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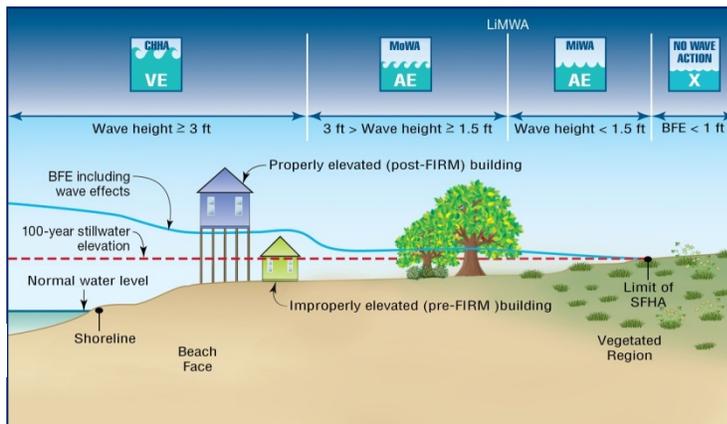
# Using the Limit of Moderate Wave Action To Implement Higher Construction Standards

The National Flood Insurance Program (NFIP) depicts coastal flood hazards in two different zones on Flood Insurance Rate Maps (FIRMs):

- Zone VE, where the delineated flood hazard includes wave heights equal to or greater than 3 feet
- Zone AE, where the delineated flood hazard includes wave heights less than 3 feet

Post-storm field visits and laboratory tests have confirmed that wave heights as small as 1.5 feet can cause significant damage to structures constructed without considering coastal hazards. FEMA identifies the inland extent of anticipated waves having a 1.5-foot or greater wave height on FIRMs with a line called the Limit of Moderate Wave Action (LiMWA). As shown in the figure below, the area between the Zone VE demarcation and the LiMWA is known as the Area of Moderate Wave Action (MoWA), sometimes referred to as the Coastal A Zone. The area between the LiMWA and the point where the wave height is less than 1 foot is known as the Area of Minimal Wave Action (MiWA).

While not formally defined in the NFIP regulations or mapped as a flood zone, the MoWA includes those areas expected to receive 1.5- to 3-foot breaking waves during the 1-percent-annual-chance flood event. The MoWA is subject to flood hazards associated with floating debris and high-velocity flow that can erode and scour building foundations and, in extreme cases, cause foundation failure.



## HIGHLIGHTS

Building to Zone VE Standards  
(Refer to 44CFR60.3 for explicit requirements)

1. Buildings must be elevated on pile, post, pier, or column foundations.
2. Buildings must be adequately anchored to the foundation.
3. Structural fill is prohibited.
4. The bottom of the lowest horizontal structural member must be at or above the Base (1-percent-annual-chance) Flood Elevation (BFE).
5. The area below the BFE must be built of flood-resistant materials and free of obstructions; if enclosed, the enclosure must be made of lightweight wood lattice, insect screening, or breakaway walls. Use of the space below the BFE must be confined to parking of vehicles, building access, or storage. Materials such as carpeting, paneling, drywall, or plasterboard are not allowed.
6. The building design and method of construction must be certified by a design professional.

## For More Information

- To obtain model ordinances, check with your State NFIP Coordinator. A listing of current State NFIP Coordinators can be found on the Region IV Web Portal:  
[www.southeastcoastalmaps.com/Pages/coastal-contacts.aspx](http://www.southeastcoastalmaps.com/Pages/coastal-contacts.aspx).
- For more information on NFIP floodplain management requirements, please visit:  
[www.fema.gov/floodplain-management](http://www.fema.gov/floodplain-management).
- To find out more about coastal flood risk studies in FEMA Region IV, please visit:  
[www.southeastcoastalmaps.com/](http://www.southeastcoastalmaps.com/).

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## Effects on Floodplain Management

While FEMA does not impose floodplain management requirements based on the LiMWA, the LiMWA communicates that higher flood risk exists in the MoWA. As a measure of safety, communities are encouraged to adopt building construction standards for building in the MoWA similar to those for Zone VE (refer to sidebar on page 1 for highlights). Many communities adopt a freeboard that requires the design elevation be above the minimum requirement and in doing so, add a factor of safety as well as reducing flood insurance premium costs.

[Community Rating System](#) (CRS) credits are available for participating communities that adopt Zone VE building standards in the MoWA. Communities that do not participate in the CRS are also encouraged to adopt this higher standard to lessen potential future storm damage.

## Effects on Property Owners

Residents and business owners living or working in the MoWA should be aware of the potential wave action that could, along with floating debris, erosion, and scour, cause significant damage to their property. They are encouraged to build “safer and higher” than minimum requirements to reduce the risk to life and property.

Although the risk of damage is higher in the MoWA than in other parts of Zone AE, NFIP rates for properties in the MoWA do not differ from those in other Zone AE areas.

The Federal mandatory purchase requirement applies in Zones V, VE, A, and AE. Property owners are encouraged to carry coverage equivalent to the replacement cost of their building and to include contents coverage.

## Moderate Wave Action Area Construction Options

The following are options and sample ordinance language that communities can consider to implement higher standards in the MoWA. These options provide varying levels of increased protection, and allow communities to choose what may be most suitable for their needs. FEMA Region IV and State NFIP Coordinators can help communities tailor language in their floodplain management ordinance to include the chosen option. Communities should also consult with their legal departments to ensure ordinance language complies with other community standards and regulations.

### Adopt Zone VE standards for all properties (Recommended Option)

With this option, all development in the MoWA would be subject to the same requirements enforced in the community’s Zone VE. These would include the building

standards highlighted on page 1 of this Fact Sheet and apply to all new construction, substantially damaged structures and structures undergoing substantial improvements.

**Substantial Damage** refers to the damage sustained by a building where the cost of restoring the building to its pre-damaged condition would equal or exceed 50 percent of the building’s market value before the damage occurred. **Substantial Improvement** means that enhancements or repairs will cost 50 percent or more of the building’s pre-improvement market value (unless otherwise specified by the community).

### Adopt Zone VE standards for residential structures, but continue to apply Zone AE requirements for non-residential structures

With this option, all new residential construction including substantial improvements and substantial damage repairs would be subject to the same requirements enforced in the community’s Zone VE (shown on the sidebar on page 1 of this Fact Sheet). Sample language includes:

- All new residential construction, substantial improvements, and repairs to substantially damaged buildings must comply with the building standards identified on page 1 of this Fact Sheet; and
- All new non-residential construction, substantial improvements, and repairs to substantially damaged buildings must comply with the community’s floodplain ordinance for Zone AE development.

### Adopt Zone VE standards for new construction only

For this option, Zone VE standards would apply only to new construction. Sample language for this option includes:

- All new construction must comply with the highlighted building standards for Zone VE (refer to sidebar on page 1 of this Fact Sheet); and
- All residential and non-residential buildings undergoing substantial improvements/repair must comply with the community’s floodplain ordinance for Zone AE development.

### Adopt Zone VE standards for critical facilities only

Sample language for this option includes:

- All new construction and substantial improvement/repair of critical facilities or those undergoing substantial improvements in the MoWA must comply with the Zone VE building standards.