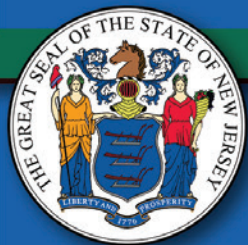


2015

FLOODPLAIN MANAGEMENT IN NEW JERSEY



# Quick Guide



**New Jersey Association for Floodplain Management (NJAFM)**

P.O. Box 1326, Trenton, NJ 08607

[www.njafm.org](http://www.njafm.org)



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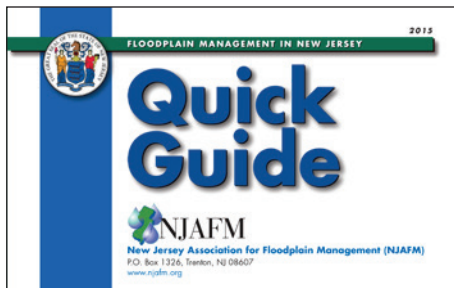
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## About This Guide



This **Quick Guide** will help you understand why and how communities in the State of New Jersey manage development in floodplains to protect people and property. Floodprone communities adopt ordinances and enforce building codes that detail the rules and requirements. In case of conflict, those codes and ordinances, not the guidance provided in this publication, must be followed. If you have questions talk with a local planning or permit official.

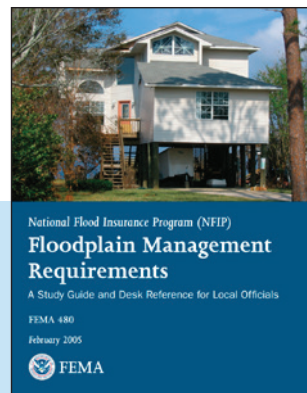
This **Quick Guide** was developed and funded by the New Jersey Association for Floodplain Management (NJAFM).

Questions, comments and requests for additional information should be directed to NJAFM at [secretary@njafm.org](mailto:secretary@njafm.org).

Prepared by:

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CONSULTING, INC.

For more detail on all aspects of floodplain management, please refer to FEMA 480, *National Flood Insurance Program, Floodplain Management Requirements: A Study Guide and Desk Reference for Local Officials*.



## Why Do We Regulate the Floodplain?

**Protect people and property** – Floodplain management reduces vulnerability to flood risk. If we know low lying land will flood from time to time, we should make reasonable decisions to help protect our families, homes, and businesses.

**Reduce future flood losses** – Floodplain regulations are simply “good neighbor” policies designed to protect our citizens from future flood losses. Regulating floodplain development helps keep flooding conditions from getting worse.

**Make sure federal flood insurance is available** – Your community must join the NFIP before residents and businesses can purchase flood insurance. Otherwise, your community may be ineligible for some types of federal assistance and residents may be unable to secure mortgages.

**Save tax dollars** – Every time you hear about a flood, think what it means to your community’s budget. If we build smart, we’ll have fewer problems the next time water rises. Remember, federal disaster assistance is not available for all floods. Even when the President declares a disaster, your community has to pay a portion of repair and clean-up costs, temporary housing assistance, and could also incur evacuation expenses.

**Avoid liability and lawsuits** – If we know an area is mapped as a flood hazard and, if we know people could be in danger and buildings could be damaged, doesn’t it make sense to take reasonable protective steps as we develop and redevelop?

Since 1978, Federal flood insurance policyholders in New Jersey have received over \$5.6 billion in claim payments. Even though that represents many payments, most of the State's floodprone property owners do not have flood insurance.

## What is the National Flood Insurance Program?

The National Flood Insurance Program (NFIP) was created by Congress in 1968 to protect lives and property and to reduce the financial burden of providing disaster assistance. The NFIP is administered by the Federal Emergency Management Agency (FEMA). Nationwide, over 22,100 communities participate in the NFIP— more than 550 of New Jersey's boroughs, cities, and townships participate.

The NFIP is based on a mutual agreement between the Federal Government and communities. Communities that participate agree to regulate floodplain development according to certain criteria and standards. The partnership involves:



- **Flood hazard maps.** FEMA produces flood maps, in partnership with water management districts, communities and the State, in accordance with FEMA standards. The maps are used by communities, insurance agents, and others.
- **Flood insurance.** Property owners and renters in participating communities are eligible to purchase Federal flood insurance for buildings and contents.
- **Regulations.** Communities must adopt and enforce minimum floodplain management regulations so that development, including buildings, is undertaken in ways that reduce exposure to flooding.

To learn more about the NFIP, including your potential flood risk and the approximate cost of a flood insurance policy, go to FEMA's FloodSmart website [www.floodsmart.com](http://www.floodsmart.com).

## Community Responsibilities

**To participate in the National Flood Insurance Program, your community agrees to:**

- **Adopt and enforce** flood maps and a flood damage prevention ordinance.
- **Require** permits for development in the floodplain ([see page 23](#)).
- **Assure** that building sites are reasonably safe from flooding.
- **Establish** Base Flood Elevations (BFE) where not determined by FEMA.
- **Require** new and substantially improved homes and manufactured homes to be elevated above the BFE.
- **Require** non-residential buildings to be elevated above the BFE or dry floodproofed.
- **Determine** if damaged buildings are substantially damaged.
- **Conduct** field inspections; cite and remedy violations.
- **Require and maintain** surveyed elevation information to document compliance ([see pages 34, 35, and 36](#)).
- **Carefully consider** requests for variances.
- **Resolve** non-compliance and violations.
- **Advise and work** with FEMA and the State when updates to flood maps are needed.
- **Maintain** records for review and respond to periodic requests for reports to FEMA.

## Flood Insurance: Property Owner's Best Protection

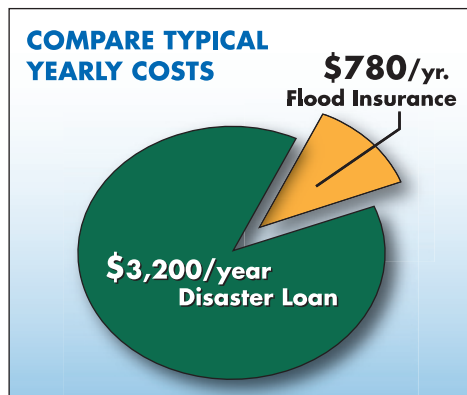
**Who needs flood insurance?** Federal flood insurance is required for all buildings in mapped Special Flood Hazard Areas (SFHAs) shown on FEMA's Flood Insurance Rate Maps (FIRMs) if they are financed by Federally-backed loans or mortgages. All homeowners, business owners, and renters in communities that participate in the NFIP may purchase Federal flood insurance on any building and its contents, even if outside of the mapped flood zone. If your home is in the mapped SFHA, you are five times more likely to be damaged by flood than by a major fire.

**Not in a mapped floodplain?** Unfortunately, it's often after a flood that many people discover that their home or business property insurance does NOT cover flood damage. Approximately 25% of all flood damage occurs in low risk zones, commonly described as being "outside the mapped flood zone."

**Protected by a levee or dam?** Even if you live in an area protected by a levee or other flood control structure, there is a residual risk those structures will be overtopped or fail. If your community's levee provides "100-year" flood protection, there is still a chance a higher flood will cause flooding.

**What about disaster grants and loans?** Federal disaster grants do not cover most losses and repayment of a disaster loan can cost many times more than the cost of a flood insurance policy.

**Want to know more?** Learn more at [www.floodsmart.com](http://www.floodsmart.com). To purchase a policy, call your insurance agent.



## The NFIP's Community Rating System (CRS)

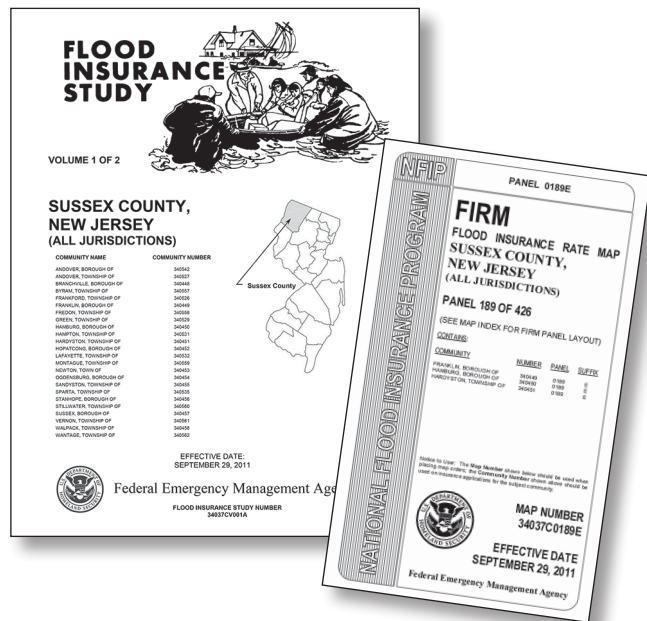
The NFIP's CRS gives "extra credit" to communities in the form of reduced flood insurance premiums. Communities must apply to the CRS and commit to implement and certify activities that contribute to reduced flood risk. Examples of actions your community can take to reduce the cost of your insurance premiums include:

- Preserve open space in the floodplain
- Enforce higher standards for safer development through zoning, stormwater, subdivision, and flood damage protection ordinances
- Develop hazard mitigation plans
- Undertake engineering studies and prepare flood maps
- Obtain grants to buy out or elevate houses or to floodproof businesses
- Maintain drainage systems
- Monitor flood conditions and issue warnings
- Inform people about flood hazards, flood insurance, and how to reduce flood damage

Community officials can request assistance from CRS specialists to help with the application process and prerequisites. Check the online CRS Resource Center ([see page 68](#)).

