

TerranearPMC Safety Share

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Over the past few years the Eastern seaboard – from Florida to Boston and even on the Gulf coast - we have witnessed numerous communities devastated by tropical storms and Hurricanes. Most recently, Michael overwhelmed the Florida panhandle and, in spite of all the warnings from weather stations and emergency services, imploring those in the path of these torrential weather systems to leave and seek shelter far away, there were many who, for whatever their reasons, refuse to heed these warnings. And inevitably, during the storms' aftermath, we hear of loss of life.

While most of us may think that fatalities from hurricanes are the result of severe trauma to the body, such as getting hit by large, flying objects or being tossed about and being slammed into stationary objects, the fact is, flooding causes most hurricane deaths. According to the National Hurricane Center ... Of the 600 people who died in hurricanes, tropical storms and tropical depressions during the hurricane center study's 30-year time frame, 354, or 59 percent drowned or were killed from some drowning-related trauma as a result of inland flooding (That number doesn't include people electrocuted by hidden power lines; in those cases, flooding was considered an indirect cause of death).

This statistic has been solemnly substantiated during the aftermath investigation of Hurricane Katrina that hit in 2005 where investigations concluded that most deaths occurred because of drowning.

As a side note to damage from the extreme nature of tropical storms, flooding has been an increasing problem in the country. Of course, it is obvious: people love to be near the water. Whether it's a river, lake, or the sea, a body of water makes for a beautiful landscape and many fun activities. Unfortunately, these bodies of water can also cause flooding. Flooding can happen at any time no matter where you live. And while various emergency services keep addressing the public to maintain a preparedness attitude, it still remains that there are too many instances where the facts about flooding seem to be taken with a grain of salt by those most susceptible to these severe weather conditions.

Floods are the #1 natural disaster in the United States, causing more deaths and damage than tornadoes and hurricanes. At the same time, the average annual cost of damage due to flooding in the United States is over \$2 billion.

The causes of flooding vary significantly and include heavy rainfall, melting snow, and building or structure collapse, and of course, severe weather systems. And what is the most dangerous type of flood? The answer is flash floods. And, what flood scenario is responsible for the most deaths? That is, people trying to drive in flooded areas.

A term that has received notoriety in recent years is "Flood Zones" and that includes some of its more descriptive classifications: 100-year and 500-year flood zones. Both of which are generally misunderstood by the public.



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Flood zones are geographic areas that the Federal Emergency Management Agency - or FEMA - has defined according to varying levels of flood risk. These zones are depicted on a community's Flood Insurance Rate Map (FIRM) or Flood Hazard Boundary Map. Each zone reflects the severity or type of flooding in the area.

These geographical areas are given a specific rating depending on the estimated flood risk. A flood zone will determine how much flood insurance will cost, and whether or not it is mandatory to carry flood insurance. Below is a list of flood zone categories:

- A: Flood zones that start with A are considered to be at high-risk for flooding. These areas are usually along ponds, rivers, and streams.
- B: These flood zones are considered to be moderate risk areas.
- C: These areas are considered to be at low risk for floods.
- V: These areas have not been evaluated for flood risks.

The designation V is used for high-risk coastal areas, which may receive damage due to flooding and strong waves in storms.

The term "100-year flood" is used as an attempt to simplify the definition of a flood that statistically has a 1-percent chance of occurring in any given year. Likewise, the term "100-year storm" is used to define a rainfall event that statistically has this same 1-percent chance of occurring. Insurance companies use a term called "Base Flood Elevations" or BFEs. FEMA defines the BFE as the computed elevation to which the flood is anticipated to rise during the base flood. The base flood is also referred to as the 1-percent annual chance flood or 100-year flood.

And 500-year floods? As it turns out, these episodes happen more than once every five hundred years. For instance, the Houston area alone has seen three such events in three successive years: Memorial Day floods in 2015 and 2016, followed by Hurricane Harvey's torrential rains the following year. So, does that mean Houston needs to change their flood zone category? Maybe to a 167-year flood zone (that is 500 divided by 3)? The fact is, a 500-year flood is an event that has a 1 in 500 chance of occurring in any given year.

When living in a 100 or 500-year flood zone, looking when the last flood occurred in your area is NOT going to ensure another event will only happen many years in the future! Therefore, it is always important to be prepared. Preparedness includes constructing barriers (levees, beams, floodwalls) to stop floodwater from entering your home can be effective. Seal walls in basements with waterproofing compounds to avoid seepage. And if a flood is likely in your area, listen to the radio or television for information and when advised to evacuate – do so immediately! It is also a good idea – for those living in a flood zone - to have a bag packed that contains important items (in case you need to quickly evacuate)..And don't forget to include important medications! If there is any possibility of a flash flood, move immediately to higher ground.

We are called to be architects of the future, not its victims.

R. Buckminster Fuller

