Elevate Permanent (Standby) Generator

Overview

- If you have an outdoor permanent (standby) generator located below the Base Flood Elevation line, it is at risk during flood events.
- To help avoid flood damage to the generator, elevate it onto a platform above the Base Flood Elevation line (BFE).
- Permanent generators can be elevated using different techniques:
  - Cantilevered platforms that are supported by the first-floor framing system may be the best option in areas experiencing coastal flooding, river flooding, or high velocity flooding.
  - The equipment could be elevated onto a platform or pedestal of the same foundation type as the structure (e.g., piles, brick).
- Anchoring the generator is recommended in order to keep it on the platform.
- Keep in mind that elevating the generator may make it more difficult to access the generator for fueling with gasoline or diesel.
- If replacing the permanent generator and the structure already has natural gas hook-ups, consider upgrading to a new, more efficient model that runs on natural gas rather than gasoline or diesel.
- The cost of elevating outdoor permanent generators depends on the type of building and the location of the wiring/gas lines.
- If the permanent generator runs on gasoline or diesel, make sure to have enough fuel on hand for flooding events.
- This strategy will not protect the structure from flooding but will help reduce flooding associated costs.



Key Takeaways

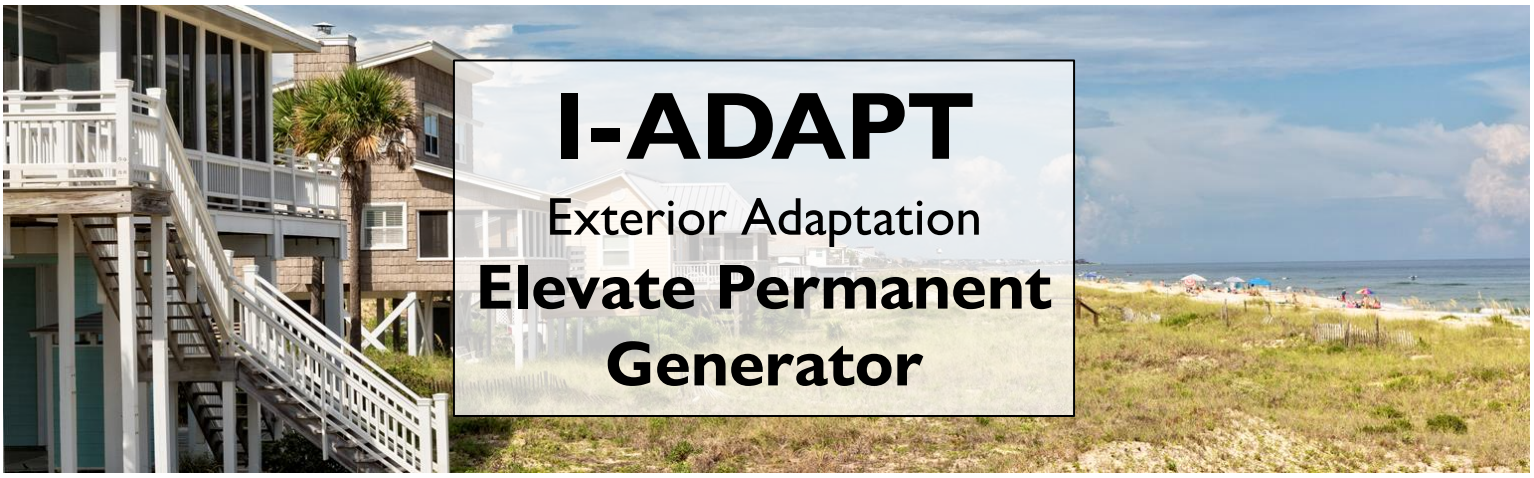
During flood events, flood water can damage permanent (standby) generators.

Generators can also float during flood events and can cause extensive damage to the building and/or neighboring structures.

To avoid replacement or repair costs related to flood damaged or destroyed generators, elevate them onto a platform or pedestal above the Base Flood Elevation line.



Photo credit: FEMA



I-ADAPT

Exterior Adaptation

Elevate Permanent Generator

Estimated Costs/Benefits

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

Potential Costs			Potential Benefits	
Item		*Estimate*	*Post-Flooding Recovery Action*	*Estimate*
Cantilevered wooden platform (4'x5' platform)		$900-$1,000	New permanent generator	$2,000-$200,000
OR				
Ground platform or pedestal (4'x5' platform on 4' base)	Wood	$900-$1,000	Re-wire generator	$600-$900
	Brick/concrete	$400-$1,700		
	Piles	$1,800-$4,800		
AND				
Re-wire generator		$600-$900	Re-route gas line	$60-$125
Re-route gas line		$60-$125		
ESTIMATED TOTAL COST		**$1,060-$5,825**	**ESTIMATED TOTAL SAVINGS**	**$2,660-$201,025**

Potential Funding Sources

- Building Resilient Infrastructure and Communities (BRIC)

Additional Resources

- FEMA Protecting Building Utility Systems from Flood Damage
- FEMA Principles and Practices for the Design and Construction of Flood Resistant Building Utility Systems
- FEMA 9.0 Protecting Service Equipment

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

Expected Maintenance

- Regular generator maintenance.
- Periodically ensure that there is no damage to platforms/pedestals.
- Follow maintenance guidance from the contractor and permit guidelines.

Additional Actions

- Elevate other outdoor utility equipment.

Permitting Agencies

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

- DNREC Coastal Construction Permit
- Your city and/or county government for local flood ordinances or regulations
- Your city and/or county government for building permits
- Electrical permit for re-wiring

Who to Contact

- Contractor
- Electrician

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