Property owners in more than 70 New Jersey local jurisdictions that qualify for the CRS receive premium discounts ranging from 5% to 25% (as of 2015).

## Looking for FEMA Flood Map Information?



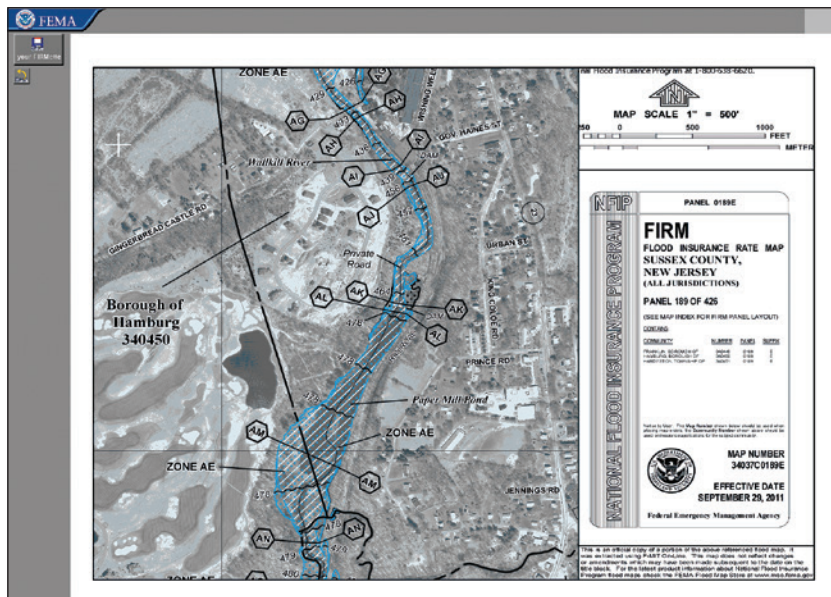
- Flood Insurance Studies (FIS) are compilations of flood risk information.
- Flood Insurance Rate Maps (FIRM) are used to identify flood risk, to regulate flood hazard areas, and to determine where flood insurance is required.
- Use your computer to visit the FEMA Flood Map Service Center at [www.msc.fema.gov](http://www.msc.fema.gov). You can view Flood Insurance Studies and current and historical flood maps online or download digital scans of maps ([see page 8](#)).
- Check your city, township, or borough web page. Many communities make available digital maps, including parcel data and flood hazard maps.

**Need a fast answer?** Visit your community's planning, engineering, or permit office where paper flood maps are available for viewing by the public.

## FIRMette: FEMA Flood Maps Online

You can create, save and print a portion of a FIRM by making a FIRMette. A FIRMette is a full-scale section of a FIRM.

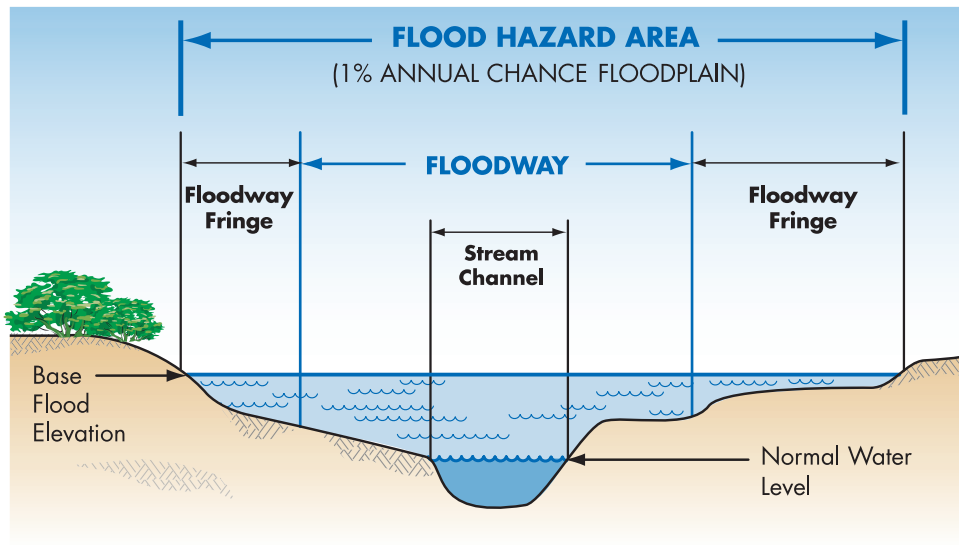
- Making a FIRMette is easy after you find the flood map for your property. Use the <Search by Address> link or <Search All Products> to find the community and panel map of interest.
- Earlier versions of FIRMs are available for many communities, so you can compare the current effective flood hazard information with older versions.
- Check out the tutorial “How to Find Your FIRM and Make a FIRMette”  
<http://www.fema.gov/media-library/assets/documents/34930>



Check the “MSC How To” tab in the FEMA Map Service Center ([msc.fema.gov](http://msc.fema.gov)) to learn how to find and read flood maps. A tutorial on how to read FIRMs is linked in “MSC Frequently Asked Questions.”



## Understanding the Riverine Floodplain



For riverine floodplains with identified flood elevations determined by detailed flood studies, the Flood Profile in the Flood Insurance Study shows water surface elevations for different frequency floods ([see page 12](#)).

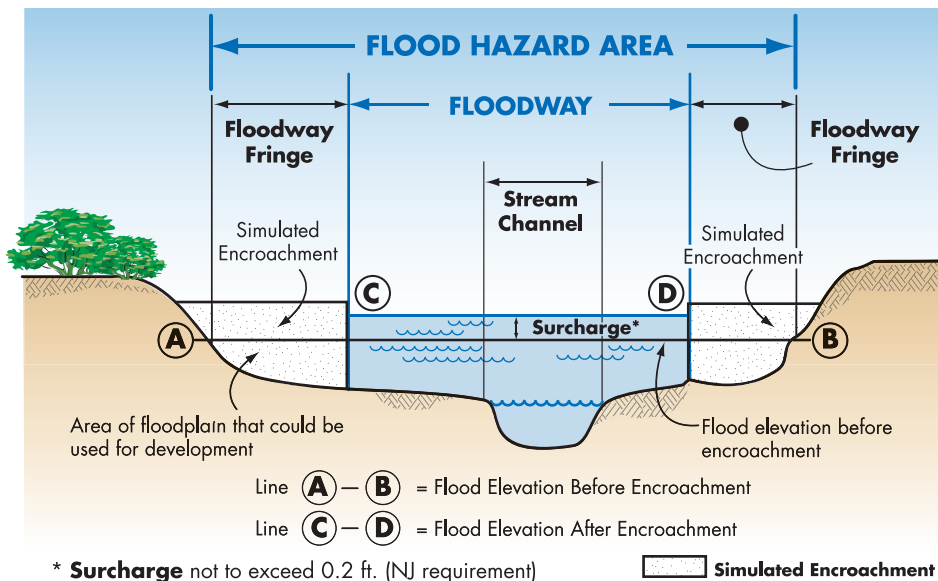


### Terms and Definitions

On FIRMs, the **Special Flood Hazard Area (SFHA)** is the area subject to inundation by the base flood (1% annual chance) and/or flood-related erosion hazards. Riverine SFHAs are shown on new format FIRMs as Zones A, AE, AH, AO, AR, and A99. Older FIRMs may have SFHAs labeled with numbered zones (A1-A30).

FIRMs may also show **New Jersey Flood Hazard Areas** which are delineated based on the 100-year flood plus an additional amount of water to account for possible future increases due to upland development and other factors.

