fees shall be the responsibility of the applicant.

b. The proposed development may be permitted if the applicant has received a permit by MDE and if the analyses demonstrate that the cumulative effect of the proposed development, when combined with all other existing and potential flood hazard area encroachments will not increase the base flood elevation more than 1.0 foot at any point.

4. Construction of Roads, Bridges, Culverts, Dams and In-Stream Ponds

Construction of roads, bridges, culverts, dams, and in-stream ponds in nontidal waters of the State shall not be approved unless they comply with this section and the applicant has received a permit from MDE.

5. Alteration of a Watercourse

For any proposed development that involves alteration of a watercourse not subject to item 3 above, unless waived by MDE, the applicant shall develop hydrologic and hydraulic engineering analyses and technical data reflecting such changes, including the floodway analysis required in Section 24-2, and submit such technical data to the Floodplain Administrator and to FEMA. The analyses shall be prepared by a licensed professional engineer in a format required by MDE and by FEMA for a Conditional Letter of Map Revision and a Letter of Map Revision upon completion of the project. Submittal requirements and fees shall be the responsibility of the applicant. Alteration of a watercourse may be permitted only upon submission, by the applicant, of the following:

a. A description of the extent to which the watercourse will be altered or relocated.

b. A certification by a licensed professional engineer that the flood-carrying capacity of the watercourse will not be diminished.

c. Evidence that adjacent communities, the U.S. Army Corps of Engineers, and MDE have been notified of the proposal, and evidence that such notifications have been submitted to FEMA.

d. Evidence that the applicant shall be responsible for providing the necessary maintenance for the altered or relocated portion of the watercourse so that the flood carrying capacity will not be diminished. The Floodplain Administrator may require the applicant to enter into an agreement with Calvert County specifying the maintenance responsibilities; if an agreement is required, the permit shall be conditioned to require that the agreement be recorded on the deed of the property which shall be binding on future owners.

D. Residential Structures and Residential Portions of Mixed Use Structures

New residential structures and residential portions of mixed use structures, and substantial improvement (including repair of substantial damage) of existing residential structures and residential portions of mixed use structures shall comply with the applicable requirements of Section 24-3 and this section. See item F below for requirements for horizontal additions.

1. Elevation Requirements

a. Lowest floors shall be elevated to or above the flood protection elevation in all zones. In areas of shallow flooding (Zone AO), the lowest floor (including basement) shall be elevated at least as high above

the highest adjacent grade as the depth number specified in feet on the FIRM plus four feet, or at least five feet if a depth number is not specified.

- b. Enclosures below the lowest floor shall meet the requirements of item 3 below.
- c. Basement floors that are below grade on all sides are prohibited.

2. Limitations on Use of Fill to Elevate Structures

Wherever fill is used to raise the ground level to support a building or structure, a structural or geotechnical engineer licensed by the State of Maryland shall certify that soil conditions will support the proposed construction. In addition, unless otherwise restricted by these regulations, especially by the limitations in items C.1, C.2, and C.3 above, fill placed for the purpose of raising the ground level to support a building or structure shall:

- a. Consist of earthen soil or rock materials only.
- b. Extend laterally from the building footprint to provide for adequate access as a function of use. The Floodplain Administrator may seek advice from the State Fire Marshal's Office and/or the local fire services agency.
- c. Comply with the requirements of the building code and be placed and compacted to provide for stability under conditions of rising and falling floodwaters and resistance to erosion, scour, and settling.
- d. Be sloped no steeper than one vertical to two horizontal, unless approved by the Floodplain Administrator.
- e. Be protected from erosion associated with expected velocities during the occurrence of the base flood; unless approved by the Floodplain Administrator, fill slopes shall be protected by vegetation if the expected velocity is less than five feet per second, and by other means if the expected velocity is five feet per second or more.
- f. Be designed with provisions for adequate drainage and no adverse effect on adjacent properties.

