TOWNSHIP OF TOMS RIVER

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A HOMEOWNERS' GUIDE TO PROTECTING THEIR HOME FROM FLOOD DAMAGE.

Protecting Your Home

If you're not sure what mitigation measure is right for your house, follow these steps:

Step 1. What is your flood hazard?

- Shallow
- Deep (2 + feet over the first floor)

Residents may go to the link above view the current and historic Flood Insurance Rate Maps, or visit the Toms River Township Engineering Department.

Step 2. What kind of foundation do you have?

- Elevated on Piers
- Elevated on Crawlspace
- Slab on Grade
- Raised Basement

Step 3. Select a measure.

1. Check with your community officials for flooding information in your area. Some questions you might ask are:

- Where does the water come from?
- Are you in the mapped Special Flood Hazard Area or floodway as shown on your FIRM?
- Are you in coastal high hazard area or V Zone as shown on your FIRM?
- How bad has it been in the past?
- How bad could it be? (Remember, the next flood can be worse than the last one.)
- What is an appropriate flood protection level? (How high should you prepare for?)

3. Check out your local drainage situation. Whether or not you are in a mapped flood hazard area or subject to levee failure flooding, you could still be faced with the shallow flooding that comes with a local drainage problem.

- Does water flow away from your house or does it tend to stand next to your walls?
- Is the ditch, stream or storm sewer that takes water away clear of debris or obstructions?
- Do the downspouts from your roof gutters direct water well away from your house?
- Do you have a sump pump? If so, does it direct water well away from your house?

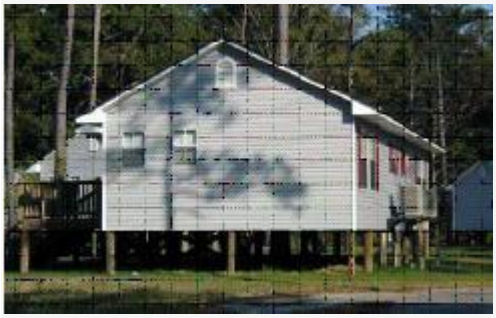
Once you have the answers to these three questions, the next step is to look at your building's Foundation.

Protecting Your Home > Foundations

Flood protection measures are dependent on the depth of flooding and the type of foundation. There are two main types of foundation along the Gulf Coast: elevated and at grade. If you have a basement, bi-level, split level, or other floor below ground level, go to the basement page.

Determine your foundation and then proceed to Selecting a measure.

Elevated foundations include crawlspaces, piers, columns and similar structures where there is open space between the floor and the ground.



House **elevated** on piers

House **elevated** on a crawlspace, i.e., a solid wall with vents that allow air (and water) to flow under the floor.

At grade foundations include slabs and other structures where the lowest floor is concrete, resting on the ground.

House on a slab-**on-grade** foundation.

A New Orleans "raised basement" house. Although originally intended to be an elevated structure, the lowest floor has been improved and converted to a living area. The lowest floor is **at grade**.

Once you have determined your foundation type, review possible mitigation measures for your situation.

Flood protection measures are dependent on the depth of flooding (see "What is your flood hazard?") and the type of foundation, either elevated or at grade. This page helps you select which measures may be appropriate for your situation.

Elevated foundations include crawlspaces, piers, columns and similar structures where there is open space between the floor and the ground.

For deep flooding (more than 2 feet over the first floor), including the threat of a levee failure:

- Relocation
- Elevation

For shallow flooding and local drainage problems:

- Elevation
- Barriers: if the water will be less than two feet deep

If the water will stay below the elevated floor, examine wet floodproofing as an option. Or, you can wet floodproof to protect against floods up to the level of your first floor.

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At grade foundations include slabs and other structures where the lowest floor is concrete, resting on the ground.

For deep flooding (more than 2 feet over the first floor), including the threat of a levee failure:

- Relocation: the most secure way to protect a building at grade.
- Elevation: more expensive for a building on a slab foundation. However, there are sources of financial assistance (see Funding).