## Understanding the Floodway



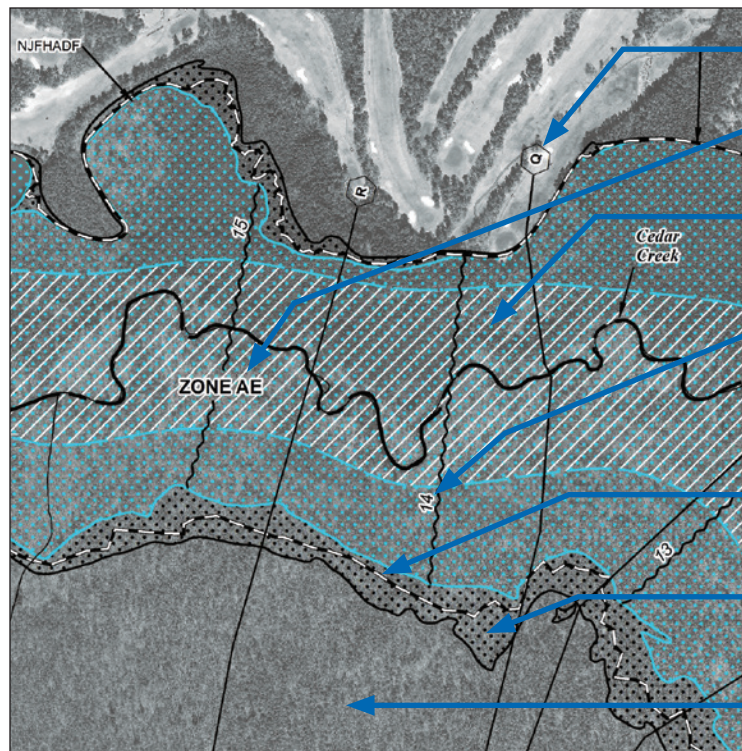
### Terms and Definitions

The **Floodway** is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to pass the base flood discharge without cumulatively increasing flood elevations.

Computer models of the floodplain are used to simulate “encroachment” in the flood fringe to predict where and how much the flood elevation would increase if development is allowed.

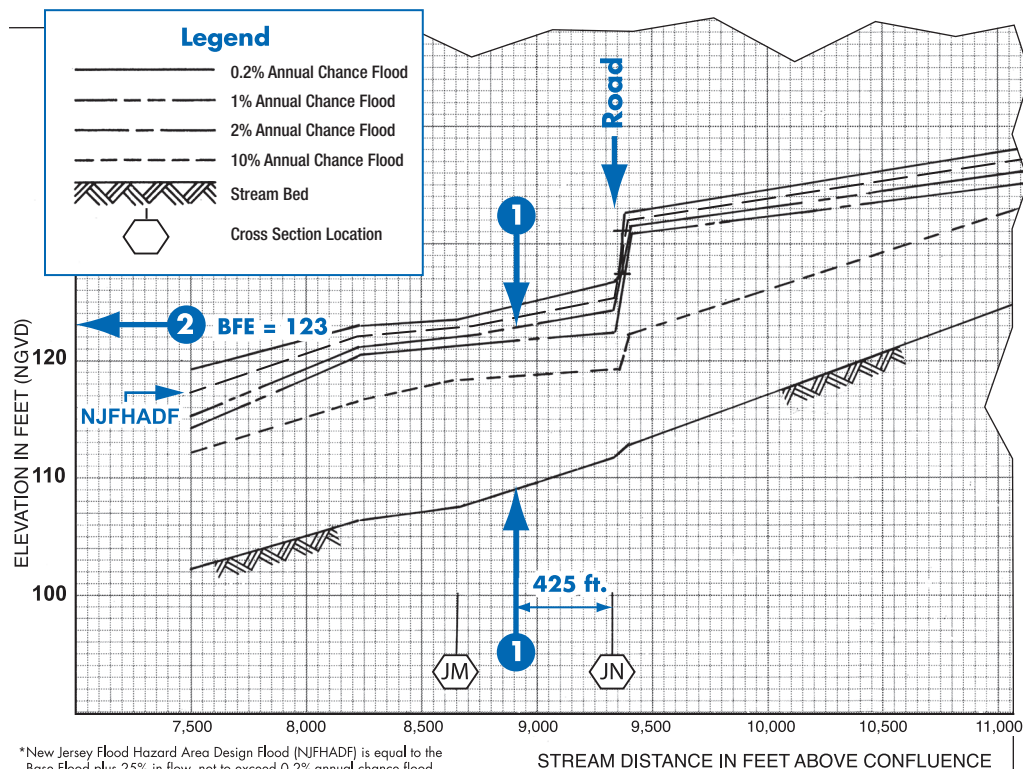
For any proposed floodway development, the applicant must provide evidence that “no rise” will occur or obtain a Conditional Letter of Map Revision (CLOMR) before a local floodplain permit can be issued ([see page 21](#)). You will need an experienced Professional Engineer to make sure your proposed project either won’t increase flooding or that any increases do not impact structures on other properties.

## Flood Insurance Rate Map (Riverine)

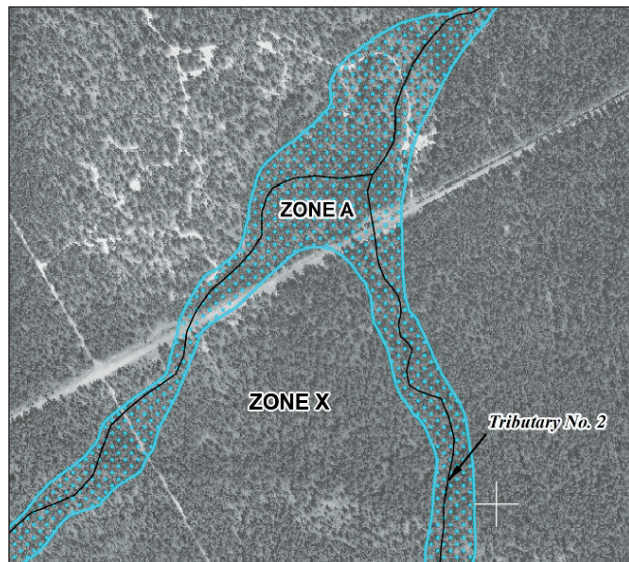


- 1 **Cross Section** location ([see page 21](#)).
- 2 **Zone AE** is the 1% annual chance (100-year) floodplain with BFEs (formerly Zones A1- A30).
- 3 The **Floodway** is the cross-hatched area ([see page 10](#)).
- 4 **Base Flood Elevation (BFE)** is the water surface elevation of the base flood rounded to the nearest whole foot (consult FIS profiles and tables for more accurate elevations).
- 5 **New Jersey Flood Hazard Design Flood (NJFHDF)**
- 6 **Shaded Zone X** is the 0.2% annual chance (500-year) floodplain (formerly Zone B).
- 7 **Unshaded Zone X** is all other areas considered low risk (formerly Zone C).

## Use the Riverine Flood Profile to Determine Riverine BFEs




## Approximate Flood Zones



FEMA uses existing information – not engineering studies – to draw Approximate Zone A boundaries. Information may have been provided by the U.S. Army Corps of Engineers, other federal agencies, State and local agencies, and historic records.

For assistance determining BFEs, contact your community's planning, engineering or permit office. Useful guidance for local officials and engineers is found in FEMA 265, *Managing Floodplain Development in Approximate Zone A Areas*.

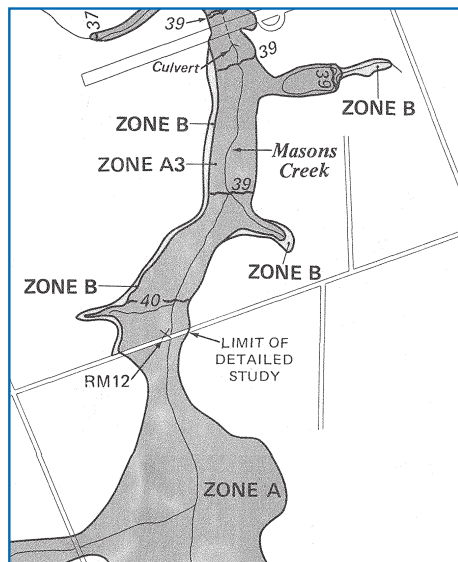
 **Terms and Definitions**

An **Approximate Zone A** is a special flood hazard area where BFE information is not provided.

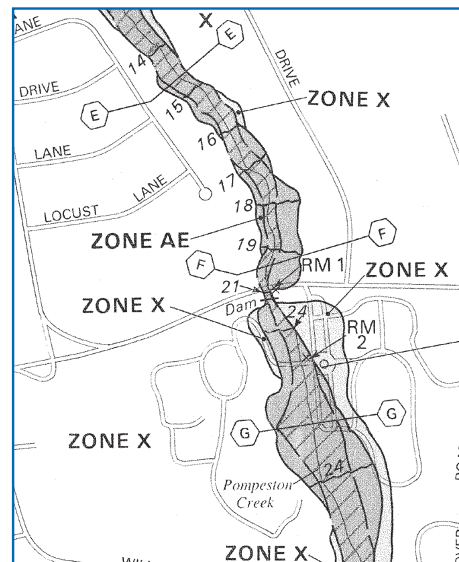
If data are not available from another source, and provided there is no evidence indicating flood depths have been or may be greater than two-feet deep, local officials may specify the BFE is two feet above the highest adjacent grade.



## Older Format Flood Insurance Rate Maps



This older format FIRM shows flood zones and BFEs, but does not delineate the Floodway or the New Jersey Flood Hazard Area. Note the "Zone A" area at the bottom, where BFEs are not identified.