3. Enclosures Below the Lowest Floor

- a. Enclosures below the lowest floor shall be used solely for parking of vehicles, building access, crawl/underfloor spaces, or limited storage.
- b. Enclosures below the lowest floor shall be constructed using flood damage-resistant materials.
- c. Enclosures below the lowest floor shall be provided with flood openings which shall meet the following criteria: [Note: See NFIP Technical Bulletin #1, "Openings in Foundation Walls and Walls of Enclosures."]
 - i. There shall be a minimum of two flood openings on different sides of each enclosed area; if a building has more than one enclosure below the lowest floor, each such enclosure shall have flood openings on exterior walls.
 - ii. The total net area of all flood openings shall be at least one square inch for each square foot of enclosed area (non-engineered flood openings), or the flood openings shall be engineered flood openings that are designed and certified by a licensed professional engineer to automatically allow entry and exit of floodwaters; the certification requirement may be satisfied by an individual certification or an Evaluation Report issued by the ICC Evaluation Service, Inc.
 - iii. The bottom of each flood opening shall be one foot or less above the higher of the interior floor or grade, or the exterior grade, immediately below the opening.
 - iv. Any louvers, screens or other covers for the flood openings shall allow the automatic flow of floodwaters into and out of the enclosed area.
 - v. If installed in doors, flood openings that meet requirements of the above items (i through iv) are acceptable; however, doors without installed flood openings do not meet the requirements of this section.

E. Nonresidential Structures and Nonresidential Portions of Mixed Use Structures

New nonresidential structures and nonresidential portions of mixed use structures, and substantial improvement (including repair of substantial damage) of existing nonresidential structures and nonresidential portions of mixed use structures shall comply with the applicable requirements of Section 24-3 and the requirements of this section. See item F below for requirements for horizontal additions.

1. Elevation Requirements

Elevated structures shall:

- a. Have the lowest floor (including basement) elevated to or above the flood protection elevation; or
- b. In areas of shallow flooding (Zone AO), have the lowest floor (including basement) elevated at least as high above the highest adjacent grade as the depth number specified in feet on the FIRM plus four feet, or at least five feet if a depth number is not specified; and
- c. Have enclosures below the lowest floor, if any, that comply with the requirements of item D.3 above, or if proposed to be elevated on fill, meet the limitations on fill in item D.2 above.
- d. Basement floors that are below grade on all sides are prohibited.

2. Floodproofing Requirements

- a. Floodproofing of new nonresidential buildings:
 - i. Is not allowed in nontidal waters of the State (COMAR 26.17.04.11(B)(7)).
 - ii. Is not allowed in Coastal A Zones.
- b. Floodproofing for substantial improvement of nonresidential buildings:
 - i. Is allowed in nontidal waters of the State.
 - ii. Is allowed in Coastal A Zones.
- c. If floodproofing is proposed, structures shall:
 - i. Be designed to be dry floodproofed such that the building or structure is watertight with walls and floors substantially impermeable to the passage of water to the level of the flood protection elevation plus 1.0 foot; or
 - ii. If located in an area of shallow flooding (Zone AO), be dry floodproofed at least as high above the highest adjacent grade as the depth number specified on the FIRM plus three feet, or at least five feet if a depth number is not specified; and
 - iii. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
 - iv. Have floodproofing measures that are designed taking into consideration the nature of flood-related hazards; frequency, depth and duration of flooding; rate of rise and fall of floodwater; soil characteristics; flood-borne debris; at least 12 hours of flood warning time from a credible source; and time necessary to implement any measures that require human intervention;
 - v. Have at least one door above the applicable flood elevation that allows human ingress and egress during conditions of flooding;
 - vi. Have an operations and maintenance plan that is filed with local emergency management officials and that specifies the owner/occupant's responsibilities to monitor flood potential; the location of any shields, doors, closures, tools, or other goods that are required for implementation; maintenance of such goods; methods of installation; and periodic inspection; and

vii. Be certified by a licensed professional engineer or licensed architect, through execution of a Floodproofing Certificate that states that the design and methods of construction meet the requirements of this section. The Floodproofing Certificate shall be submitted with the construction drawings as required in Section 24-2.