For shallow flooding and local drainage problems:

- Barriers are the most secure approach for a building at grade.
- Dry floodproofing can also be pursued.

If you have a raised basement home, it may be most cost effective to clear out the lowest floor, "basement", and let it flood. This is called wet floodproofing and it can work for both deep and shallow flooding.

Elevation means raising the structure above the flood level.

- This method is generally viewed as the best way to mitigate, short of removing the structure.
- Elevation is easiest and less costly for houses on posts/piles or crawlspaces. It is possible to elevate a slab house, but it is more difficult and costs more.
- Elevated buildings get lower flood insurance rates.

Posts/Piles:

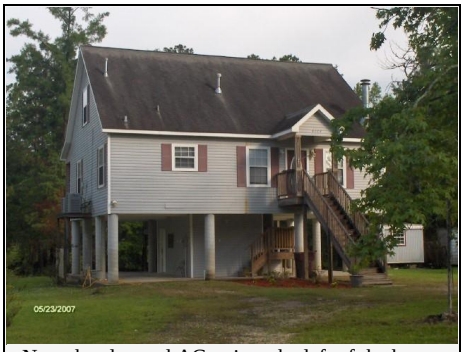
- Most of the cost is in the setup and foundation construction, rather than in materials
- Funding options are available through FEMA programs and the U. S. Army Corps of Engineers
- Less disruptive because lifting equipment can be placed under the house

Crawlspace:

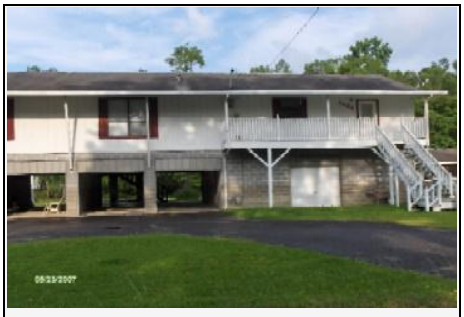
- Most of the cost is in the setup and foundation construction, rather than in materials
- Appropriately sized vents are necessary - one square inch for each square foot of the building's footprint
- Less disruptive because lifting equipment can be placed under the house

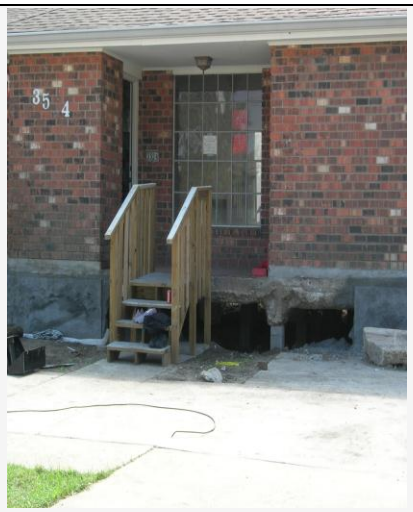
Slab:

- Most costly and disruptive
- Can cost up to $100,000



Note the elevated AC unit to the left of the house


Note the visible water line on the garage


This is a slab elevation in progress

For more information, see:

- Chapter 5 in *The Homeowner's Guide to Retrofitting*
- Chapter 8 in *Selecting Appropriate Mitigation Measures for Floodprone Structures*

Barriers include small floodwalls, levees, or berms that are constructed around one or more properties.

- appropriate for shallow, relatively short duration flooding
- not recommended for flood depths greater than three feet
- If a barrier is built around a house, it is necessary to have a sump pump with a back up generator for pumping rain water out of the protected space.
- Account for sewer backup and other sources of water entering the building. For shallow flooding, this can be done with a **floor drain plug**; although a **valve system** is more secure.
- Higher barriers usually have openings to allow access. These require a method to close them, requiring human intervention. Someone needs to be available to have enough time to take action.
- **Soil type** is important. If soil is permeable, seepage under the barrier can occur. This is especially true if floodwalls stay up for a long time.
- **Cost** depends on depth of flooding and the amount of engineering put into the design. There are no Federal funding sources for this form of mitigation for residential properties.
- **NFIP will not offer lower insurance rates for house protected with a barrier.**

The barrier protecting this house is also used as a planter

Notice the pump located inside of this barrier

Floodwalls

- more appropriate for denser suburban neighborhoods
- Floodwalls require a method to close openings, such as a garage door, requiring human intervention. Someone needs to be available and have enough time to take action.