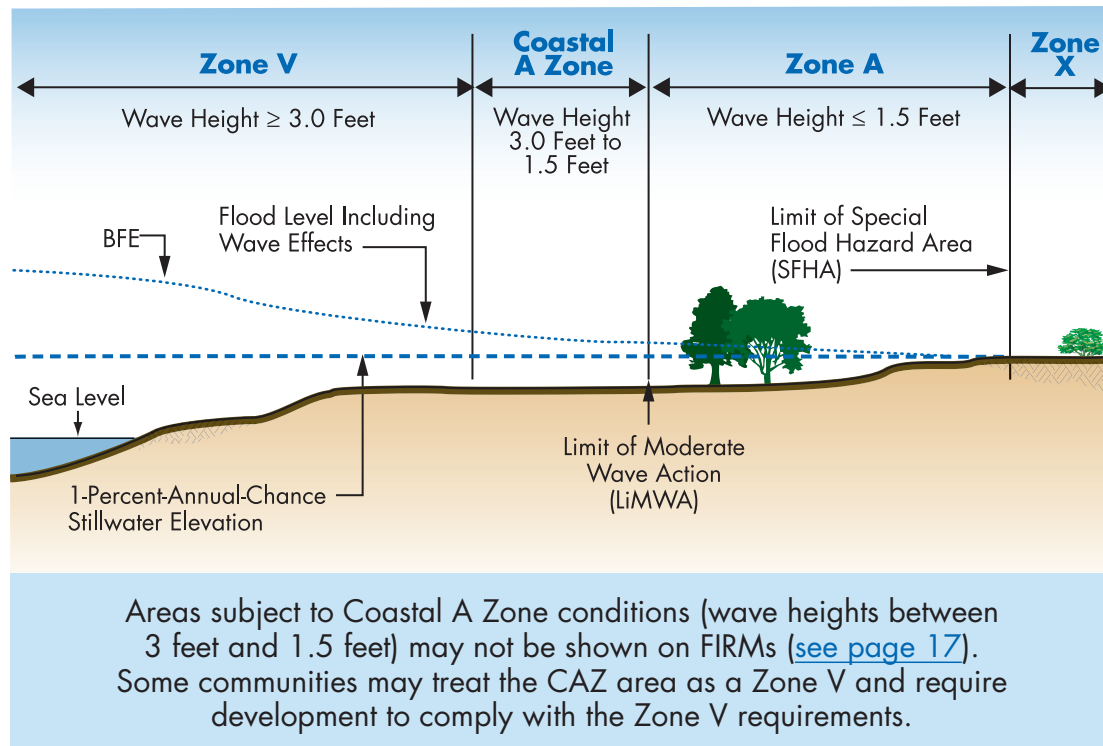


This older format FIRM shows flood zones, BFEs, and the Floodway, but New Jersey's Flood Hazard Area is not delineated.

For many years, FEMA has been engaged in a nationwide effort to modernize and update FIRMs. In partnership with the New Jersey Department of Environment Protection, FEMA has revised many flood maps in New Jersey.

Despite this effort, some New Jersey communities still have FIRMs that were produced by FEMA many years ago, before computer-based Geographic Information System technology was available.

## Understanding the Coastal Floodplain

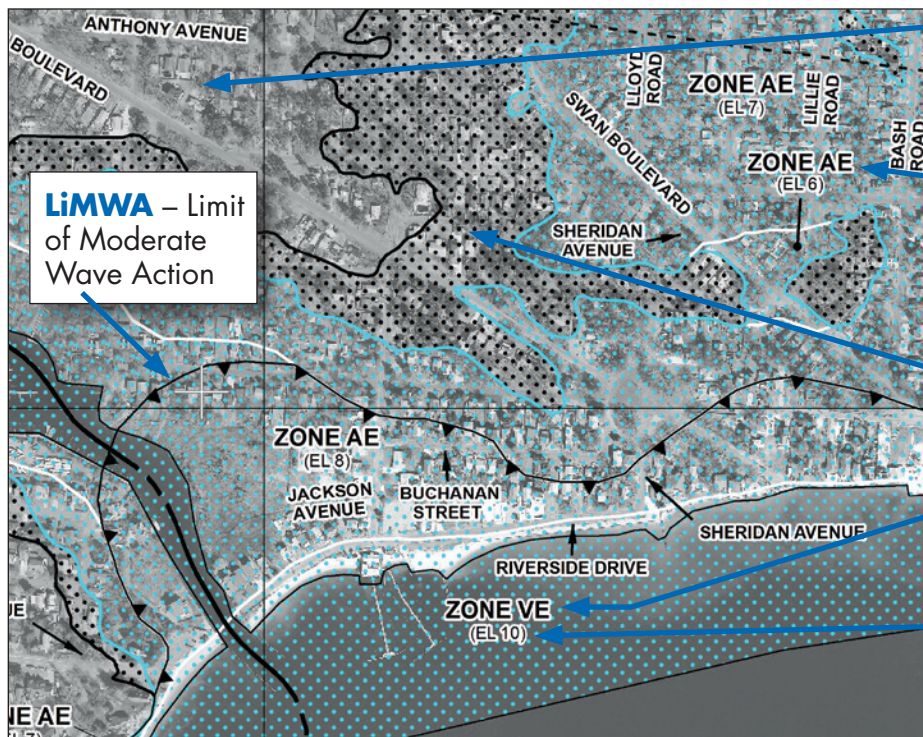


## Terms and Definitions

The **Coastal High Hazard Area (Zone V)** is the Special Flood Hazard Area that extends from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action. The area is designated on the FIRM as Zone VE.

The term Coastal A Zone (CAZ) refers to the area within the SFHA landward of a Zone V or landward of an open coast without Zone V. The principal sources of flooding are astronomical tides or storm surges, not riverine flooding. During base flood conditions, CAZs may be subject to breaking waves between 3 and 1.5 feet high.

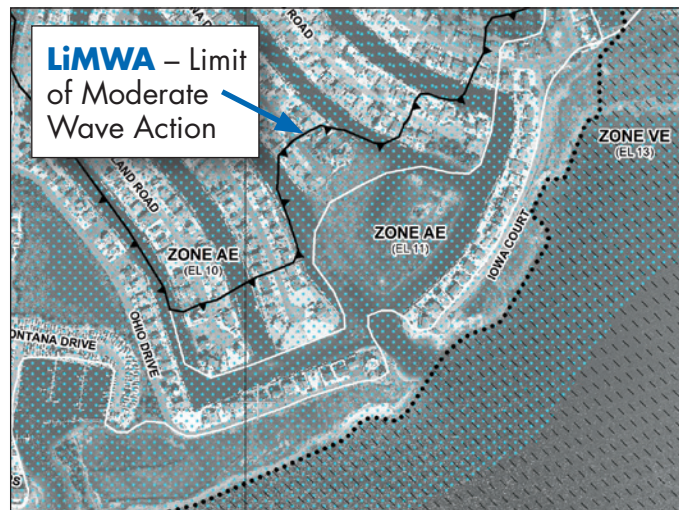
## Flood Insurance Rate Map (Coastal)



- 1 Unshaded Zone X** is the area of minimal flood risk outside the 0.2% annual chance (500-year) floodplain (formerly Zone C).
- 2 Zone AE** is subject to flooding by the base or 1% annual chance (100-year) flood, and waves less than 3 feet high, (formerly Zones A1-A30).
- 3 Shaded Zone X** is the 0.2% annual chance (500-year) floodplain (formerly Zone B).
- 4 Zone VE** is where wave heights are expected to be 3 feet or more.
- 5 Base Flood Elevation (BFE)** is the water surface elevation (in feet above the vertical datum shown on the map).



## The Coastal A Zone (CAZ)



### Legend

▲▲▲ Limit of Moderate Wave Action

### Notes to Users

The AE Zone category has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5 – foot breaking wave. The effects of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

- Post-flood evaluations and laboratory tests confirm that breaking waves as small as 1.5 feet high cause damage to walls and scour around foundations.
- The Limit of Moderate Wave Action may be shown on revised FIRMs to delineate the inland extent of Coastal A Zone conditions inland of Zone V or along open coasts without Zone V.
- If a Limit of Moderate Wave Action is delineated, the 2016 Uniform Construction Code requires new buildings and substantially improved buildings to comply with the requirements for Zone V.
- Scour and erosion should be considered in CAZ if soils are sandy and erodible.
- Federal flood insurance in CAZs is rated using Zone A rates (lower than Zone V rates).

