# FEMA FLOOD ZONES, TOWN AND STATE FLOOD ZONE REGULATIONS

## INTRODUCTION

The following guidelines have been compiled from regulations and bulletins of the Federal Emergency Management Agency (FEMA); the Massachusetts Emergency Management Agency (MEMA); the Massachusetts State Building Code (780 CMR), Ninth Edition; the International Residential Code (IRC), 2015 Edition; and the Town of Scituate Zoning Bylaws. The intent is to acquaint present and prospective property owners, designers, builders and realtors with general parameters governing new construction and renovation and/or expansion of existing construction in flood prone areas of the town. Preliminary inquiries can also be directed to the Scituate Building Department or the Scituate Coastal Management Officer. However, please note the regulations are both complex and specific and affected parties should consult with professionals experienced in design and construction of projects in flood zones before proceeding.

### FLOOD ZONE MAPPING

FEMA flood zones, as described on the following pages, can be viewed graphically on mapping available at the MapsOnline website using the following navigation:

- In your browser, search MapsOnline.
- A map of the Town will display.
- Select FIND on left side of screen.
- Select LAYERS on left side of screen. Make sure "FEMA 2016" is checked.
- Enter street name (don't put in St., Rd., etc.) and click on; drop-down list of addresses and parcel ID's will display.
- Click on Parcel ID for subject address.
- Click on green "Zoom to" arrow (half way down left side of screen). Property will display highlighted.
- Click on I (Information) button on right side of screen (just above hand tool symbol).
- Click on highlighted property.
- The menu display on the left will show the property's Flood Zone Type (AO, AE, V or X), click on this.
- Detail information will then display. The Base Flood Elevation for the property is the 4th line down from the top.

### LETTER OF MAP AMENDMENT (LOMA)

There is a process by which a property owner can apply for and receive relief from inclusion within a flood zone, and/or designation of a particular elevation requirement, if such relief is

warranted. The instrument for this is called a Letter of Map Amendment (LOMA). To access information on the LOMA process, use the following navigation.

- In your browser, search fema.gov
- In search box of home page type LOMA
- This will bring you to a general discussion of a LOMA and the LOMA process.

For a direct route to the online LOMA application including instructions on how to fill it out and what information is required to complete it (e.g. an Elevation Certificate):

- In your browser, search fema.gov/MT-EZ
- You're there.

## FEMA AND TOWN OF SCITUATE FLOOD ZONES

1. **FEMA Flood Zones are of two main types: V (Velocity) Zones where water is assumed to be rushing and wave height is in excess of 3' during a severe storm event and A Zones where water is assumed to be flowing with wave heights between 1.5' and 3' in a severe storm event.** There are also AO Zones (the O stands for "overwash") considered subject to shallow flow with no significant wave height, and X Zones deemed not subject to flooding.

2. **Each Zone designation (except X) is accompanied by an elevation above mean sea level. Mean sea level is the average sea level between high tide and low tide, including all lunar and other variations.** This elevation is considered as the zero datum. The current system is NAVD88 - instituted in 1988 - and current FEMA mapping and information for Scituate is based on the NAVD88 elevations. For example, a structure designated as within the VE 16 Zone would have to comply with regulations pertaining to a Velocity Zone (V) with a base flood elevation (E) of 16' NAVD88.

3. The elevation numbers explained above denote what is termed the **Base Flood Elevation (BFE). (Commonwealth of Massachusetts Regulations (CMR) R322.1.1).** However, actual construction requirements are tied to the **Design Flood Elevation (DFE).** For AO Zones, the DFE is the highest grade adjacent to the foundation, plus the specified flood depth, plus one foot. For A Zones, the DFE is the BFE plus one foot. For V Zones, the DFE is the BFE plus two feet. **(CMR R322.1.4)**

4. Scituate also has a Town-specific Flood Plain and Watershed Protection District where new construction is prohibited, except for water related uses and accessory uses to pre-existing dwellings. However, the ZBA can grant a special permit for substantial improvement of structures which legally existed in the District as of March 2, 1992. **(Zoning Bylaws, Section 470.6.F)**. The District boundaries are shown on a map entitled "Town of Scituate, Massachusetts, Flood Plain and Watershed Protection District, 1972", available in the Town Engineering Office or at the Office of the Building Inspector. **(ZB, S. 470.3)**.

