Water Activated Barrier (Aqua Bags)

Overview

- Water activated flood barriers are a light-weight, user-friendly alternative to sandbags that provide a water barrier against incoming floodwaters.
- Water activated flood barriers can be placed prior to flooding events and prevent up to one foot of water from entering a structure.
- The barriers work by absorbing incoming floodwaters until they are at capacity. Once at capacity, they act as a small floodwall.
- It typically only takes minutes for the barriers to automatically fill to capacity.
- Although some brands of water activated flood barriers can be re-used, the second activation often will not expand the bags to their original size. New bags may need to be purchased for each flood event. If the bags have absorbed toxic chemicals or sewage, they cannot be re-used and must be disposed of properly.
- Some brands can be used for several months at a time when continuously in contact with floodwater.
- As these temporary barriers require active placement prior to flood events, an aqua bag layout plan should be developed prior to flooding events.
- Even with the flood barriers, there will still be some water infiltration and a dewatering system may be necessary.
- If the amount of flooding exceeds height and capacity of the water activated flood barriers, water can still cause damage to the structure.
- Water activated flood barriers are not intended for use in areas experiencing saltwater flooding.
- The barriers can also be used to mitigate water damage for leaks or broken pipes inside the structure.



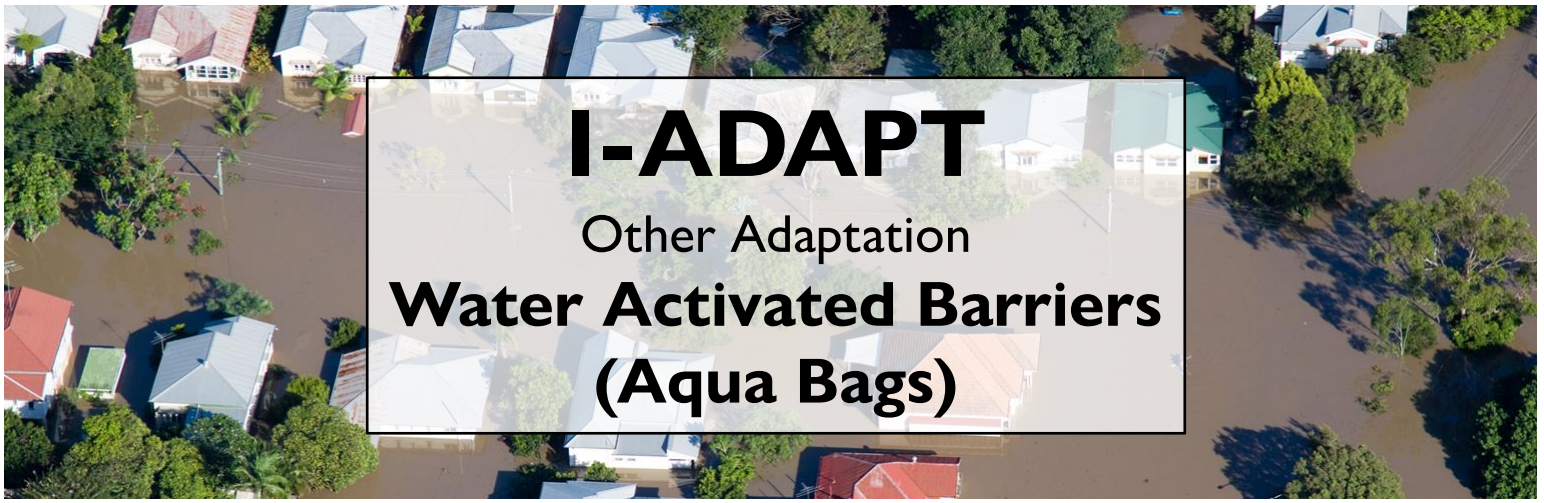
Key Takeaways

During flood events, water can cause extensive damage to unprotected structures.

Structures that are not floodproofed and cannot be adapted through other strategies may require perimeter protection from floodwaters.

Temporary water activated flood barriers or aqua bags can be used to protect structures. Water activated flood barriers are placed in front of doorways or along the perimeter of a building prior to flood events. Water activated flood barriers act as a temporary, short floodwall around the structure.





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Other Adaptation

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Estimated Costs/Benefits

*U.S. dollars (2022), estimates are subject to change

Potential Costs		Potential Benefits		
Item	*Estimate*	*Post-Flood Recovery Actions*	*Estimate*	
Doorway water activated flood barrier (one doorway)	$20-$80	Flood damage recovery (professional clean-up, mold removal, replacement/ repair of flood damaged items)	1 inch water ↓ 1 foot water	$10,800- $53,500+ ↓ $29,300- $143,500+
OR				
Stackable water activated flood barriers (for a 50 feet long by 1 foot high wall)	$400-$1,000			
ESTIMATED TOTAL COST	**$20-$1,000**	**ESTIMATED TOTAL SAVINGS**	**$10,800- $143,500+**	

Additional Actions

- Potentially purchase a sump pump to remove water that has infiltrated the barrier.
- Will need to be manually installed immediately before each flooding event.

Additional Resources

- FEMA Homeowner's Guide to Retrofitting
- FEMA Protect Your Home from Flooding Low-Cost Projects You Can Do Yourself

Resources can also be found at https://de.gov/iadapt

Expected Maintenance

- Before placing the bags, check them to ensure they have not been damaged in any way.
- After flooding events, the water activated flood barriers will need to either be disposed of properly or left to dry out before re-use.

Permitting Agencies

Contacts for permitting requirements include but are not limited to the following:

- Your city and/or county government for local flood ordinances or regulations
- Your city and/or county government for building permits

Who to Contact

- Design professional or engineer if you need advice on how much flooding you should expect.

Technical definitions and more information are located on the I-ADAPT website: https://de.gov/iadapt.

This information is intended to be used for planning purposes. It is not intended to substitute or take precedence over the guidance of design engineers, contractors, utility companies or regulatory agencies.

For more information, contact DNREC's Division of Climate, Coastal and Energy at DNREC_IADAPT@Delaware.gov