F. Horizontal Additions

1. A horizontal addition proposed for a building or structure that was constructed after the date specified in Section 24-1.A shall comply with the applicable requirements of Section 24-3 and this section.
2. In nontidal waters of the State that are subject to the regulatory authority of MDE, all horizontal additions shall comply with the applicable requirements of Section 24-3 and this section and:
 - a. If the addition is structurally connected to the base building, the requirements of item 3 apply.
 - b. If the addition has an independent foundation and is not structurally connected to the base building and the common wall with the base building is modified by no more than a doorway, the base building is not required to be brought into compliance.
3. For horizontal additions that are structurally connected to the base building:
 - a. If the addition combined with other proposed repairs, alterations, or modifications of the base building constitutes substantial improvement, the base building and the addition shall comply with the applicable requirements of Section 24-3 and this section.
 - b. If the addition constitutes substantial improvement, the base building and the addition shall comply with all of the applicable requirements of Section 24-3 and this section.
4. For horizontal additions with independent foundations that are not structurally connected to the base building and the common wall with the base building is modified by no more than a doorway, the base building is not required to be brought into compliance.
5. A horizontal addition to a building or structure that is not substantial improvement, and is not located in nontidal waters of the State, is not required to comply with this section.

[Note: See “Substantial Improvement/Substantial Damage Desk Reference” (FEMA P-758).]

F. Accessory Structures

1. Accessory structures shall be limited to not more than 300 square feet in total floor area.
2. Accessory structures shall comply with the elevation requirements and other requirements of item D above, the floodproofing requirements of item E.2 above, or shall:
 - a. Be useable only for parking of vehicles or limited storage.
 - b. Be constructed with flood damage-resistant materials below the base flood elevation.
 - c. Be constructed and placed to offer the minimum resistance to the flow of floodwaters.
 - d. Be anchored to prevent flotation.
 - e. Have electrical service and mechanical equipment elevated to or above the base flood elevation.
 - f. Have flood openings that meet the requirements of item D.3 above.

24-5 REQUIREMENTS IN COASTAL HIGH HAZARD AREAS (V ZONES) AND COASTAL A ZONES

A. General Requirements

In addition to the general requirements of Section 24-3, the requirements of this section shall:

1. Apply in flood hazard areas that are identified as coastal high hazard areas (V Zones) and Coastal A Zones (if delineated).
2. Apply to all development, new construction, substantial improvements (including repair of substantial damage), and placement, replacement, and substantial improvement (including repair of substantial damage) of manufactured homes.
3. Exception: In Coastal A Zones, the requirements of Section 24-4 shall apply to substantial improvements (including repair of substantial damage), and substantial improvement of manufactured homes (including repair of substantial damage) and replacement manufactured homes.

[Note: See "Coastal Construction Manual" (FEMA P-55).]

B. Location and Site Preparation

1. The placement of structural fill for the purpose of elevating buildings is prohibited.
2. Buildings shall be located landward of the reach of mean high tide.
3. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.
4. Site preparations shall not alter sand dunes unless an engineering analysis demonstrates that the potential for flood damage is not increased.

C. Residential and Nonresidential Structures

New structures and substantial improvement (including repair of substantial damage) of existing structures shall comply with the applicable requirements of Section 24-3 and the requirements of this section.

