What should an Ideal resilient design approach include?

System meets all top priorities and capabilities

1. Must provide complete protection from extreme disasters such as the 33' tall tsunamis that struck the Honshu coast of Japan or from hurricanes like Dorian that generated 10'+ seas on top of a 23' high storm surge that swept over the Bahamas in 2019.
2. Be an extremely reliable, fully automated, fail-safe system with a long system life and requiring minimal maintenance. Be a mechanically simple, fool-proof system require no human input to be fully functioning so the system remains fully operational when an evacuation is ordered.
3. Net zero energy capable - to function in remote areas or when utilities are out during storms.
4. Be "Green" and not impose measurable risk to the environment or surrounding wildlife habitat.
5. Easily mass-produced using off-the-shelf components that are modular, scalable and proven.
6. Affordability is key to implementing the system at scale across many market sectors.
7. Must be capable of heavy load carrying so the structure it protects is not weight restricted.
8. Exposed boat hulls underneath the structure the system supports need to be eliminated to save cost, complexity and potential failure if hulls are damaged by floating surface debris.
9. All systems are hidden from view from the interior and exterior and no prime space inside or outside the building is needed for the system.
10. Accessibility - the first floor/deck lowers to the water surface or below the surface if needed.
11. Patent the system to protect market share, increase investment potential and production scale.

What should an Ideal resilient design approach include?

In addition to the top 11 system priorities and capabilities on previous slide:

In addition to the top 11 items Onwater Floating Foundations offer, listed on the previous slide, Onwater Floating Foundations can fully protect structures anywhere on land from the following disasters no matter how large or intense the disasters are.

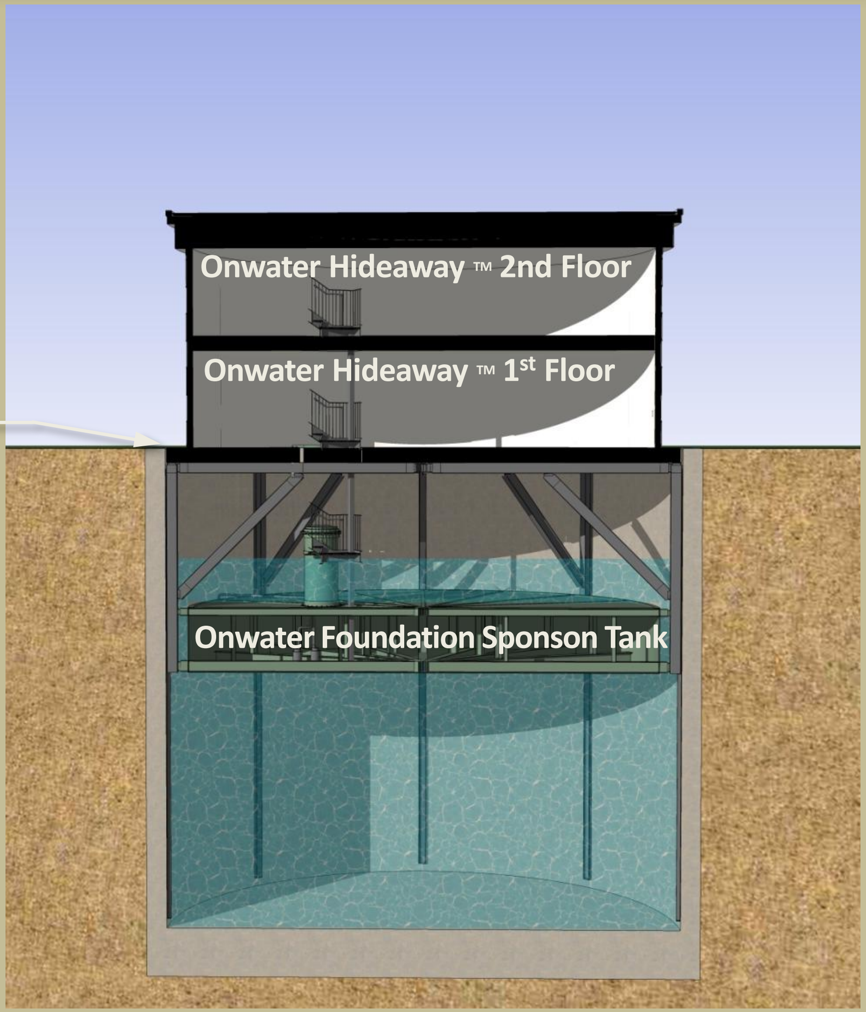
1. Wind storms including cyclones, tornadoes, typhoons, microbursts, etc.
2. Wild fires and forest fires like those in recent years on the West Coast of the US.
3. Sand and debris damage during beach or desert sand storms
4. Hot ash, stones, rocks and other debris from volcanic eruptions
5. Vandalism, theft and break-ins for buildings or other facilities in high crime areas or in remote locations where law enforcement and security are not able to offer sufficient protection
6. Weather exposure - 100% protection from sun, wind, rain, humidity, air pollution. Ideal for seasonal vacation homes, automobile collections, yachts or any watercraft, aircraft and other high value assets including art collections, rare objects, file storage and data centers.
7. In a few minutes time, the fully automated system will transform any dwelling, commercial, or institutional building (including garages, aircraft hangers or critical infrastructure or military facility) into a totally protected, secure bunker or bomb shelter that protects against doomsday apocalyptic events including war related shelling, aerial bombing, missile strikes, nuclear fall out, nuclear winter, etc. The system automatically restores the same structures back from an underground bomb shelter to a normal, fully operational use in a few minutes time with no human interaction, which is ideal for facilities that are used periodically or seasonally. Conventional bunkers save lives, but after the event survivors need to rebuild all their physical assets in what will likely be a very labor and material resource constrained environment.