## Coastal Barrier Resources System (CBRS)



Otherwise  
Protected Areas  
(OPAs)

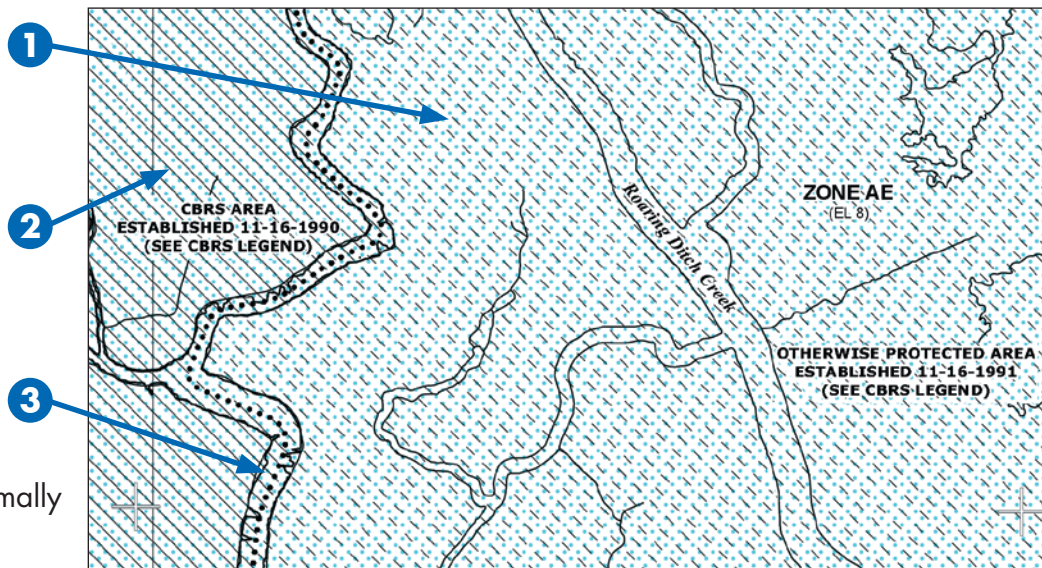


Coastal Barrier  
Resources System  
(CBRS) Areas



CBRS and OPA Boundary

CBRS areas and OPA are normally located within or adjacent to Special Flood Hazard Areas.



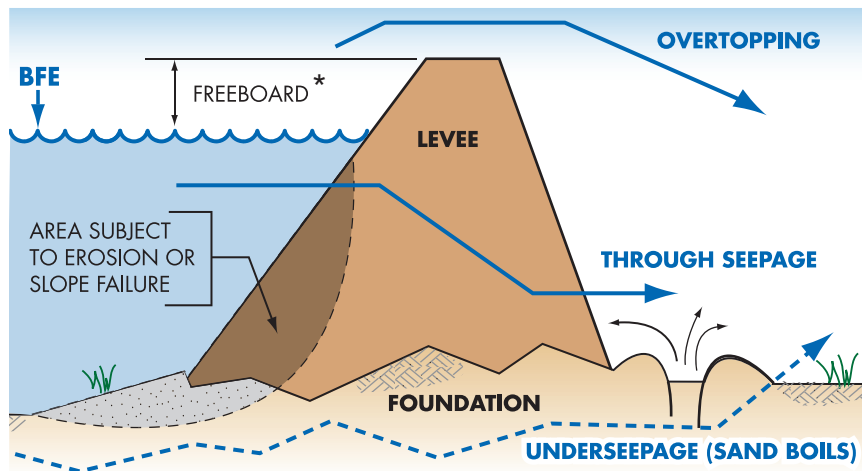
FIRMS show CBRS and OPA areas in undeveloped Coastal Barrier Resources System Areas (CBRS). In these areas, NFIP insurance is not available for new and substantially improved structures built after October 1, 1983 or after the date the CBRS area and OPAs were designated.

## Levee Certification for FEMA Flood Maps

Many levees are designed to protect land against flooding from the Base Flood. In order for FEMA to show those areas as outside of the Special Flood Hazard Area, communities and levee owners must certify that levees meet certain design criteria. Certification will present significant challenges during the map revision process.

Communities that have levees should determine as soon as possible whether certification will be required. Pursuant to FEMA's Procedural Memoranda 34 and 43, and as outlined in Federal regulations at 44 CFR Section 65.10, the documentation requirements address:

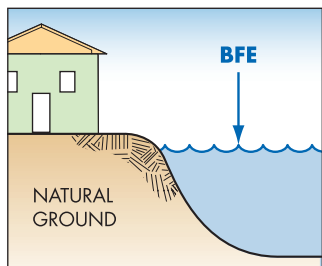
- Freeboard
- Closures
- Embankment protection for erosion
- Embankment and foundation stability
- Settlement
- Interior drainage and seepage
- Operation and maintenance plans
- Other site specific criteria



\* Freeboard is the distance between the BFE and the top of the levee; for FEMA accreditation freeboard is usually 3 feet

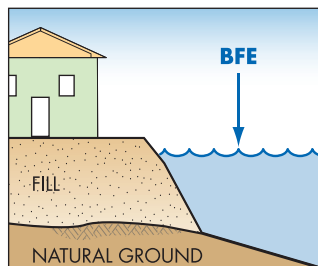
## Flood Map Revisions: LOMAs and LOMR-Fs

The most accurate information available is used to make flood maps, including topographic base maps and detailed engineering methods or methods of approximation. FEMA issues map revisions if technical data are submitted to support the changes.



**Letter of Map Amendment (LOMA)** is an official amendment to an effective FIRM that may be issued when a property owner provides additional technical information from a New Jersey licensed

Professional Land Surveyor, such as ground elevation relative to the BFE. Lenders may waive the flood insurance requirement if the LOMA removes a building site from the SFHA because natural ground at the site is above the BFE.



**Letter of Map Revision Based on Fill (LOMR-F)** is an official revision to an effective FIRM that may be issued to document FEMA's determination

that a structure or parcel of land has been elevated by fill above the BFE, and therefore is no longer in the SFHA. Lenders may waive the insurance requirement if the LOMR-F removes a building site from the SFHA.

of land has been elevated by fill above the BFE, and therefore is no longer in the SFHA. Lenders may waive the insurance requirement if the LOMR-F removes a building site from the SFHA.

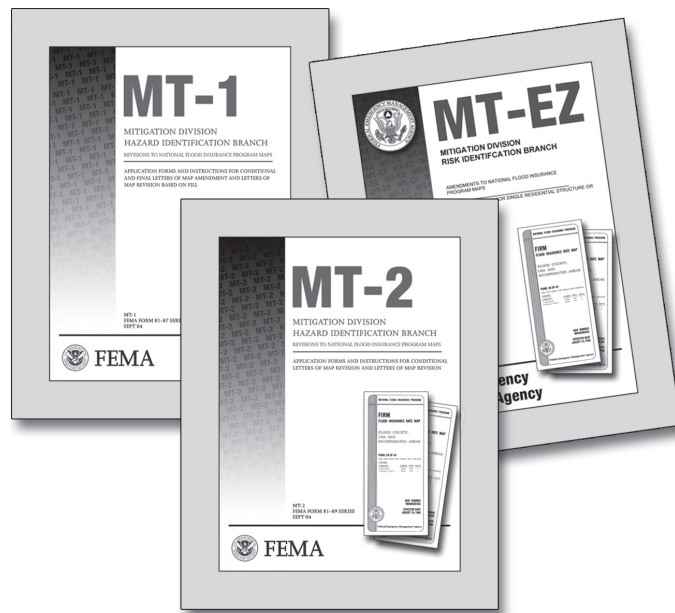
Check [www.fema.gov/letter-map-amendment-letter-map-revision-based-fill-process](https://www.fema.gov/letter-map-amendment-letter-map-revision-based-fill-process) for guidance on map revisions. Access to FEMA's web-based application for surveyors to submit eLOMAs is <https://hazards.fema.gov/femaportal/resources/whatiseloma.htm>.

## Flood Map Revisions: CLOMRs and LOMRs

### ■ Conditional Letter of Map Revision (CLOMR)

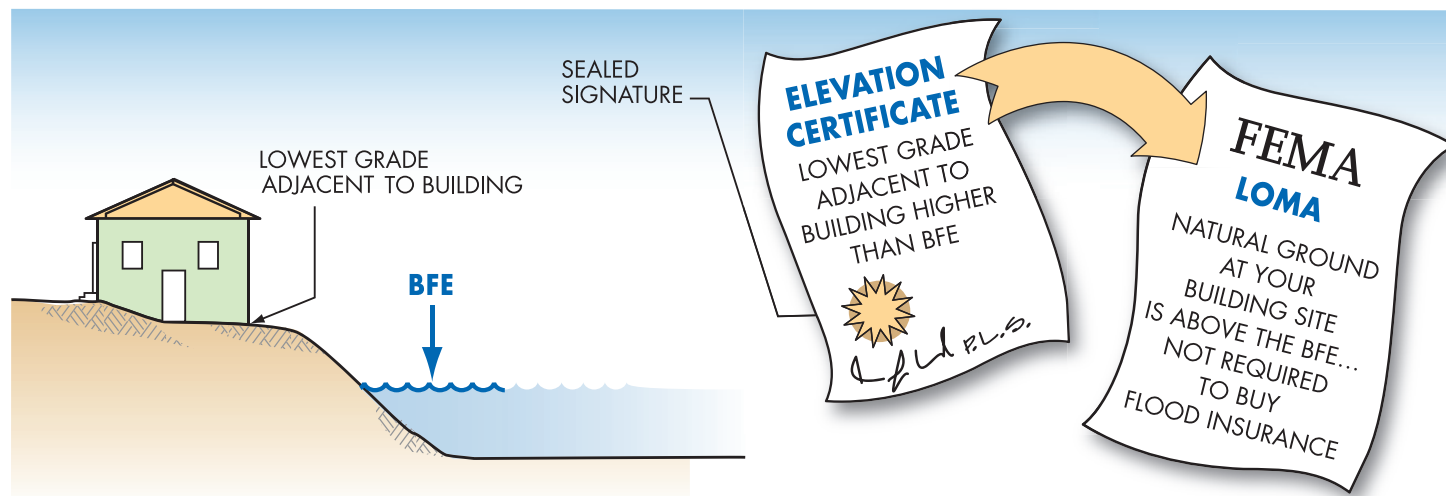
comments on whether a proposed project, if built as shown on the submitted documentation, would meet the standards for a map revision. Communities may require this evidence prior to issuing a permit, and the Certificate of Occupancy/Compliance should be withheld until receipt of the final LOMR based on “as-built” documentation and certification.

