

# Elevate the Structure

## Overview

- Elevating an entire building above the Base Flood Elevation (BFE) line is recommended when the structure is subject to flood depths of more than three feet and/or if the structure is subject to wave action or high velocity flooding.
- Elevation methods:
  - Open foundations such as piers, posts, columns, and piles are used when there is a high risk of wave action or high-velocity flooding.
  - Continuous foundations, which are a continuation of the structure's current foundation can be used when there is a low risk of wave action or high-velocity flooding.
  - Elevation on fill.
- The elevation process varies based on weight, height, complexity of design, shape of the structure, and the foundation type.
- If the structure is going to be elevated on a continuous foundation, the walls must contain flood openings.
- Flood events causing water elevations higher than the BFE line can and do occur. Therefore, structures that are elevated an additional three feet above the BFE are even less likely to experience flood damage in the long term.
- The costs of raising a structure an additional three feet above the BFE are low when compared to potential costs of flood damage.
- If the structure has experienced substantial damage from flooding, the cost of elevation may be eligible for a National Flood Insurance Program (NFIP) insurance claim.
- As elevation decreases the flood risk for the structure and its contents, NFIP premiums can likely be reduced for elevated structures.



Photo credit: FEMA

## Key Takeaways

The frequency and intensity of coastal flooding events are increasing in Delaware.

By elevating a building above its Base Flood Elevation line, the structure can remain intact with a significantly reduced risk of flooding due to sea level rise, hurricanes, storm surge, riverine or stormwater runoff.

When relocating the structure is not an option, elevating the structure is often the best option to reduce risk from sea level rise for residents living on the coastline.

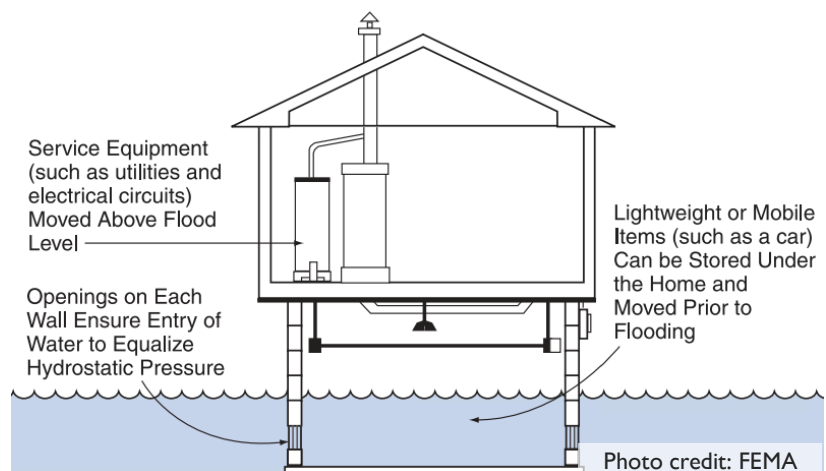
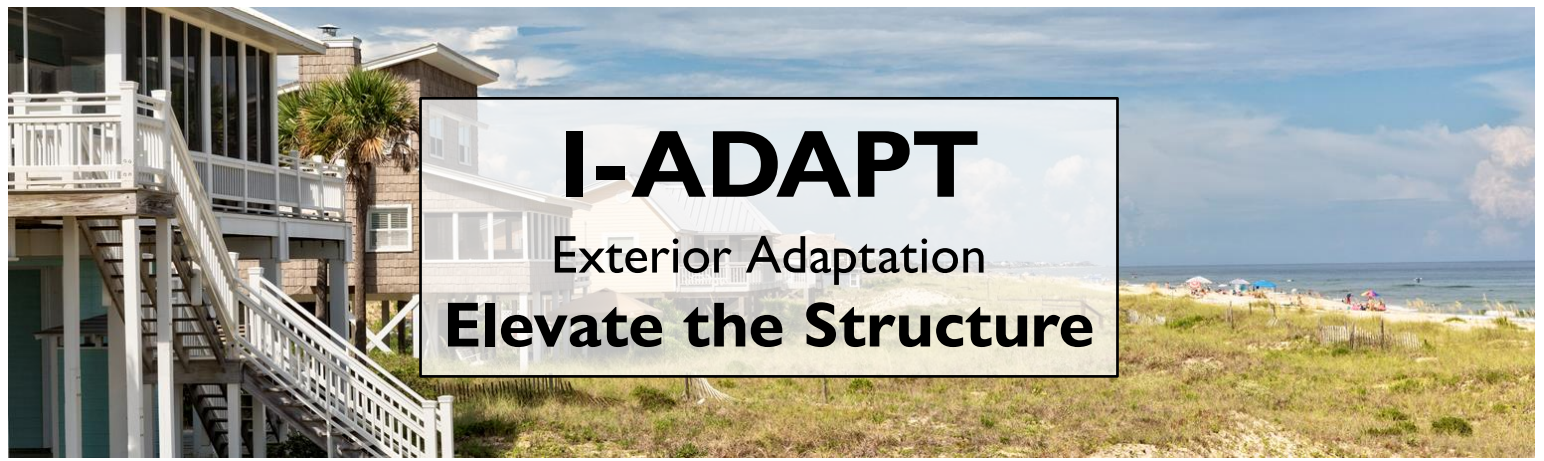


Photo credit: FEMA



# I-ADAPT

## Exterior Adaptation

### Elevate the Structure

## Estimated Costs/Benefits

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

Potential Costs		Potential Benefits		
Item	Estimate	Post-Flood Action	Estimate	
Elevation including new foundation, septic, wiring, plumbing, etc.	\$45,000-\$80,000	Flood damage recovery (professional clean-up, mold removal, replacement/ repair of flood damaged items)	1 inch water	\$10,800-\$53,500+
Temporary housing (60 days)	\$5,000-\$7,000		↓ 4 feet water	↓ \$53,500-\$203,200+
<b>ESTIMATED TOTAL COST</b>	<b>\$50,000-\$87,000+</b>	<b>ESTIMATED TOTAL SAVINGS</b>	<b>\$10,800-\$203,200+</b>	

## Potential Funding Sources

- Increased Cost of Compliance (ICC) coverage is for flood insurance policyholders who need additional help rebuilding after a flood. It provides up to \$30,000 to help cover the cost of mitigation measures that will reduce flood risk.
- [Flood Mitigation Assistance Grant \(FMA\)](#)
- [Building Resilient Infrastructure & Communities Grant](#)

## Additional Resources

- [FEMA Engineering Principles and Practices for Retrofitting Flood-Prone Residential Structures \(FEMA P-259\)](#)
- [FEMA Homeowner's Guide to Retrofitting \(Chapter 8\)](#)

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

## Expected Maintenance

- Regular structure maintenance.
- Keep area under structure clear of debris, furniture, etc.

## Additional Actions

- Utility systems may need to be updated.
- During elevation, temporary living quarters will be necessary.

## 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 local sediment and stormwater ordinances or regulations
- Your city and/or county government for building permits
- [DNREC Coastal Construction Permit](#)

## Who to Contact

- Elevation/general contractor/design engineer
- Utility companies

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](mailto:DNREC_IADAPT@Delaware.gov)