Onwater™ Foundation - Height Adjustment Function

System functionality: mid-normal position of large diameter Floating Foundations

The following example here and on the next nine slides is a single 50 foot "Large Diameter", 45 foot deep Onwater Floating Foundation Pad system that **creates a monolithic pad similar to a slab foundation** to support a 3,000 sq ft. 2 story Onwater Hideaway ™ building with a roof garden. The image on the right depicts the sponson buoy in "normal" position with enough water ballast in the sponson tank to position the building with the first floor level coplanar with the exterior grade of the building entrance walkway

- As non-dead load weight (people, and goods brought to and from the building) fluctuate, sensors will trigger pumps to add or subtract ballast water between the sponson tank and the sponson well to maintain a fixed building height
  - *The system uses the same type of sliding tracks as the system shown on slides 15-18, which have enough tolerance space between the sponson buoy and tracks on the wall of the well to allow the sponson buoy system to float freely enough to provide a reasonable level of shock and vibration isolation between the system and the ground around the sponson well.*

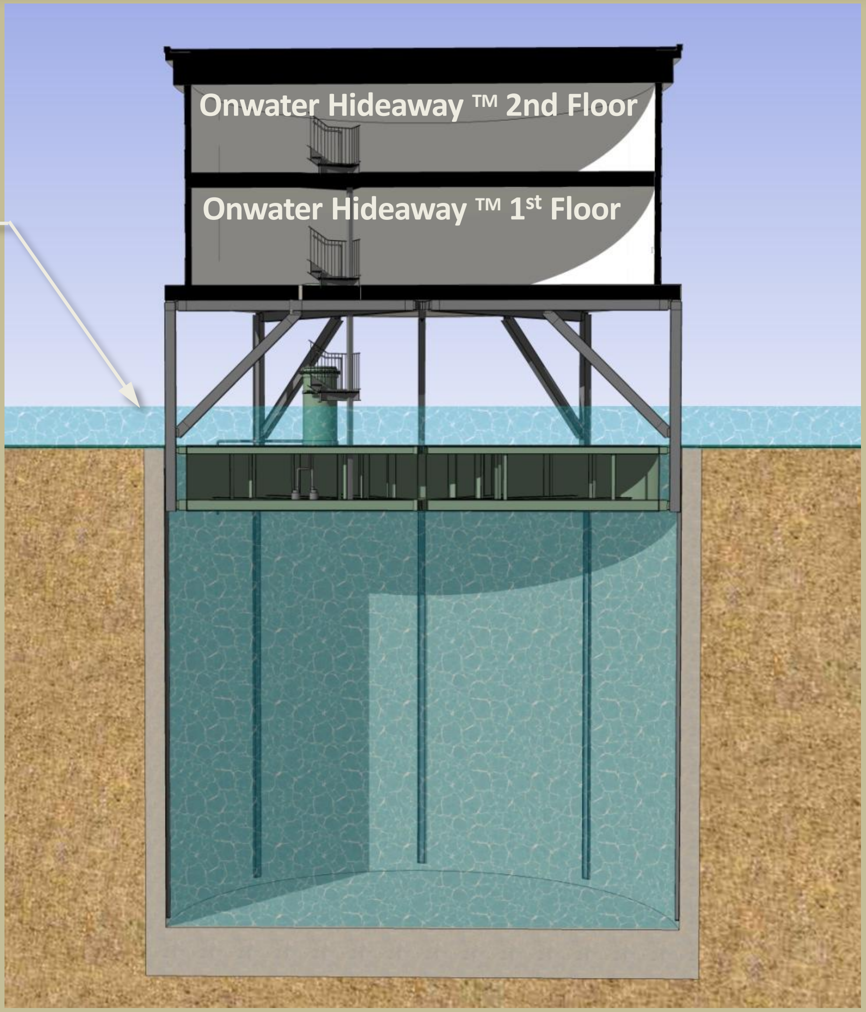


Onwater™ Foundation - Height Adjustment Function

System functionality: highest position during flood, storm surge or tsunami

Like other Onwater Foundation systems, as water levels rise, the sponson buoy will rise to a fully deployed/extended position during a king tide/astronomically high tide, storm surge, tsunami, river flood, levy break, or similar event

- Ballast water in the sponson tank is pumped out when an event is anticipated to raise the building a predetermined amount to compensate for surface wave conditions. Then, as water fills the sponson well and floods the immediate area, the building will rise and fall at the same rate that water adjacent to the structure rises and falls