1. Foundations

- a. Structures shall be supported on pilings or columns and shall be adequately anchored to such pilings or columns. Pilings shall have adequate soil penetrations to resist the combined wave and wind loads (lateral and uplift). Water loading values used shall be those associated with the base flood. Wind loading values shall be those required by applicable building codes. Pile embedment shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the piling.
- b. Slabs, pools, pool decks and walkways shall be located and constructed to be structurally independent of structures and their foundations to prevent transfer of flood loads to the structures during conditions of flooding, scour, or erosion from wave-velocity flow conditions, and shall be designed to minimize debris impacts to adjacent properties and public infrastructure.

2. Elevation Requirements

- a. The bottom of the lowest horizontal structural member that supports the lowest floor shall be located at or above the flood protection elevation.
- b. Basement floors that are below grade on all sides are prohibited.
- c. The space below an elevated building shall either be free-of-obstruction or, if enclosed by walls, shall meet the requirements of item 4 below. [Note: See NFIP Technical Bulletin #5, "Free-of-Obstruction Requirements."]

3. Certification of Design

As required in Section 24-2, the applicant shall include in the application a certification prepared by a licensed professional engineer or a licensed architect that the design and methods of construction to be used meet the requirements of items 1 and 2 above, item 4 below, and the building code.

4. Enclosures Below the Lowest Floor

- a. Enclosures below the lowest floor shall be used solely for parking of vehicles, building access or limited storage.
- b. Enclosures below the lowest floor shall be less than 299 square feet in area (exterior measurement). Walls and partitions are permitted below the elevated floor, provided that such walls and partitions are designed to break away under flood loads and are not part of the structural support of the building or structure. [Note: See NFIP Technical Bulletin #9, "Design and Construction Guidance for Breakaway Walls."]
- c. Electrical, mechanical, and plumbing system components shall not be mounted on or penetrate through walls that are designed to break away under flood loads.
- d. Walls intended to break away under flood loads shall be constructed with insect screening or open lattice, or shall be designed to break away or collapse without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Such walls, framing and connections shall have a design safe loading resistance of not less than 10 pounds per square foot and no more than 20 pounds per square foot; or
- e. Where wind loading values of the building code exceed 20 pounds per square foot, the applicant shall submit a certification prepared and sealed by a licensed professional engineer or licensed architect that:
 - i. The walls and partitions below the lowest floor have been designed to collapse from a water load less than that which would occur during the base flood.
 - ii. The elevated portion of the building and supporting foundation system have been designed to withstand the effects of wind and flood loads acting simultaneously on all building components (structural and nonstructural). Water loading values used shall be those associated with the base flood; wind loading values used shall be those required by the building code.
 - iii. In Coastal A Zones, in addition to the requirements of this section, walls below the lowest floor shall have flood openings that meet the requirements of Section 24-4.D.3.c.

D. Horizontal Additions to Structures

- 1. A horizontal addition proposed for a building or structure that was constructed after the date specified in Section 24-1.A shall comply with the applicable requirements of Section 24-3 and this section.
- 2. For horizontal additions, whether structurally connected or not structurally connected, to the base building:
 - a. If the addition combined with other proposed repairs, alterations, or modifications of the base building constitutes substantial improvement, the base building and the addition shall comply with the applicable requirements of Section 24-3 and this section.
 - b. If the addition constitutes substantial improvement, the base building and the addition shall comply with all of the applicable requirements of Section 24-3 and this section. [Note: The base building is required to comply otherwise it is an obstruction that does not comply with the free-of-obstruction requirement that applies to the elevated addition, see item C.2.c above]
- 3. A horizontal addition to a building or structure that is not substantial improvement is not required to comply with this section.

E. Accessory Structures

- 1. Accessory structures shall be limited to not more than 300 square feet in total floor area.
- 2. Accessory structures shall comply with the elevation requirements and other requirements of item C above or, if not elevated, shall:
 - a. Be useable only for parking of vehicles or limited storage.
 - b. Be constructed with flood damage-resistant materials below the base flood elevation.
 - c. Be constructed and placed to offer the minimum resistance to the flow of floodwaters.