- **Letter of Map Revision (LOMR)** is an official revision to an effective FIRM that may be issued to change flood insurance risk zones, special flood hazard areas and floodway boundary delineations, BFEs and/or other map features. Lenders may waive the insurance requirement if the approved map revision shows buildings to be outside of the SFHA.



Find links to learn more and download forms by searching key words “MT-EZ,” “MT-1,” and “MT-2.”

## Is Your Building Site Higher than the BFE?



If your land is shown on the map as “in” the SFHA, but your building site is higher than the Base Flood Elevation (BFE)... get a New Jersey Professional Land Surveyor to complete a FEMA Elevation Certificate (EC). Submit a request for a Letter of Map Amendment to FEMA along with the EC to verify that your structure is above the BFE ([see page 20](#)). If FEMA approves your request, lenders are not required to have you get a flood insurance policy, although some lenders may still require it. Keep the certificate and the LOMA with your deed— they will help future buyers.

## Activities in SFHAs that Require Local Permits and Approvals

- Construction of new buildings
- Additions to buildings
- Substantial improvements of buildings
- Some renovations of building interiors
- Repair of substantially damaged buildings
- Placement of manufactured (mobile) homes
- Subdivision of land
- Construction or placement of temporary buildings and accessory structures
- Construction of agricultural buildings
- Construction of roads, bridges, and culverts
- Placement of fill, grading, excavation, mining, and dredging



You need floodplain development or building permits for these and **ANY** land-disturbing activities in SFHAs. New Jersey DEP permits may be required, [see page 25](#).



## Comparing NFIP, UCC, and NJ DEP Requirements

NFIP: Enforced by Communities	Uniform Construction Code: Enforced by Communities	NJ DEP: Enforced by NJDEP
Base flood elevation is the elevation of the 1% annual chance flood (100-year)	Design flood elevation (DFE) is the higher of the Base Flood Elevation or the elevation of: <ul style="list-style-type: none"> <li>• A greater flood if a different flood map is adopted, or</li> <li>• NJDEP's Flood Hazard Area Design Flood Elevation</li> </ul>	Flood Hazard Area Design Flood Elevation is: <ul style="list-style-type: none"> <li>• In tidal areas, the elevation of the 1% annual chance flood</li> <li>• In non-tidal areas, elevation of the 1% annual chance flood plus 25% additional discharge</li> </ul>
Zone A: lowest floor at or above the BFE Zone V: bottom of the lowest horizontal structural member at or above the BFE	Zone A: lowest floor at or above the BFE + 1 ft or DFE, whichever is higher Zone V: bottom of the lowest horizontal structural member at or above the BFE + 1 ft or DFE, whichever is higher	Lowest floor at or above the Flood Hazard Area Design Flood Elevation
Permits dry floodproofing of nonresidential buildings in Zone A only Allows wet floodproofing only for enclosures below elevated buildings, detached garages, storage buildings, functionally dependent uses, and certain agricultural structures	Permits dry floodproofing of nonresidential buildings and nonresidential portions of mixed use buildings within the scope of the UCC building subcode Permits wet floodproofing for enclosures below elevated buildings, temporary buildings, accessory storage buildings, small parking structures, functionally dependent uses, and certain agricultural structures	Permits wet floodproofing for non-residential buildings if elevation or dry floodproofing is infeasible
Does not limit flood storage displacement by fill; requires encroachment analysis for development in floodways	Requires encroachment analysis for buildings and fill in floodways	Limits flood storage displacement by fill in non-tidal areas

This table identifies differences between certain NFIP requirements, the UCC, and the New Jersey Department of Environmental Protection requirements as of October 20, 2015, the date of release of the Quick Guide. Please refer to the applicable rules for a full description of program requirements.

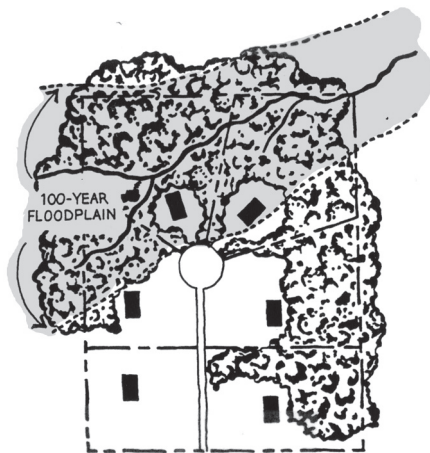


## State Permits May Be Required

In addition to local permits, some projects may require approval from the New Jersey Department of Environmental Protection (NJDEP), depending on the scope and location of construction activities. NJDEP's requirements may affect building location, setbacks, impervious cover and/or design. Learn more at <http://www.nj.gov/dep/landuse/> and contact the NJDEP Land Use Regulation Division at (609) 777-0454.

- **Flood Hazard Area Control Act Permit.** For construction in the 1% annual chance floodplain and the New Jersey Flood Hazard Area. [http://www.nj.gov/dep/landuse/fha\\_main.html](http://www.nj.gov/dep/landuse/fha_main.html)
- **Coastal Area Facility Review Act (CAFRA) Permit.** For construction in the designated CAFRA area extending from Cheesequake Creek in Old Bridge, Middlesex County south along the Atlantic coast around Cape May County and then north along the Delaware Bay to Kilcohook National Wildlife Refuge in Salem County. <http://www.nj.gov/dep/landuse/guidance.html> (Coastal Permitting)
- **Waterfront Development Law Permit.** For construction in upland areas immediately adjacent to tidal waters outside of the CAFRA area. <http://www.nj.gov/dep/landuse/guidance.html> (Coastal Permitting)
- **Freshwater Wetlands Protection Act Permit.** For construction in jurisdictional wetlands and their associated transition/buffer areas. [http://www.nj.gov/dep/landuse/fww/fww\\_main.html](http://www.nj.gov/dep/landuse/fww/fww_main.html)
- **Coastal Wetlands Act Permit.** For construction in mapped coastal wetlands. <http://www.nj.gov/dep/landuse/guidance.html> (Coastal Permitting)

## Safer Uses of the Floodplain

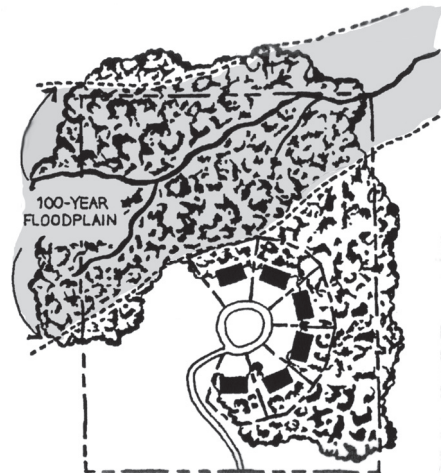
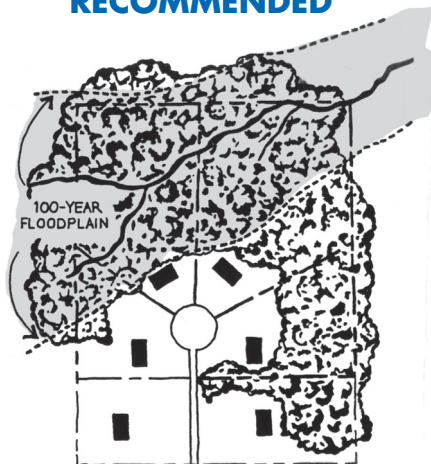


All land subdivided into lots, some homesites and lots partially or entirely in the floodplain.

**NOT RECOMMENDED**

All land subdivided into lots, some lots partially in the floodplain, setbacks modified to keep homesites on high ground.

