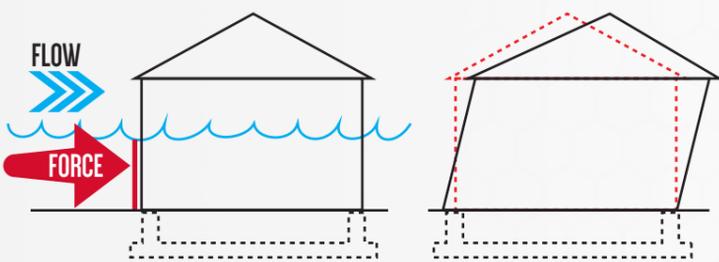


Your Guide to Hurricane Storm Surge Damage

Storm surge is an abnormal rise of water generated by a storm, over and above the predicted tides, according to the National Oceanic and Atmospheric Administration. Storm surge and subsequent flooding are common effects of hurricanes, and damage can manifest in many ways. Here are our experts' answers to your questions on how to recognize and respond to hurricane-impacted property.

How does storm surge affect a property?

Storm surge typically impacts a structure from the bottom up and from the outside in. There are four main damaging forces associated with storm surge and flooding.

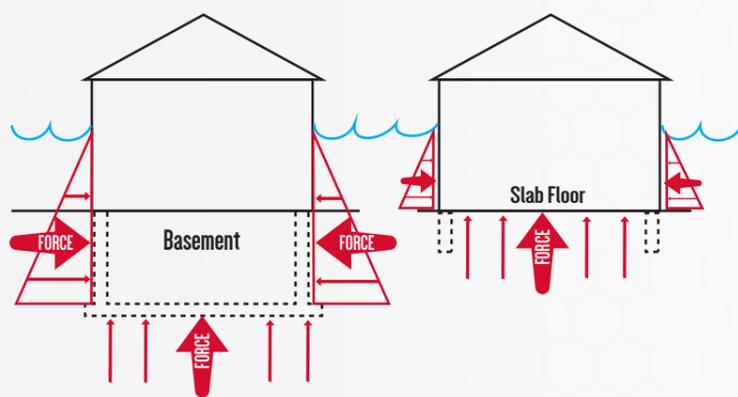
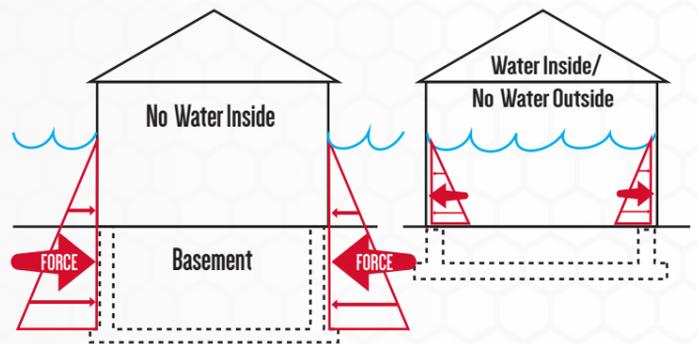


Hydrodynamic Forces

- Moving water applies pressure on a structure
- Damage occurs from lateral movement of walls and foundations, or debris impact
- Breaking waves may cause vertical movement

Hydrostatic Forces

- Pressure comes from water being higher on one side of a wall or structure than another
- Force is applied by standing water during flooding when outside water levels rise faster than inside water levels
- Damage is rare in hurricane-prone areas because:
 - Water fills above-grade interiors at the same rate as the exterior
 - Basements are uncommon in hurricane zones

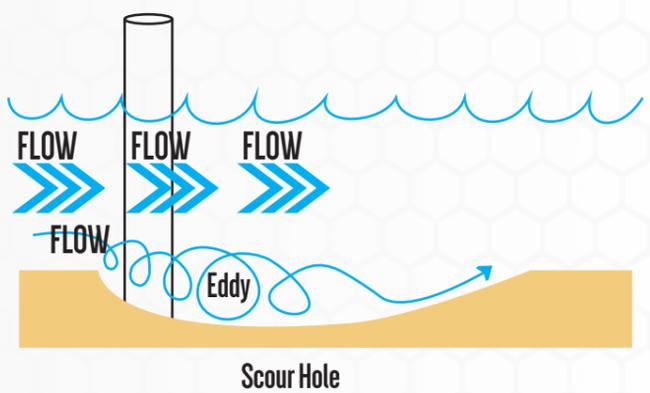


Buoyant Forces

- The weight of an object and volume of water determine buoyant forces
- Damage typically happens to single-story, wood-framed houses that are not adequately fastened to the foundation
- Coastal decks can also be affected

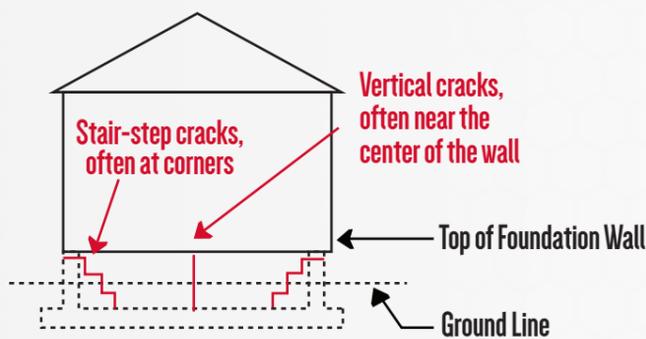
Frictional Forces

- Wind or water erodes or wears away soil
- Damage is caused when soil wears away around structural supports
- Scour, a localized form of erosion, can occur when water forms a swirling eddy, such as around piles and posts



Is flood-induced settlement the result of storm surge?

Flood-induced settlement occurs when soils experience consolidation or other downward movement due to an applied load while in a saturated condition. Since soil holds on to water for a long time, flood-induced settlement can be an immediate or long-term effect of storm surge and flooding.



- Stair-step cracks are common in the foundation corners and around masonry openings, like garage doors
- Horizontal cracks may occur in the middle of foundation walls
- Diagonal and vertical cracks commonly form on interior wall surfaces, particularly above doorways and windows
- Damages may become noticeable after the hurricane event

What should I ask when identifying storm surge damage?



Are there impact marks or debris fields?



Are there before and after photos?



What repairs have been done?



How deep was the water (high water marks)?



What direction did the water come from?

All the right questions about hurricane damage require answers you can trust. There's no substitute for expert investigations. Send your property questions our way! Donan's forensic engineers are nationwide, and our catastrophe response is swift and professional.