Small Levees/Berms

- more appropriate for more rural areas
- require six feet of ground space for each foot in height

For more information, see:

- Chapter 7 in *The Homeowner's Guide to Retrofitting*
- Chapter 5 in *Selecting Appropriate Mitigation Measures for Floodprone Structures*

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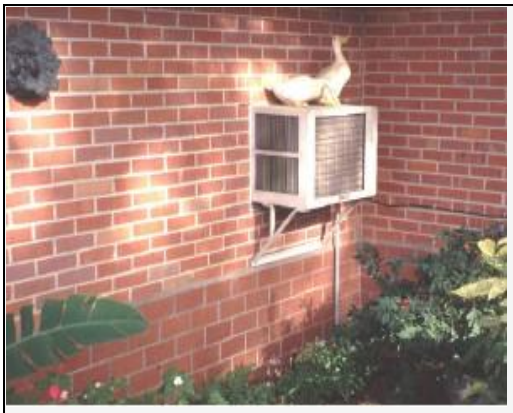
Dry floodproofing is appropriate for shallow, short duration flooding. Longer term flooding is likely to leak through the structure.

This method has three components:

1. Make the walls of the structure watertight. This is easiest for masonry or brick faced walls which can be covered with a sealant. Wood, vinyl, or metal siding needs plastic sheeting to make them water tight. The most effective approach is to apply a sealant, apply plastic sheeting and then cover the job with brick facing to protect the water proofing from punctures.
2. Provide closures for openings, including doors, windows, dryer vents, and weepholes
3. Account for sewer backup and other sources of water entering the building. For shallow flooding, this can be done with a floor drain plug; although a valve system is more secure.



The dry floodproofing on the above house is barely visible

The same house has a removable barrier to block water entering through the opening for the door

Shortcomings:

- Requires human intervention, someone must be available to close doors and other openings
- Success depends on the structure's condition. Will not work effectively if the slab is cracked.
- Periodic maintenance is required to check for material decomposition
- NFIP will not offer a lower insurance rate for dry floodproofed residences

Cost can vary according to the house's size, construction, and condition; and can range from $5,000 to $20,000 depending on how secure the owner wants the structure to be. An experienced contractor provides greatest security.

For more information, see:

- Chapter 7 in *The Homeowner's Guide for Retrofitting*
- Chapter 7 in *Selecting Appropriate Mitigation Measures for Floodprone Structures*

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Wet Floodproofing allows water to enter the house, however everything that could be damaged by a flood is elevated above the flood level.

- This approach is appropriate for garages and raised basement homes.

A typical raised basement house

Structural components below the flood level are replaced with materials that are **not subject to water damage**.

- Concrete block walls are used instead of wooden studs and gypsum wallboard.
- The furnace and water heater are permanently relocated to a higher floor.
- Where the flooding is not deep, these appliances can be raised on blocks or platforms.

Wet floodproofing has one **advantage** over the other approaches: no matter how little is done, flood damage is reduced. Thousands of dollars in damage can be prevented by simply moving furniture and electrical appliances to a higher level.

The major **disadvantage** of wet floodproofing is that there are restrictions on the use of the space below the flood protection level.

- The area can still be used; there should be no carpeting, furniture, insulation, and other materials subject to water damage that cannot be removed in time.
- This may not be a problem where the basement homes have flooded before and the owners have opted to not refinish them.
- Can be combined with dry floodproofing - dry floodproof the house and the walls separating the garage from the house and then wet floodproof the garage.

