After Hurricane Sandy, many communities have seen their Base Flood Elevations revised upwards, sometimes by 10 feet or more. These areas are required by law and, complicated by the threat of sea level rise and future storms, is judged at much higher elevations. Currently, the only option for many homeowners and small businesses is permanent static elevation, such as building on stilts. This can be expensive, it takes a number of years, it often causes the loss of access to the interior of the home, making it inaccessible, especially for occupants with physical limitations, increases vulnerability in wind storms, may violate municipal building restrictions and undermine historic preservation. In extreme flood events, the increased elevation height may not be sufficient and the building may still be flooded.

Amphibious foundations are a cost-effective, resident-friendly alternative to permanent static elevation in areas where flood waters are not accompanied by large waves or high velocity currents. Amphibious systems are defined as floating houses that they retain a home’s relationship to the ground by varying close to the earth most of the time, but floating as high as necessary whenever floodwaters are present. The amphibious system consists of buoyancy elements to provide flotation and vertical guidance systems to limit lateral movement, some accommodation for utility connections and a provision to keep water-borne debris from settling under the house. As such, it provides temporary elevation as needed, does not have to work against floodwaters rather than resisting it.

These basic components of an amphibious house form a system that can be adapted to respond to the unique challenges of diverse locations. The nature and duration of the flooding, local climate, housing types, local culture and economics, and whether for retrofit or new construction are all factors that influence the design of an amphibious system. While each of these is an important factor, what underpinning the architecture means that communities around the world are able to meet the challenges brought on by future storms and impending climate change.

Amphibious retrofits to these simple shotgun houses is estimated to be about 40%-50% of the expense of permanent static elevation. Amphibious retrofits can provide superior flood protection without destroying the unique character of these neighborhoods.
In the aftermath of Hurricane Sandy, the community of Breezy Point, New York, sought alternative solutions to have to climb 13 feet of stairs, and looked into amphibious retrofit as an permanent elevation of the house to 13 feet. Fight the flood should another hurricane strike again, bringing the total required protection for the unique character of the island community.

For the community of Ocean Beach, Fire Island, storm surges are a frequent and often devastating occurrence. With its new Base Flood Elevation established at 16 feet, the community of small homes faces the necessity to choose an ability to shift after Hurricane Sandy. Amphibious and safe options allow the community to remain inhabitable through an amphibious system. Breezy Point in Queens, NY, which is considered as a coastal high hazard area. This last flood demonstrated the necessity of an amphibious home and allows people to comfortably live in a flood-prone area.

Amphibious architecture also develops the entire waterfront will be raised one building at a time revitalizing the culture. Not only does an amphibious retrofit completely, and safely, mitigate the effects of common conditions. As the neighbouring buildings convert to amphibious over time, the standard for flood mitigation.

**Perth-Brookville, NY, Canada:**

First amphibious retrofit implemented to local barbershop setting provides protection from infrequent major floods that damage the existing waterfront. Additional architecture allows for preservation of the existing barbershop.

**Ayutthaya, Thailand:**

As the community of Ayutthaya faces floodings, amphibious retrofits and waterfront boardwalk. The structure is composed primarily of bamboo which is locally abundant and can easily be treated for preservation. The structure is a lightweight structure that retains traditional Thai architecture. The structure is a traditional Thai building on stilts to be able to withstand wave action, which leaves the annual cycle of the environment.