

Elevation—How High?
by Edmund Gallizzi

With impending changes by Congress to the National Flood Insurance Program (FIRM), Island residents may be wondering how rate changes may effect them. The program changes reduce or eliminate rate subsidies for property that is more likely to flood. The new rates are based on “true risk” which is dependent on the likelihood of an area to flood and the elevation of the property. FIRM has identified that some parts of the Island have a 1% chance of flooding each year (or on average will flood once every 100 years). Most of the area is along the Island perimeter and is designated as “Zone AE.” The center of the Island is higher, is not required to have flood insurance and is designated as “Zone X” which has a less than 0.2% chance of flooding (or on average once every 500 years). (A side note: these Zones are not the same as evacuation zones.)

Our Zone AE has a Base Flood Elevation (BFE) of 8 feet, which is the minimum elevation of the lowest finished floor of a structure to meet FIRM requirements. The BFE is the computed elevation to which floodwater is anticipated to reach during a base flood. That is, structures above that elevation have a less than 1% per year chance of flooding. The higher the lowest finish floor of a structure is above the BFE the lower the risk and the lower the flood insurance rate. Area BFEs are not the same. South of us in Pinellas Point the BFEs are 11 and 12 foot. North of us at Venetian Isles the BFE is 9 feet. On the Pinellas beaches the BFEs range from 10 to 16 feet.

But the mystery in all this is--the elevation above what? The basis of the elevation must be related to the sea water levels. The BFE of 8 feet is more properly stated as “8 feet NAVD88” which is the North American Vertical Datum of 1988. The datum is the point from which a vertical elevation is measured. The older standard was the National Geodetic Vertical Datum 1929 (NGVD29) which is now replaced by the NAVD88. In Pinellas County, the difference between the older NGVD29 and NAVD88 is on average 0.88 feet. So if your older house has an elevation of 9.03 feet NGVD29 (as does mine) your NAVD88 elevation is probably 8.15 (9.03-0.88). Similarly, when I built my house, the Island Zone AE BFE was 9 feet NGVD29 and now it is 8 feet NAVD88.

The relationship between NAVD and tides in the Tampa Bay is shown by the following table that is adapted from the information at the NOAA St. Petersburg Tide Observation Station web site which also shows real-time actual tide level along with the predicted level. The station is located at the Coast Guard base which is only a few miles north of Coquina Key and therefore its tide readings approximate the tides on our Island. To access the web site, do an Internet search on “NOAA Tides St Petersburg.” Then select Water Levels entry under the Tides/Water Levels tab.

Datum	Value (feet)	Description
MHHW	2.26	Mean Higher-High Water
MHW	1.98	Mean High Water
NAVD88	1.47	North American Vertical Datum
MSL	1.20	Mean Sea Level
MTL	1.18	Mean Tide Level
MLW	0.39	Mean Low Water

MLLW	0.00	Mean Lowest-Low Water
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The information on this web page may be especially interesting during a hurricane evacuation because it can show the water level above NAVD which relates to the NAVD elevation of your house. From your evacuation location, find the NOAA web site's tide page. Below the tide level chart, select the NAVD datum. If actual water level shown on the chart is less than your house's elevation your house is not being flooded. This assumes that all the technology works during the hurricane event.

This information is presented generally to inform Island residents and should not be assumed to be a formal engineering evaluation. It does not take into account additional water levels due to rain, fresh water flooding and wave action. Also tide levels at the NOAA station may not be the same as those on the Key.