For more information, see:

- Chapter 6 in *The Homeowner's Guide to Retrofitting*
- Chapter 6 in *Selecting Appropriate Mitigation Measures for Floodprone Structures*

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If you have time before a flood:

- Turn off all utilities at the main power switch and close the main gas valve if evacuation appears necessary.
- Move valuables, such as papers, furs, jewelry, and clothing to upper floors or higher elevations.
- Bring outdoor possessions, such as lawn furniture, grills and trash cans inside, or tie them down securely.

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During a flood:

- Do not drive through a flooded area. If you come upon a flooded road, turn around and go another way. More people drown in their cars than anywhere else.
- Do not walk through flooded areas. As little as six inches of moving water can knock you off your feet.
- Stay away from downed power lines and electrical wires. Electrocution is another major source of deaths in floods. Electric current passes easily through water.
- Look out for animals - especially snakes. Animals lose their homes in floods, too. They may seek shelter in yours.

After a Flood:

- Return home only when authorities indicate it is safe
- Avoid floodwaters; water may be contaminated by oil, gasoline, or raw sewage. Water may also be electrically charged from underground or downed power lines.
- Be aware of areas where floodwaters have receded. Roads may have weakened and could collapse under the weight of a car.
- Stay away from downed power lines, and report them to the power company.
- Stay out of any building if it is surrounded by floodwaters.
- If your home, apartment or business has suffered damage, call the insurance company or agent who handles your flood insurance policy right away to file a claim.
- Use extreme caution when entering buildings; there may be hidden damage, particularly in foundations.
- Upon entering the building, do not use matches, cigarette lighters or any other open flames, since gas may be trapped inside. Instead, use a flashlight to light your way.
- Keep power off until an electrician has inspected your system for safety.
- Clean and disinfect everything that got wet. Mud left from floodwater can contain sewage and chemicals. Throw out foods and medicines that may have come into contact with flood water.
- Until local authorities proclaim your water supply to be safe, boil water for drinking and food preparation vigorously for five minutes before using.
- Be careful walking around. After a flood, steps and floors are often slippery with mud and covered with debris, including nails and broken glass.
- Service damaged septic tanks, cesspools, pits, and leaching systems as soon as possible. Damaged sewage systems are serious health hazards.
- Take steps to reduce your risk of future floods. Make sure to follow local building codes and ordinances when rebuilding, and use flood-resistant materials and techniques to protect yourself and your property from future flood damage.
- If you must run a generator at your home following a flood, remember to keep the generator outside (not in a garage) to reduce the risk of carbon monoxide poisoning.

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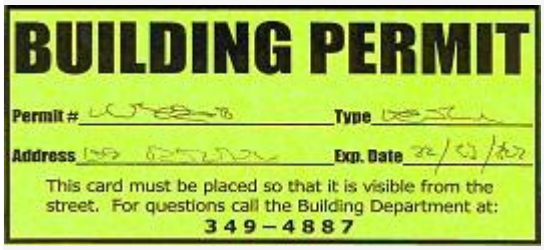
Protecting Your Home > Construction Rules

Permits

Development in floodprone areas is development in harm's way. New construction in the floodplain increases the amount of development exposed to damage and can aggravate flooding on neighboring properties.

Before you build on, fill, alter, or regrade your property always check with your local Permit Department. A permit may be needed to ensure that such projects do not cause problems on other properties.



The standards for new buildings and substantial improvements to existing buildings are explained in the section on floodplain management. These regulations are designed to protect your neighbors. By keeping the drainage system clear and getting the proper permits before you build, you can prevent flooding and other drainage problems. When in doubt, call the local permit office.

Floodplain Rules

There are special rules regarding building in the Special Flood Hazard Area. If you can stay out of the SFHA, all the better.

If you have to erect a building in the regulated floodplain, it must have its lowest floor, including a basement, and all utilities elevated to the regulatory elevation set by your community. Check with your floodplain manager to determine that elevation.

