Waterproof Sealant on Exterior Walls

Overview

- Waterproof sealants can be applied to the exterior walls of a structure to help make the building watertight against low-level flooding.
- Sealants are compounds that can be applied directly to the exterior structure to form a waterproof seal of the building.
- This measure should not be used if more than 3 feet of flooding is possible since the sealants can be detrimental at higher water levels.
- Additionally, waterproof sealants should not be relied on if floodwaters last for more than 12-24 hours.
- As the sealant and associated floodproofing measures will not block all seepage, an interior drain system including a sump pump as well as backflow valves on utility pipes are required.
- This is one of several dry floodproofing measures. Dry floodproofing measures are often only successful when used together. Therefore, doors and windows should be closed off with permanent or temporary shields in addition to the installation of backflow valves and a sump pump system.

Design Considerations:

- A design professional or engineer must determine whether the building's walls and floor slab can withstand the loads generated by anticipated flood waters.
- A design professional or engineer must consider the underlying soil type since it will determine how quickly water percolates through the perimeter of the structure.
- Design professionals or engineers must determine whether a sump pump will be able to keep up with seepage rates.

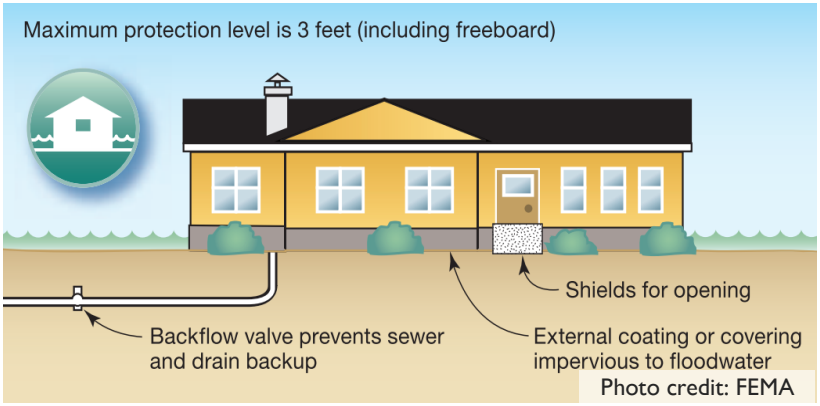


Photo credit: FEMA

Key Takeaways

During flood events, water that enters a structure can damage the building foundation as well as personal property.

To avoid flood damage inside of a structure, waterproof sealants can be applied to the exterior of the structure.

Waterproof sealants are compounds that are applied to the exterior of the structure to prevent floodwaters from percolating through the building.