  - *Wave motion sensors in the immediate vicinity of the system and remotely located on buoys in adjacent harbors and ocean waters combined with other state, national or international emergency warning systems can feed data to the automated lift system for continuously monitoring ballast weight and determining the minimum height needed.*



Onwater™ Foundation - Height Adjustment Function

System functionality: lowest/stowed position during catastrophes or when unused

Flooding the sponson tank by opening gates/ valves in the bottom of the sponson tank lowers the system and structure completely below grade

- Filling the sponson tank with water ballast sinks the sponson buoy to the bottom of the foundation well and fully retracts the structure
  - *In the image on the right, the sponson well is not deep enough to fully retract the two story building without flooding the building. The well can be constructed deeper to compensate for this or water can be pumped out of the well before the sponson tank is flooded.*
  - *The water pumped from the well in latter scenario can be captured in a nearby water body, a dedicated surface pond design to accept the additional water volume or a tank that is either above or below ground. The stored water can be used to recharge the system after the sponson tank gates/valves are closed and the sponson tank is pumped dry.*
  - *During a wild fire, the water pumped from the well could be sprayed onto the ground surface and plants on the roof of the building until the well and sponson tank are drained completely.*

- The Floating Foundation can lower the entire 2 story building below grade:
  - *By increasing the height of the sponson tank, the roof structure above the second floor of the building can be any material of any thickness necessary to provide the protection an underground bunker or bomb shelter requires.*

Onwater™