

# Elevate Lowest Floor

## Overview

- When physically elevating the structure is not possible or cost-effective, elevating the lowest floor within the building may offer protection from flood damage.
- Elevating the lowest floor involves raising the floor of the ground level floor above the Base Flood Elevation line (BFE).
- This strategy can only be used for structures without basements.
- This strategy can only be used for structures that have high ceilings on the ground floor as the floor will be raised several feet, but the ceiling will remain in the same place.
- The walls on the ground level floor must be modified or replaced.
- After elevating the lowest floor, the below-grade area will need to be filled or have flood openings installed.
- All utility systems and associated equipment located on the ground floor will also need to be moved above the BFE.
- Requirements for elevating lowest floor:
  - Only allowed when in Zone A or when not in a flood zone
  - Structure has a slab-on-grade foundation
  - Foundation walls are concrete, masonry, or wood-framed shear
  - All walls below the ground floor are made of flood-damage resistant materials
  - Elevating the structure is not possible nor cost-effective
- New flood insurance premiums will be rated on the new floor level which could decrease the NFIP premium rate if the conversion qualifies as a Substantial Improvement.



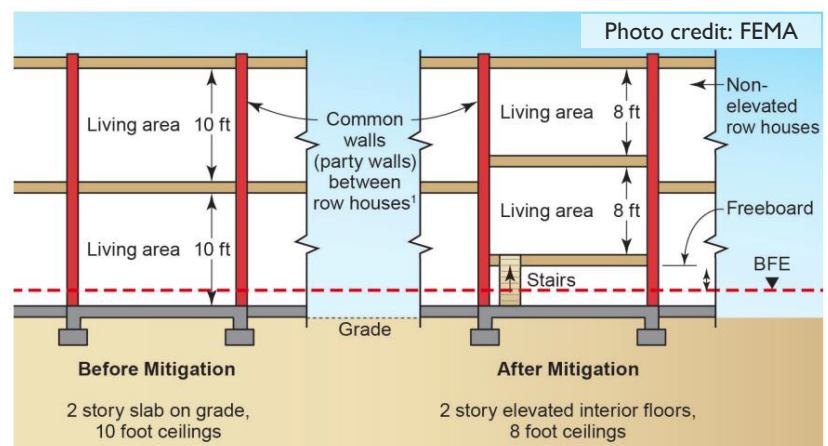
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## Key Takeaways

During flood events, flood water entering the building can cause massive damages to living space.

Buoyancy forces may also cause the furniture and utility equipment to float and become projectiles, which can cause more damage inside the structure.

To avoid continuous replacement or repair costs related to flood damaged or destroyed indoor furniture, utilities, and living space, the first floor can be elevated if the ceiling is high enough and elevating the entire building is not an option.



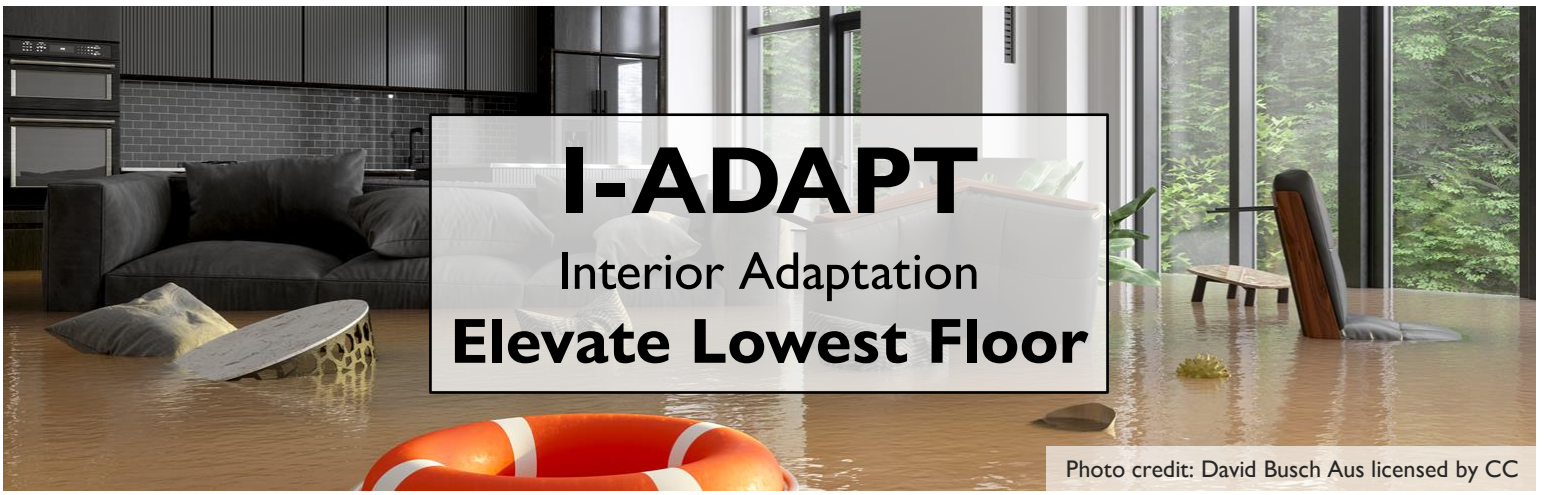


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## Estimated Costs/Benefits

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

Potential Costs		Potential Benefits	
Item (quantity)	Estimate	Post-Flooding Recovery Action	Estimate
Remove original floor	\$1.50-\$4 per sq ft	Flood damage recovery (professional clean-up, mold removal, replacement/repair of flood damaged items)	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;"> <p>1 inch water</p> <p>↓</p> <p>4 feet water</p> </div> <div style="text-align: center;"> <p>\$10,800-\$53,500+</p> <p>↓</p> <p>\$43,400-\$203,300+</p> </div> </div>
New floor	\$3-\$22 per sq ft		
Elevate doors	\$300-\$1,500/door		
Move utilities up with the floor	\$3,450-\$12,820		
Add onto foundation	\$3,000-\$8,000		
Each staircase	\$1,000-\$2,000 /staircase		
Replace/modify the walls	Highly dependent on wall type, size, and the structure		
<b>AND</b>			
Flood vents and installation (8-10)	\$265-\$605 per vent		
<b>OR</b>			
Fill any below-grade areas	\$2,000-\$10,000		
<b>ESTIMATED TOTAL COST</b> 1,000 sq ft building	<b>\$15,550-\$63,820+</b>	<b>ESTIMATED TOTAL SAVINGS</b>	<b>\$10,800-203,300+</b>

## Expected Maintenance

- Periodically ensure that flood openings are functioning properly.

## Additional Actions

- Sign a “non-conversion agreement” with the community which make sure the owner will continue to comply with floodplain requirements after conversion.

## 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
- Electrical permit if installing new outlets.
- DNREC Coastal Construction Permit
- Wetlands and Subaqueous Lands Permit

## Who to Contact

- General contractor
- Utility companies
- Design engineer or professional

## Additional Resources

- [FEMA Reducing Flood Risk to Residential Buildings That Cannot Be Elevated](#)
- [FEMA Principles and Practices for the Design and Construction of Flood Resistant Building Utility Systems](#)

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

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)

