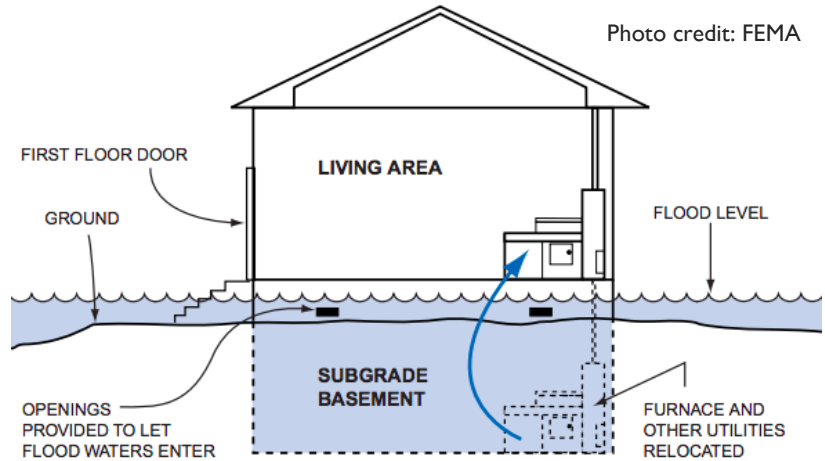


Wet Floodproofing

Overview

- Wet floodproofing involves modifying uninhabited portions of the structure to allow water to enter the building during flood events without causing significant damage.
- Uninhabited portions of a structure that can be wet floodproofed include crawlspaces, attached garages, unfinished basements, and enclosed parking areas.
- By allowing water into the building, the interior and exterior hydrostatic pressures can be equalized, which reduces the chance of wall failure and other structural damage.
- Wet floodproofing is not a recommended solution for all structures. Pre-FIRM buildings (underwent construction or substantial improvement on or before December 31, 1974) that are located below the BFE, historic structures, structures with an attached garage, and structures that cannot be elevated are candidates for wet floodproofing.
- Wet floodproofing is generally accomplished through a combination of several strategies:
 - Install flood openings
 - Use flood resistant materials
 - Protect service equipment
 - Elevate service equipment
 - Elevate fuel supply/storage system
 - Protect water and sewer systems
 - Install breakaway walls
 - Anchor the structure
 - Purchase a sump pump
 - Purchase a backup generator
- During flooding, the structure’s interior will get inundated and can be contaminated by sewage, chemicals, and other hazardous materials. Extensive post-flooding clean-up may be necessary.
- Wet floodproofing should not be used for post-FIRM structures or for structures experiencing high-velocity flood flow and/or wave action.



Key Takeaways

During flood events, water can cause damage to the structure’s foundation and interior contents.


If hydrostatic pressures become too high for the walls to withstand, the foundation walls may collapse, resulting in extensive and expensive damage to the structure as well as its contents.

To help avoid flood damage to the foundation of a structure, the structure can be wet floodproofed. A wet floodproofed structure allows floodwaters to enter the structure during the flood event.

Estimated Costs/Benefits

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

Example Potential Costs		Potential Benefits		
Item	Estimate	Post-Flood Recovery Actions	Estimate	
Flood vents	\$265-\$605 per vent	Flood damage recovery (professional clean-up, mold removal, replacement/repair of flood damaged items)	1 inch water	\$10,800-\$53,500+
Water resistant insulation	\$1,420-\$2,470		↓	↓
Elevate indoor utilities and equipment	\$3,530-\$11,830		3 feet water	\$39,800-\$185,700+
Sump pump	\$100-\$10,000	Foundation repair	\$1,000-\$6,000	
Backup generator	\$400-\$206,000			
ESTIMATED COST 1,000 sq ft structure	Highly variable	ESTIMATED TOTAL SAVINGS	\$11,800-\$191,700+	



I-ADAPT

Exterior Adaptation

Wet Floodproofing

Potential Funding Sources

- [Building Resilient Infrastructure and Communities \(BRIC\)](#)

Expected Maintenance

- Periodically check the flood openings to make sure they are free of blockages and/or damage.
- The system will need annual maintenance and inspection to ensure that all components will operate properly under flood conditions.
- The wet floodproofing system will need to be evaluated annually to determine its continued suitability as a flood damage mitigation strategy.

Additional Resources

- [FEMA Engineering Principles and Practices for Retrofitting Flood-Prone Residential Structures](#)
- [FEMA Homeowner's Guide to Retrofitting \(Chapter 8\)](#)
- [FEMA Requirements for Flood Openings in Foundation Walls and Walls of Enclosures](#)
- [FEMA Wet Floodproofing](#)

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

Additional Actions

- Evacuate the structure prior to flooding events.
- After a flood event, extensive clean-up may be necessary if sewage, chemicals, or other hazardous substances were carried into the structure with the floodwaters.
- Move valuable possessions to a higher floor.

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
- [DNREC Coastal Construction Permit](#)
- [DNREC Wetlands and Subaqueous Lands Permit](#)

Who to Contact

- Design professional or engineer
- Floodproofing contractor

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

