DIVISION OF BUILDING REGULATION

CONSTRUCTION REQUIREMENTS IN A FLOOD ZONE

Building construction in "Designated Flood Zone Areas" have special requirements that are covered in the Virginia International Residential Building Code and Section 24.1-373 of the York County Code. The following information is a guideline for residential construction in a designated flood zone area: however, it does not include all the requirements that may be applicable in all situations.

The following requirements apply to all residential construction including detached single family homes, attached single family homes, duplexes, attached garages and residential accessory structures such as garages, workshops and storage sheds.

- The flood zones are determined by the National Flood Insurance Program as shown on the FIRM (flood insurance rate map). Flood zone information can be viewed on the County's Property Information System maps at: http://maps.yorkcounty.gov/York/

- **V and VE Zone Construction Requirements**:
  V and VE Zones are *coastal high hazard areas* that are subject to *wave velocity action.*
  All construction in a V and VE Zone is required to be designed and certified by a registered professional architect or engineer.

- **AE Zone Construction Requirements:**
  AE Zones are areas that are subject to 100 Year Flood and there are specific requirements for foundation design and elevation of the structure.

- **A and AE Costal Zone Construction Requirements:**
  A and AE Coastal Zones are those that are subject to wave height between 1.5 feet and 3 feet, and identified on the FIRM as areas of **Limits of Moderate Wave Action (LiMWA).**

- The *base flood elevation* (BFE) is the designated 100-year water surface elevation above MLS (mean sea level). The BFE varies by location and is identified on the Firm by labels such as AE-8 (BFE of 8 feet) or AE-9 (BFE of 9 feet).

- Freeboard is a factor of safety, expressed in feet above the BFE, to compensate for the unknown factors that could contribute to flood heights greater than the predicted 100-Year BFE.

- The lowest floor of any residential structure shall be constructed with a freeboard at least three feet (3') above the base flood elevation. Non-residential structures may be flood-proofed in lieu of being elevated, provided that all areas of the building components below the elevation corresponding to the BFE plus one foot are water tight with walls substantially impermeable to the passage of water, and use 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 standards of this subsection are satisfied.

- All new and replacement electrical equipment, and heating, ventilating, air conditioning and other service facilities be installed with a freeboard at least three feet (3') above the base flood elevation or otherwise designed and located so as to prevent water from entering or accumulating within the system.
- All electrical distribution panels be installed with a freeboard at least three feet (3') above the base flood elevation or otherwise designed and located so as to prevent inundation
- In addition to the above, on property within the Coastal Floodplain zones identified as Coastal AE Zones on the Flood Insurance Rate Map (FIRM) that is subject to wave height between 1.5 feet and 3 feet, and which is identified on the FIRM as being within the **Limits of Moderate Wave Action (LiMWA)**, buildings and structures shall have the lowest floor elevated to provide at least one (1) additional foot of freeboard (i.e., 4 feet).
- For buildings having a crawl space, the Division of Building Regulation recommends the top of the foundation wall extend, at a minimum, to the freeboard flood elevation. Doing so would allow for typical electrical wiring methods. Additional elevation may be needed to ensure that heating and air conditioning ductwork in the crawl space can be positioned above the minimum elevation requirement.
- The requirements for mechanical and electrical equipment to be above the freeboard flood elevation apply also to the equipment outside the house such as gas pack furnaces and air conditioning condensing units. Equipment in attached garage such as furnaces, water heaters, clothes washers and clothes dryers, well pumps and water softeners also are required to be above the freeboard flood elevation.
- Buildings constructed with enclosures below the freeboard flood elevation such as foundation walls, and including both **attached and detached garages,** are required to have openings to allow floodwaters to reach equal levels on both sides of walls to lessen the potential for damage from hydrostatic pressure. The building code requires a minimum of 2 openings on different sides of each enclosed area to allow the passage of flood water. These openings shall be no more than 12 inches above the finished exterior grade. **The finished exterior grade should be determined early in the planning of the house so the foundation can be properly designed.** Standard foundation vents do not comply with the code since they can be closed and, due to their small net free open area, could require so many vents that the foundation could be weakened. It is recommended that wood or plastic louvered flood vents be provided for flood openings. The flood vents are required to provide 1 square inch of net free opening for each square foot of enclosed area. Certain manufactured automatic flood vents comply with the flood vent requirements and may be permitted when approved by the Building Code Official. Garage doors do not meet the opening requirements since human intervention is required to open the garage door when flooding threatens. The automatic flood vents are typically used in garages.
- **The Division of Building Regulation requires a *certificate of elevation* prior to the foundation inspection. This certificate of elevation shall be based on actual construction and must be keyed to a specifically identified and designated point of reference on the structure, such as the top of the foundation wall.**