**RECOMMENDED**



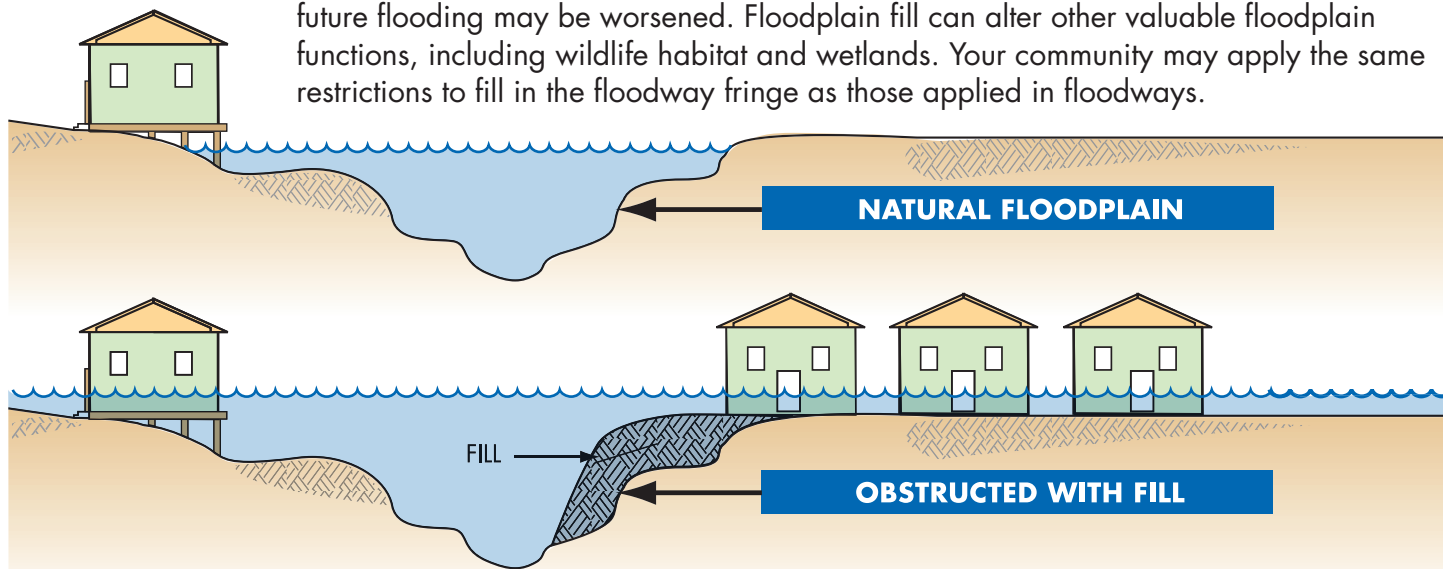
Floodplain land put into public/common open space, net density remains, lot sizes reduced and setbacks modified to keep homesites on high ground.

**RECOMMENDED**

Let the floodplain perform its natural function – if possible, keep it as open space. Other compatible uses: passive recreational areas, playgrounds, reforestation, parking, gardens, pasture, and created wetlands.

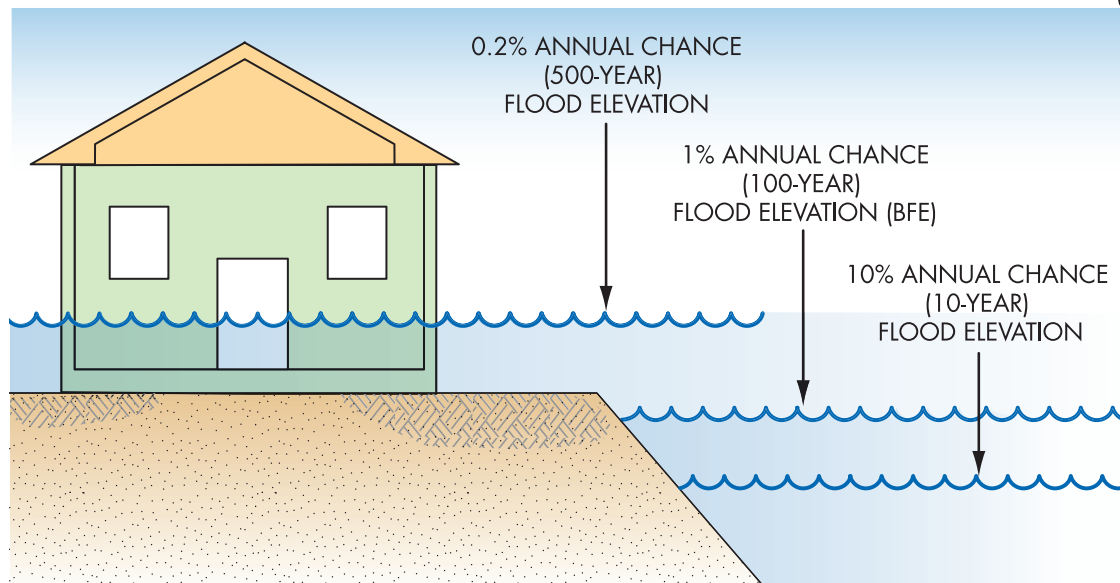
## Floodplain Fill Can Make Things Worse

Floodplains are supposed to store floodwater. If storage space is blocked by fill material, future flooding may be worsened. Floodplain fill can alter other valuable floodplain functions, including wildlife habitat and wetlands. Your community may apply the same restrictions to fill in the floodway fringe as those applied in floodways.



Make sure your floodplain fill project won't harm your neighbors. Before deciding to use fill as part of your project design, check with your community's planning, engineering, or permit office. You may be required to demonstrate that fill will cause "no rise" ([see page 39](#)).

## Nature Doesn't Read Flood Maps



**Important**

### Information

Many people don't understand just how risky the floodplain can be. There is a greater than 26% chance a non-elevated home in the SFHA will be flooded during a 30-year mortgage period. The chance a major fire will occur during the same period is less than 5%!

**CAUTION!** Nature doesn't read the flood map! Major storms and flash floods can cause flooding that rises higher than the Base Flood Elevation (BFE). Be safer – protect your home or business by building higher. [See page 40](#) to see how this will save you money on flood insurance.

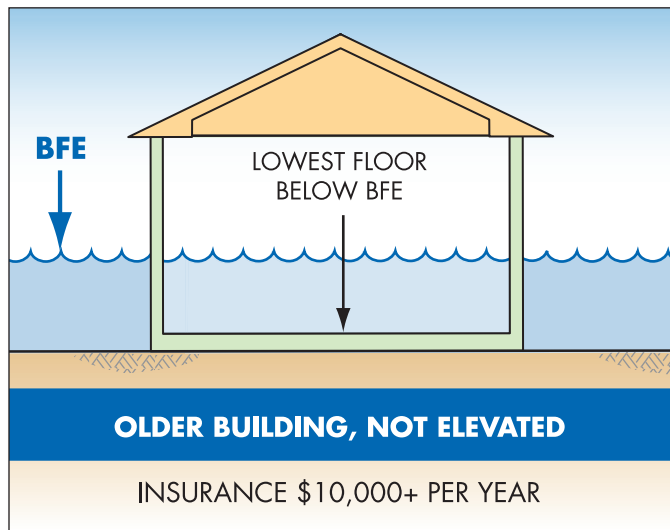
## Fundamentals of Flood Resistant Construction

The flood resistant construction requirements of the NFIP, the New Jersey Uniform Construction Code (UCC), and the New Jersey Department of Environmental Protection (NJDEP) share the common objective of increasing resistance to flooding. Although there are some differences between specific requirements, they all include the following fundamentals – buildings should have:

- **Foundations** capable of resisting flood loads (including dry floodproofed nonresidential buildings)
- **Structurally sound walls and roofs** capable of minimizing penetration by wind, rain, and debris
- **Lowest floors elevated** high enough to prevent floodwaters from entering during the design event
- **Equipment and utilities** elevated or designed to remain intact and be restored easily
- **Enclosures below elevated floors** limited in use and designed to minimize damage
- **Flood damage-resistant materials** used below elevated lowest floors

In short ... something to come home to!

## Think Carefully Before You Seek A Floodplain Variance



Very specific conditions related to the property (not the owner's actions or preferences) must be satisfied to justify variances:

- Good and sufficient cause
- Unique site conditions
- Non-economic hardship
- If in the floodway, no increase in flood level

A variance that allows construction below the BFE does not waive your lender's flood insurance requirement. Flood insurance will be very expensive – perhaps more than \$10,000 to \$20,000 per year ([see page 40](#))!

Think carefully before seeking a variance to build below the Base Flood Elevation.

Not only will your property be more likely to suffer damage, but flood insurance will be very costly.

If a community has a pattern of issuing variances, NFIP sanctions could be imposed – costing you even more!

## New Jersey Uniform Construction Code: Flood Provisions

The New Jersey Department of Community Affairs, Division of Codes and Standards, establishes and enforces building codes in partnership with municipalities. The New Jersey Uniform Construction Code (UCC) is a family of building codes based on the International Codes® (except the NJ rehabilitation subcode). All communities in New Jersey are required to enforce the UCC.