- d. Be anchored to prevent flotation.
- e. Have electrical service and mechanical equipment elevated to or above the base flood elevation.
- f. If larger than 100 square feet in size, have walls that meet the requirements of items C.4.iii through vi above, as applicable for the flood zone; and if located in Coastal A Zones, walls shall have flood openings that meet the requirements of Section 24-4.D.3.c).

F. Other Structures and Development

[Note: See NFIP Technical Bulletin #5, "Free-of-Obstruction Requirements."]

1. Decks and Patios

In addition to the requirements of the building code or the residential code, decks and patios shall be located, designed, and constructed in compliance with the following:

- a. A deck that is structurally attached to a building or structure shall have the bottom of the lowest horizontal structural member at or above the flood protection elevation and any supporting members that extend below the design flood elevation shall comply with the foundation requirements that apply to the building or structure, which shall be designed to accommodate any increased loads resulting from the attached deck.
- b. A deck or patio that is located below the flood protection elevation shall be structurally independent from structures and their foundation systems, and shall be designed and constructed either to remain intact and in place during base flood conditions or to break apart into small pieces that will not cause structural damage to adjacent structures.
- c. A deck or patio that has a vertical thickness of more than 12 inches or that is constructed with more than the minimum amount of fill that is necessary for site drainage shall not be approved unless an analysis demonstrates no harmful diversion of floodwaters or wave runup and wave reflection that would increase damage to adjacent structures.
- d. A deck or patio that has a vertical thickness of 12 inches or less and that is at natural grade or on fill material that is similar to and compatible with local soils and is the minimum amount necessary for site drainage may be approved without requiring analysis of the impact on diversion of floodwaters or wave runup and wave reflection.

2. Other Development

Other development activities shall be permitted only if located outside the footprint of, and not structurally attached to, structures, and only if an analysis demonstrates no harmful diversion of floodwaters or wave runup and wave reflection onto adjacent structures. Other development includes but is not limited to:

- a. Bulkheads, seawalls, retaining walls, revetments, and similar erosion control structures.
- b. Solid fences, privacy walls, and fences prone to trapping debris, unless designed and constructed to fail under base flood conditions.
- c. Mounded septic systems.

24-6 VARIANCES

A. General

1. The Board of Appeals shall have the power to consider and authorize or deny variances from the strict application of the requirements of these regulations. A variance shall be approved only if it is determined to not be contrary to the public interest and where, owing to special conditions of the lot or parcel, a literal enforcement of the provisions of these regulations, an unnecessary hardship would result.
2. Upon consideration of the purposes of these regulations, the individual circumstances, and the considerations and limitations of this section, the Board of Appeals may attach such conditions to variances as it deems necessary to further the purposes of these regulations.

3. No variance shall be granted for an accessory structure exceeding 600 square feet. A signed Declaration of Land Restriction (Nonconversion Agreement) is required as a condition of receiving the variance. The Agreement shall be recorded with the Deed. If a variance is granted and the accessory structure is not elevated or dry flood proofed, the conditions in Section 24-4.G or Section 24-5.E apply.

4. The Board of Appeals shall notify, in writing, any applicant to whom a variance is granted to construct or substantially improve a building or structure with its lowest floor below the elevation required by these regulations that the variance is to the floodplain management requirements of these regulations only, and that the cost of Federal flood insurance will be commensurate with the increased risk, with rates up to \$25 per \$100 of insurance coverage.

5. A record of all variance actions, including justification for issuance, shall be maintained pursuant to Section 24-2 of these regulations.

B. Application for a Variance

1. The owner of property, or the owner's authorized agent, for which a variance is sought shall submit an application for a variance to the Floodplain Administrator.

2. At a minimum, the application shall contain the following information: name, address, and telephone number of the applicant and property owner; legal description of the property; parcel map; description of the existing use; description of the proposed use; site map showing the location of flood hazard areas, designated floodway boundaries, flood zones, base flood elevations, and flood protection setbacks; description of the variance sought; and reason for the variance request. Variance applications shall specifically address each of the considerations in item C below.

