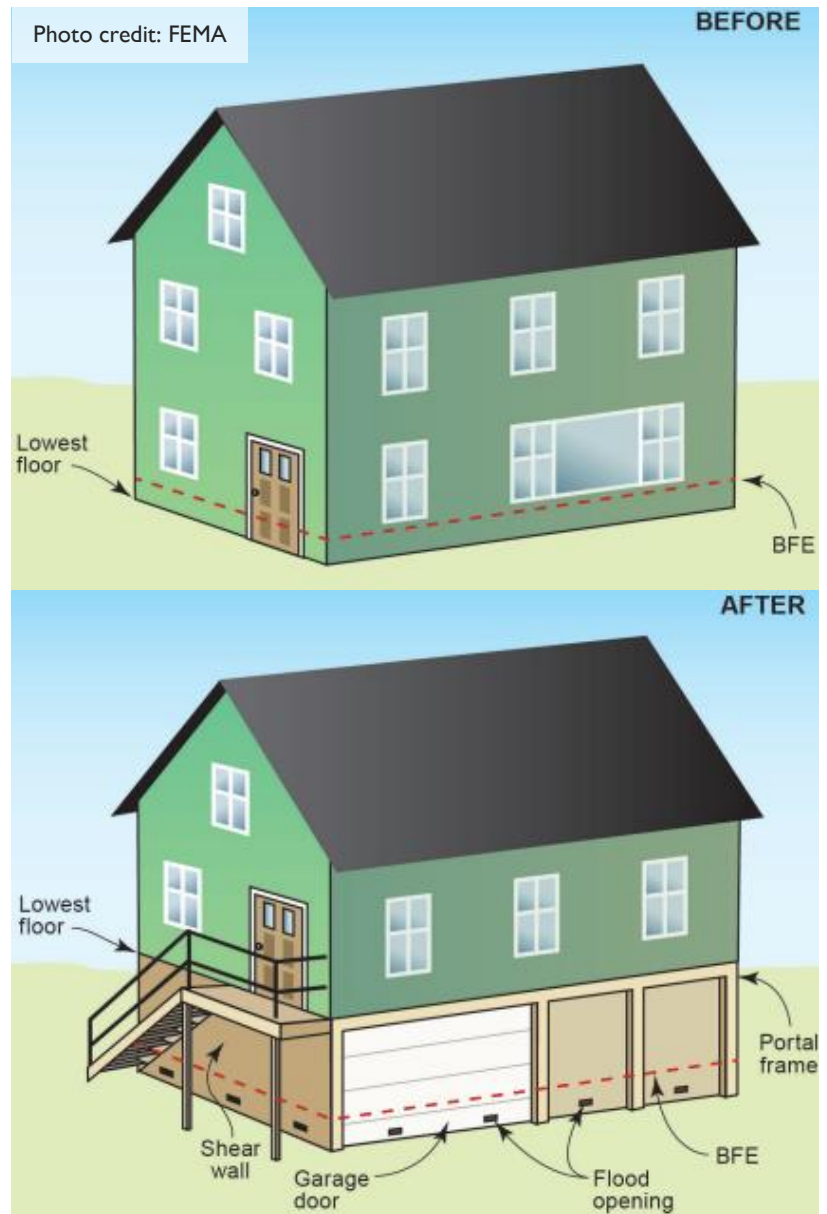


Second Story Conversion

Overview

- When physically elevating the structure is not possible or cost-effective, a second-story conversion (abandoning the lowest floor) may offer sufficient protection from flood damage.
- A second story conversion involves converting the use of the ground floor to parking, storage, or building access space. All living space is moved to the upper floors.
- This adaptation measure raises the structure's new lowest floor to or above the Base Flood Elevation line (BFE).
- Ground level walls must be modified or replaced.
- Below-grade areas will need to be filled.
- The ground floor will need flood openings to allow flood water to passively enter and exit the building.
- All utility systems and associated equipment located on the ground floor must be moved to a higher floor.
- Requirements for second-story conversions:
 - 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
- Unless the owner builds another floor on top of the current highest floor, this measure will decrease the livable space of the structure.
- New flood insurance premiums will be rated on the new lowest floor level which could decrease the premium rate if the conversion qualifies as a Substantial Improvement.



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 abandoned through a second story conversion.



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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	
Move utilities to the new first floor	\$3,450-\$12,820	Flood damage recovery (professional clean-up, mold removal, replacement/repair of flood damaged items)	1 inch water ↓ 4 feet water	
Flood vents/openings and installation (8-10)	\$265-\$605 per vent			\$10,800-\$53,500+
Insulating and enclosing abandoned floor ceiling	\$600-\$4,500			
Replace/modify the walls	Highly dependent on wall type, size, and the structure			
Fill any below-grade areas	\$2,000-\$10,000			
Each staircase	\$1,000-\$2,000 /staircase			\$43,400-\$203,300+
New door opening/door	\$850-\$1,400 /door			
ESTIMATED TOTAL COST	\$11,870-\$40,170+	ESTIMATED TOTAL SAVINGS	\$10,800-203,300+	

Additional Resources

- [FEMA Second-Story Conversion Fact Sheet](#)
- [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>

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 to floodplain requirements after conversion.
- Build another floor on top of the highest floor of the building for more living space.

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

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