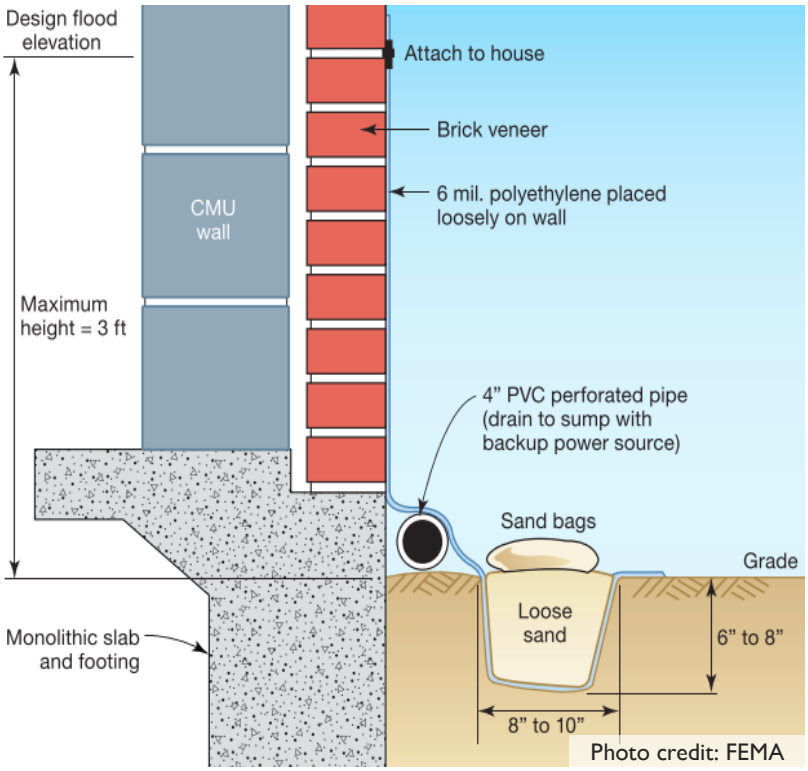
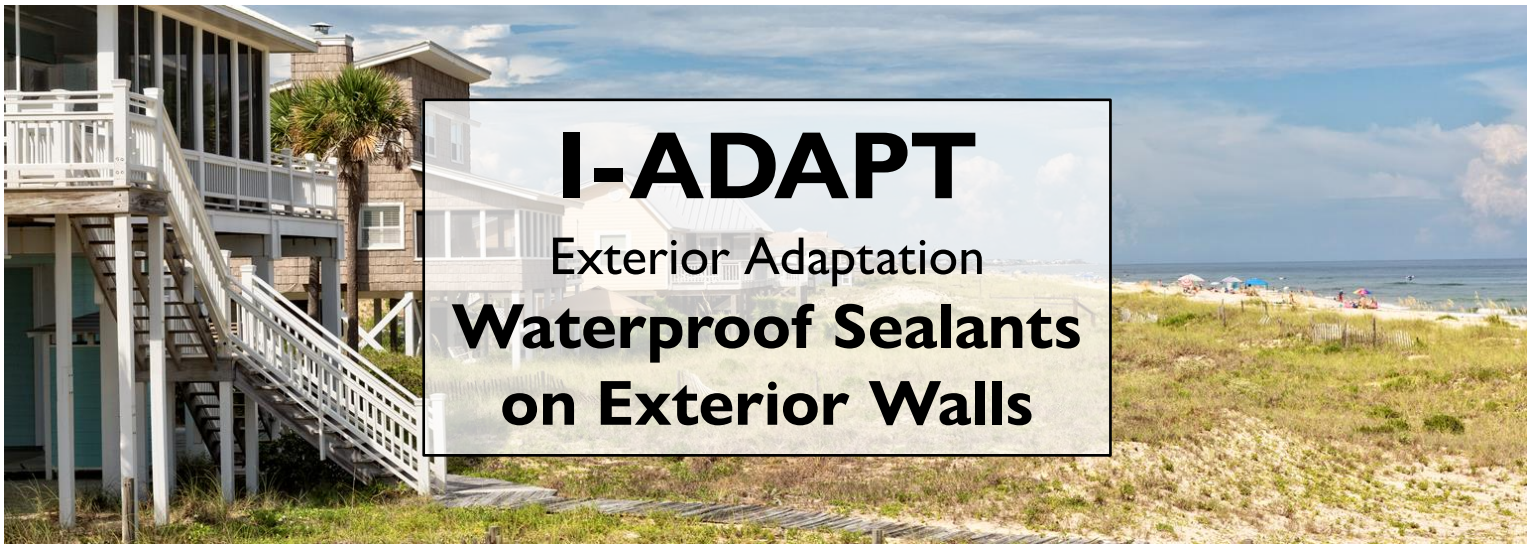


Photo credit: FEMA



I-ADAPT

Exterior Adaptation

Waterproof Sealants on Exterior Walls

Estimated Costs/Benefits

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

Potential Costs		Potential Benefits		
Item (quantity needed)	*Estimate*	*Post-Flood Recovery Actions*	*Estimate*	
Sealant (10 gallons)	$30-$100 per gallon	Flood damage recovery (professional clean-up, mold removal, replacement/ repair of flood damaged items)	1 inch water ↓ 3 feet water	$10,800-$53,500+ ↓ $39,800-$185,700+
Design professional/engineer	$300-$4,000			
Backflow valves (2 – for sewer and water lines)	$100-$1,700 per line			
Interior drainage system with sump pump	$2,000-$10,000			
ESTIMATED TOTAL COST 1,000 sq ft structure	**$2,800-$18,400**	**ESTIMATED TOTAL SAVINGS**	**$10,800-$185,700+**	

Who to Contact

- Design professional or engineer
- Waterproofing contractor

Additional Resources

- FEMA Engineer Principles and Practices for Retro-fitting Flood-Prone Residential Structures (FEMA P-259)
- US Army Corps of Engineers: Flood proofing tests: Tests of materials and systems for flood proofing structures

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

Additional Actions

- An interior drainage system with a sump pump is required in order to remove water leaking through the sealant.
- Utility backflow valves must be installed.
- Dry floodproofing measures are more successful when used together. Therefore, doors and windows should be closed off with permanent or temporary shields.

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

Expected Maintenance

- Exterior walls must be inspected annually as well as prior to and post flooding events for cracks or damage.
- Follow the manufacturer's guidelines regarding how often the sealant will need to be re-applied.

Technical definitions and more information are located on the I-ADAPT website: https://de.gov/iadapt.

For more information, contact DNREC's Division of Climate, Coastal and Energy at DNREC_IADAPT@Delaware.gov