3. If the application is for a variance to allow the lowest floor (A Zones) or bottom of the lowest horizontal structural member (V Zones and Coastal A Zones) of a building or structure below the applicable minimum elevation required by these regulations, the application shall include a statement signed by the owner that, if granted, the conditions of the variance shall be recorded on the deed of the property.

C. Considerations for Variances

The Floodplain Administrator shall request comments on variance applications from MDE (NFIP State Coordinator) and shall provide such comments to the Board of Appeals. In considering variance applications, the Board of Appeals shall consider and make findings of fact on all evaluations, all relevant factors, requirements specified in other sections of these regulations, and the following factors:

1. The danger that materials may be swept onto other lands to the injury of others.
2. The danger to life and property due to flooding or erosion damage.
3. The susceptibility of the proposed development and its contents (if applicable) to flood damage and the effect of such damage on the individual owner.
4. The importance of the services to the community provided by the proposed development.
5. The availability of alternative locations for the proposed use which are not subject to, or are subject to less, flooding or erosion damage.
6. The necessity to the facility of a waterfront location, where applicable, or if the facility is a functionally dependent use.
7. The compatibility of the proposed use with existing and anticipated development.
8. The relationship of the proposed use to the comprehensive plan and hazard mitigation plan for that area.
9. The safety of access to the property in times of flood for passenger vehicles and emergency vehicles.
10. The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site.

11. The costs of providing government 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.
12. The comments provided by MDE (NFIP State Coordinator).

D. Limitations for Granting Variances

The Board of Appeals shall make an affirmative decision on a variance request only upon:

1. A showing of good and sufficient cause. Good and sufficient cause deals solely with the physical characteristics of the property and cannot be based on the character of the improvement, the personal characteristics of the owner/inhabitants, or local provision that regulate standards other than health and public safety.
2. A determination that failure to grant the variance would result in exceptional hardship due to the physical characteristics of the property. Increased cost or inconvenience of meeting the requirements of these regulations does not constitute an exceptional hardship to the applicant.
3. A determination that the granting of a variance for development within any designated floodway, or flood hazard area with base flood elevations but no designated floodway, will not result in increased flood heights beyond that which is allowed in these regulations.
4. A determination that the granting of a variance will not result in additional threats to public safety; extraordinary public expense, nuisances, fraud or victimization of the public, or conflict with existing local laws.
5. A determination that the building, structure or other development is protected by methods to minimize flood damages.
6. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.

24-7 ENFORCEMENT

A violation of any provision of this Ordinance or a failure to comply with any requirement of this Ordinance by any person, corporation, association, partnership, or the agent of any such person, may be processed as a zoning violation under this Ordinance (see Article 33 for additional enforcement regulations).

A. Compliance, Violations, and Penalties

1. No building, structure or development shall hereafter be located, erected, constructed, reconstructed, improved, repaired, extended, converted, enlarged or altered without full compliance with these regulations and all other applicable regulations.
2. Failure to obtain a permit shall be a violation of these regulations and shall be subject to penalties in accordance with this Ordinance (See Article 33).
3. Permits issued on the basis of plans and applications approved by the Floodplain Administrator authorize only the specific activities set forth in such approved plans and applications or amendments thereto. Use, arrangement, or construction of such specific activities that are contrary to that authorization shall be deemed a violation of these regulations.

24-8 SUBSEQUENT AMENDMENTS AND EFFECTIVE DATE

All ordinances or parts of ordinances that are inconsistent with the provisions of this ordinance are hereby repealed to the extent of such inconsistency. This ordinance shall be amended as required by the Federal Emergency Management Agency, Title 44, Code of Federal Regulations. All subsequent amendments to this ordinance are subject to the approval of the Federal Emergency Management Agency and the Maryland Department of the Environment.