# FEMA, STATE AND TOWN FLOOD ZONE REGULATIONS

1. A renovation, addition or repair project in a FEMA flood zone that exceeds 50% of the fair market value of the structure (not including land value), is termed a "**substantial improvement**". This threshold is significant, since if it is exceeded, the entire structure – new and existing – must comply with current regulations for its Flood Zone. **(780 CMR, R105.3.1.1, R322.2, R322.3)**

2. In an AO Zone, for new construction or substantial improvement, **the lowest living floor level,** must be elevated above the highest grade adjacent to the foundation to match or exceed the flood elevation number for the Zone plus one foot. **(780 CMR R322.2.1.2)** For example, in an AO2 Zone, the lowest living floor (including areas where utilities are located) can be no lower than 3 feet above the highest grade adjacent to the foundation.

3. In an AO Zone, **any crawl space or other space below the floor level established as above cannot be lower than the lowest grade adjacent to the foundation.** In an existing structure, this may mean filling in an existing crawl space or basement. Foundation walls above grade must be provided with "flood openings" (refer to Item 8. for definition) to allow water pressure to equalize on both sides of the foundation and to drain. **(International Residential Code R322.2.2.2)**

4. In all A Zones, **for additions (lateral or vertical or a combination) that are a substantial improvement,** both the addition and the base building must comply with FEMA requirements for the zone. **If an addition does not constitute a substantial improvement**, the floor of the addition must not be below the lowest existing building floor elevation in an A Zone. In a V Zone, if not a substantial improvement, the addition must still comply with FEMA requirements, but the existing structure does not need to be brought into compliance **(FEMA P-758).**

5. In an AE Zone, **for new construction or substantial improvement,** the lowest living floor must be elevated to or above the FEMA DFE for the Zone. **(780 CMR R322.2.1.1)** Below this elevation, only parking and incidental storage are allowed, and there can be no utilities (heating, hot water, electrical, etc.) located below this elevation and no construction or materials which can be damaged by emersion.

6. In an AE Zone, **for new construction or substantial improvement**, there can be no constructed level – basement, crawl space, garage, storage, etc. - with an elevation below the lowest surrounding grade of the land abutting the foundation **(IRC R322.2.1 Exception)**; if necessary existing basements and crawl spaces must be filled to comply with the above.

7. In an AE Zone, **enclosed areas**, including crawl spaces, basements, garages, storage areas, etc., at the grade required above but which are **below the FEMA BFE must contain flood openings** to allow the water to pass through to equalize pressure. There must be a minimum of two such openings on opposite sides of each enclosed space. Total free area of all flood openings must

equal 1 square inch for every 1 square foot of enclosed area served **(IRC R322.2.2)**.

10. In a V Zone, the required elevation is not measured to the floor level but to **the underside of the lowest structural member supporting the lowest living floor**. Typically this is the top of piling or pier elevation or the bottom of the lowest platform framing member. To meet the requirements of the State Building Code, the bottom of the lowest structural member must be 2' above the FEMA BFE for the Zone. **(780 CMR R322.3.2.1)** For example, in Zone VE16, the bottom of the lowest structural member can be no lower than 18' NAVD88.

11. In a V Zone, **any project constituting a substantial improvement** requires the entire structure, new and existing, to be elevated as above.

12. In a V Zone, "**For lateral additions that are not a substantial improvement**, only the addition shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor...is located at an elevation that is at least the design flood elevation." **(780 CMR R322.3.2.6.)**

13. In a V Zone, **all new or newly elevated construction must be supported on piles or concrete piers**, to allow water to flow freely under the structure **(IRC R322.3.3)**. No other construction is allowed below the specified flood elevation, except the supporting piers or piles, minimal cross-bracing if required by best engineering practices, access stairways and break-away latticework or similar lightweight enclosures **(IRC R322.3.4)**.

14. In a V Zone, an A Zone or an AO Zone which is designated as a coastal dune and/or barrier beach, the only allowable foundation design is driven wooden pilings. This designation is determined by the Town's Conservation Commission. In cases where an existing building is to be elevated but there is no area on the lot where it can be temporarily placed to allow clearance for the pile driving operation, concrete piers with footings may be considered as an alternative design.

15. In a V Zone or any zone designated as a coastal dune or barrier beach permitted uses of the ground area under the house are limited to open parking, access and incidental storage. **(IRC R322.3.5)**

END