Documentation of meeting this requirement is done with a FEMA Elevation Certificate. There are additional restrictions on filling, grading, or building in a mapped floodway.

If you have an existing building and want to improve, expand, or repair it, you also need to check with your local permit office. Certain codes require that all substantial improvements to a building be treated as a new building. A substantial improvement is when the value of an addition, alteration, repair, or reconstruction project equals or exceeds 50% of the value of the existing building. In the case of an addition, only the addition must be protected. In the case of an improvement to the original building, the entire building must be protected.

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Protecting Your Home > Dealing with Contractors

When selecting a contractor:

- Ask for proof of insurance
- Ask for references
- Ask for written estimates
- Ask for a written contract
- Ask for any guarantees in writing
- Obtain a copy of the final signed contract
- Avoid cash payments
- Don't sign off before the job is finished
- Check several firms and their reputations
- Look out for "special deals" or contractors who want to use your home as a "model home."
- Get your permits: and inspections
- If you are a victim of fraud or have problems with a less than reputable contractor, contact the New Jersey Attorney General's office 609-292-4925 or http://www.state.nj.us/lps/

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Relocation is moving the at risk property from harm's way. This can be done by:

- Physically moving the structure to a safer location
- Selling the property to the government

Physically moving the structure:

- Location for the structure outside of the floodplain must be identified
- Original location may or may not have to remain cleared (per deed restriction) depending on funding source

Selling the Property:

- There are several programs to help pay for government acquisition of a flood-prone property. See Funding
- Property is purchased and site is cleared
- Site may or may not remain cleared (per deed restriction) depending on funding source
- For more information see Chapter 10 of *Selecting Appropriate Mitigation measures for Floodprone Structures*

For more information, see:

- Chapter 7 in *Homeowner's Guide to Retrofitting*
- Chapter 9 in *Selecting Appropriate Mitigation Measures for Floodprone Structures*

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Mitigation Funding						
	Hazard Mitigation Grant Program (HMGP)	Flood Mitigation Assistance (FMA)	Pre-Disaster Mitigation (PDM)	Repetitive Flood Claims (RFC)	Severe Repetitive Loss (SRL)	Increased Cost of Compliance (ICC)
Who is the money for?	Owners of severe repetitive loss properties currently insured under the NFIP	NFIP policy holders	NFIP policy holders	NFIP policy holders with at least one flood claim	Owners of severe repetitive loss properties currently insured under the NFIP	All NFIP policy holders with the ICC rider
Types of Projects	1. voluntary acquisition 2. relocation of the structure 3. elevation 4. reconstruction 5. constructing certain types of minor localized flood control projects	1. voluntary acquisition* 2. demolition* 3. relocation of the structure* 4. elevation 5. dry floodproofing non-residential buildings	1. voluntary acquisition* 2. relocation of the structure* 3. structural and non-structural retrofitting	1. voluntary acquisition* 2. demolition* 3. relocation of the structure*	1. voluntary acquisition* 2. demolition* 3. relocation of the structure* 4. elevation 5. floodproofing 6. minor physical localized flood control projects 7. reconstruction	Projects that will bring a substantially damaged home into current compliance
Maximum amount available perhousehold	For elevation: no maximum For reconstruction: $150,000	Contact FEMA	Contact FEMA	Contact FEMA	Contact FEMA	$30,000
How much the homeowner has to contribute	25%	25%	25%	0%	25%	0%
How does the homeowner apply	Contact your Community	Contact your Community	Contact the State	Contact the State	Contact the State	Contact your Permit Official

* The lot must be deed restricted as open space

**If the project costs more than the allotted amount, then the homeowner must pay the remainder of the total project cost.

Footnote:

Original content of this pamphlet taken from a website;
http://www.floodhelp.uno.edu/Portal.aspx?ContentID=15 prepared by FEMA and the University of New Orleans, which has been converted for use in the Toms River Township, Ocean County, New Jersey.