



### Importance of the Limit of Moderate Wave Action (LiMWA)

The coastal population in the United States has increased significantly over the last few decades. With this growth in population, increased coastal development has occurred, putting more buildings at risk from flooding and other coastal action. Low-lying coastal areas are especially vulnerable to damage from erosion, waves, and storm surge. The National Flood Insurance Program (NFIP) depicts two coastal flood hazard zones on its Flood Insurance Rate Maps (FIRMs):

- Zone VE, where the flood elevation includes wave heights *equal to or greater than* 3 feet; and
- Zone AE, where the flood elevation includes wave heights *less than* 3 feet.

Post-storm field visits and laboratory tests throughout coastal flood hazard areas have consistently confirmed that wave heights as low as 1.5 feet can cause significant damage to structures that are constructed without considering coastal hazards. FIRMs recently published also include a line showing the Limit of Moderate Wave Action, or LiMWA, which is the inland limit of the area expected to receive 1.5-foot or greater breaking waves during the 1-percent-annual-chance flood event (see Figure 1).

#### Understanding LiMWA

The addition of the LiMWA area to FIRMs allows communities and individuals to better understand the flood risks to their property. The LiMWA area alerts property owners on the seaward side of the line that although their property is in Zone AE, their property may be affected by 1.5-foot or higher breaking waves and may therefore be at significant risk during a 1-percent-annual-chance flood event. While not formally defined in the NFIP regulations or mapped as a flood zone, the area between Zone VE and the LiMWA is called the Coastal A Zone (see Figure 2). This area is subject to flood hazards associated with floating debris and high-velocity flow associated with waves and debris that can erode and scour building foundations and, in extreme cases, cause foundation failure.

#### LiMWA QUICK FACTS

- Waves of 1.5 feet or higher have been shown to cause significant damage to structures
- A LiMWA line is shown on some FIRMs for areas along coastlines
- Structural fill should not be used in the Coastal A Zone
- International Codes® require Zone VE construction standards in identified Coastal A Zone areas
- Structures in the Coastal A Zone should be built with piling or column foundations
- Enclosure under elevated structures should be limited to 299 square feet or less within the Coastal A Zone
- Elevation of the lowest horizontal structural member of the lowest floor should be at or above the base flood elevation (BFE) (see <http://www.fema.gov/media-library/assets/documents/3490?id=1718> for more information)
- NFIP free-of-obstruction requirements should apply in the Coastal A Zone
- Communities that adopt Zone VE standards in the Coastal A Zone and reference the LiMWA area receive Community Rating System (CRS) credits, which could lower flood insurance premiums for residents and business owners

For additional background information on LiMWA, please refer to FEMA Procedure Memorandum 50, available at:

<http://www.fema.gov/media-library-data/1388777384290.pdf>

#### Effects on Property Owners

Residents and business owners living or working in the Coastal A Zone should be aware of the potential wave action and the accompanying damage that could occur. Property owners are encouraged to build safer and higher to minimize the risk to life and property.

While the risk of damage is higher on the seaward side of the LiMWA than in other parts of Zone AE, NFIP premiums currently do not account for a building's location relative to the LiMWA. The Federal mandatory purchase requirement to carry flood insurance as a condition of obtaining a mortgage applies in mapped special flood hazard areas. Property owners are encouraged to carry coverage equivalent to the replacement cost of their building and include contents coverage.

## After an Event

After a significant event, FEMA may issue revised flood maps. If remapping results in a higher-risk flood zone or a higher base flood elevation (BFE), the property owner should contact his or her insurance agent to discuss possible cost-saving options (e.g., elevating). To learn more about flood insurance and the risks of flooding, and to locate an agent, visit <https://www.floodsmart.gov/floodsmart/>.

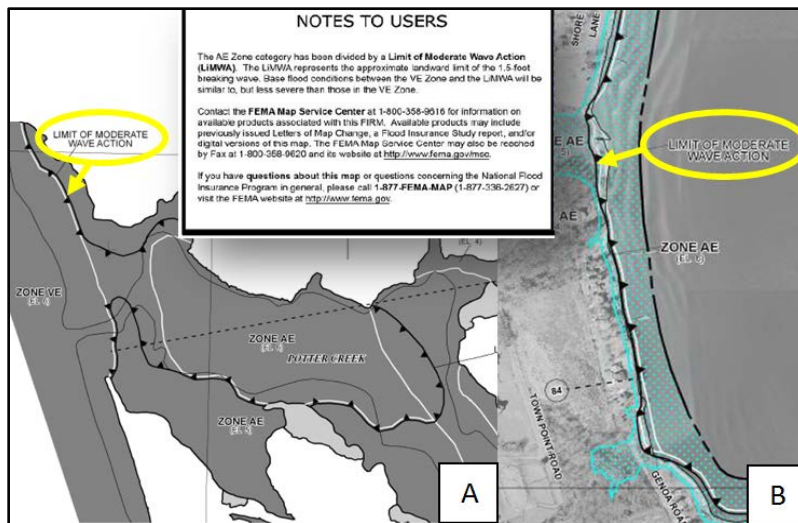


Figure 1: FIRM showing area seaward of the LiMWA

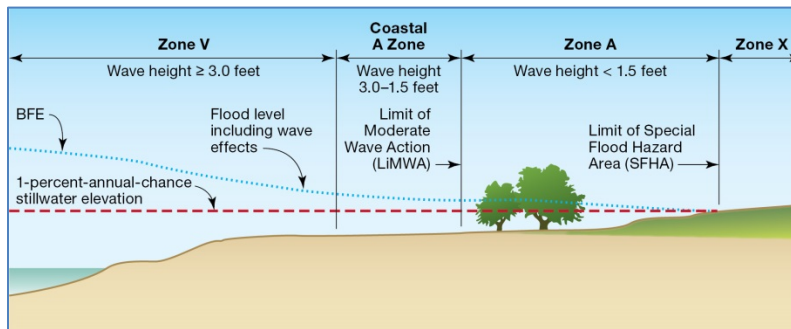


Figure 2: Schematic of coastal flood zones

### FOR MORE INFORMATION

#### FEMA's Floodplain Management Branch

Defines floodplain management and its role in the NFIP: <http://www.fema.gov/fpm>

#### Homebuilder's Guide to Coastal Construction

A series of fact sheets providing information about responsible building practices, including freeboard: <http://www.fema.gov/library/viewRecord.do?id=2138>

#### FloodSmart

Information for consumers about flood insurance and the NFIP: <https://www.floodsmart.gov/>