FEMA deems the flood provisions of the International Codes (and thus the UCC) to meet or exceed the NFIP requirements for buildings and structures and New Jersey's amendments to the flood provisions do not alter consistency.

- **Building Subcode:** Flood provisions are primarily in Section 1612 Flood Loads, which refers to the standard *Flood Resistant Design and Construction* (ASCE 24).
- **Residential Subcode:** Flood provisions are primarily in Section R322 Flood-Resistant Construction, although there are requirements in several other sections.
- **Rehabilitation Subcode:** Section 5:23-6.3A requires the local floodplain administrator to determine if work on existing buildings constitutes Substantial Improvement or repair of Substantial Damage, in which case compliance with the UCC rules for flood resistant construction is required ([see page 55 through 59](#)).
- **Plumbing, Mechanical and Fuel Gas Subcodes:** Flood provisions are in a number of sections.

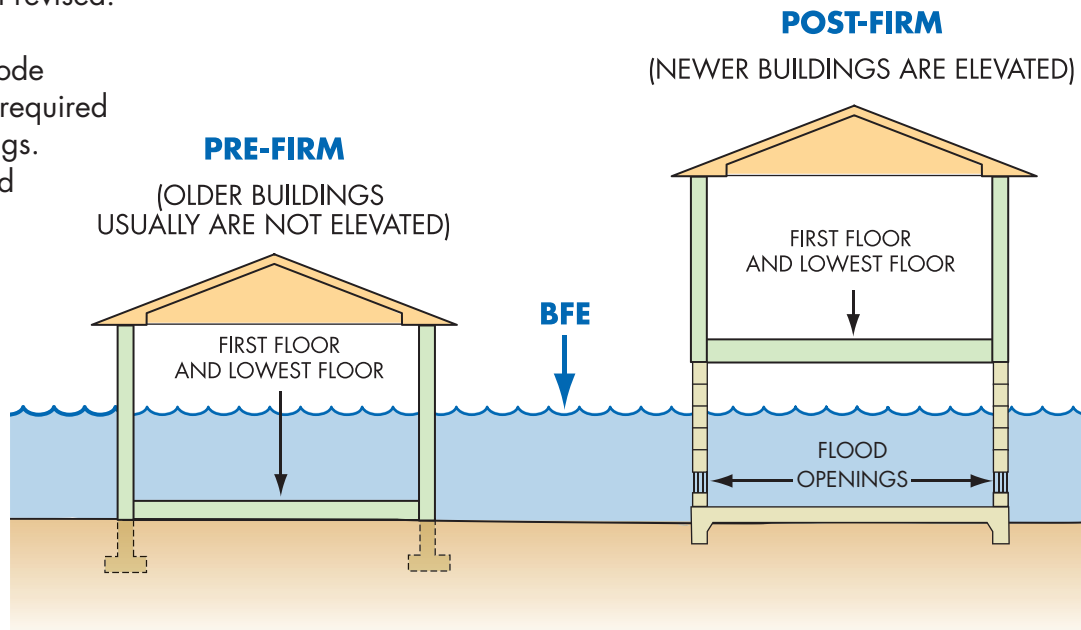
Excerpts of the flood provisions of the UCC and "Highlights of ASCE 24" are available online at [www.njafm.org](http://www.njafm.org).

**NOTE!** Some requirements changed since the 2009 UCC, including treating Coastal A Zones, if delineated, like Zone V.

## What is Meant by Pre-FIRM and Post-FIRM Structures?

**Pre-FIRM** and **Post-FIRM** are insurance terms tied to a community's initial FIRM and used to determine flood insurance rates. Although it is common, the terms should not be used to distinguish between new construction built before a community joined the NFIP and those built after, especially in communities where the FIRMs have been revised.

The NJ Rehabilitation Subcode specifies when permits are required for work on existing buildings. NFIP requirements, enforced by communities, specify buildings must be brought into compliance when work is determined to be Substantial Improvement or repair of Substantial Damage ([see pages 55 through 59](#)).





## Some Key Floodplain Development Permit Review Steps

**The permit reviewer has to check many things. Some of the key questions are:**

- Is the site near a watercourse?
- Is the site in the mapped FEMA floodplain or floodway?
- Are other State and federal permits obtained before work starts?
- Is the site reasonably safe from flooding?
- Does the site plan show the flood zone, Base Flood Elevation and building location?
- Is substantial improvement of an existing building proposed?
- Is an addition proposed?
- Will new buildings and utilities be elevated properly?
- Will manufactured homes be properly elevated and anchored?
- Do the plans show an appropriate and safe foundation?
- Will the owner/builder have to submit an as-built Elevation Certificate?
- Are all required certifications included?



## Carefully Complete the Permit Application

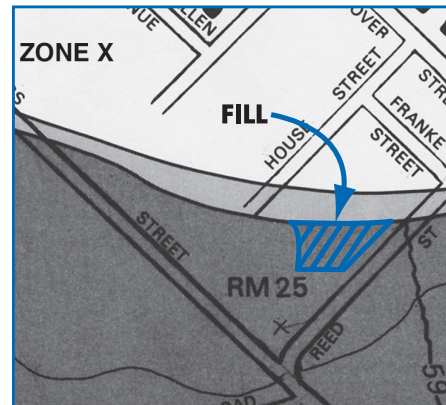
Owner's Name: <u>David &amp; Sally Jones</u>		<b>Part of a sample Floodplain Permit Application</b> (may vary by community)
Site Address, Tax #, Parcel #: <u>781 Reed Street, 400-33A-002</u>		
<b>A. Description of Work</b> 1. Proposed Development Description: <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Dredging <input type="checkbox"/> Alteration or Repair <input type="checkbox"/> Manufactured/Modular <input checked="" type="checkbox"/> Filling <input type="checkbox"/> Logging <input type="checkbox"/> Grading <input type="checkbox"/> Other		<b>Community, Map, and Elevation Data:</b> 1. Community No: <u>060243</u> 2. Panel No: <u>125C</u> 3. Zone <u>AE</u> 4. Base Flood Elevation <u>59.2</u> 5. Required Lowest Floor Elevation (including basement) <u>60.2</u> 6. If floodproofed, required floodproofing elevation <u>N/A</u> 7. Elevation to which all attendant utilities, including all heating, duct work, and electrical equipment will be installed or floodproofed: <u>60.2</u>
2. Size and Location of Development <u>single family (2,000 sq ft); flood fringe of Dry River</u>		
3. Type of Construction <input checked="" type="checkbox"/> New Residential <input type="checkbox"/> Improvement <input type="checkbox"/> New Non-Residential <input type="checkbox"/> Renovation <input type="checkbox"/> Addition <input type="checkbox"/> Accessory structure <input type="checkbox"/> Temporary		
Applicant's Signature: <u>David M. Jones</u>		



**Important**

### Information

You must get all permits **before** you do work in a floodplain.



Good information will lead to better construction and less exposure to future flood damage.

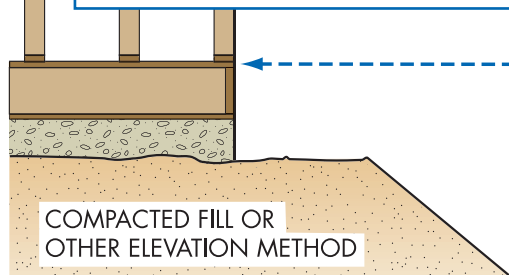
## Paperwork is Important – for You and Your Community



Important

### Information

**Lowest Floor** means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure (that is not a basement) is not the lowest floor if the enclosure is built as required in the local ordinance which includes limited uses ([see pages 46, 47, and 49](#)).



### ELEVATION CERTIFICATE

LOWEST FLOOR  
AT OR ABOVE  
BFE



*Handwritten signature* P.L.S.

If you get a permit to build in a flood hazard area, a FEMA Elevation Certificate or similar documentation will be required as soon as your lowest floor is set. An “as-built” survey and Elevation Certificate will be required when construction is completed.

**This form is important!** It proves you built correctly.  
It can be used to obtain the correct flood insurance rating.

## What is the Elevation Certificate and How is it Used?

- The Elevation Certificate (EC) is a FEMA form. Go to [www.fema.gov](http://www.fema.gov) and search for “Elevation Certificate.”
- The EC must be completed and sealed by a Professional Land Surveyor.
- The property owner, owner’s representative or the community official may complete the EC for sites in Approximate Zone A and Zone AO (see Section F of the EC).
- It can be used to show the grades of building sites are above the Base Flood Elevation ([see page 22](#)).
- It is used to verify building and equipment elevations ([see pages 49](#) and [50](#)).
- Insurance agents use the EC to write and rate flood insurance policies.

By itself, the EC cannot be used to waive the requirement to obtain flood insurance. [See page 20](#) to learn about FEMA's Letter of Map Amendment process.

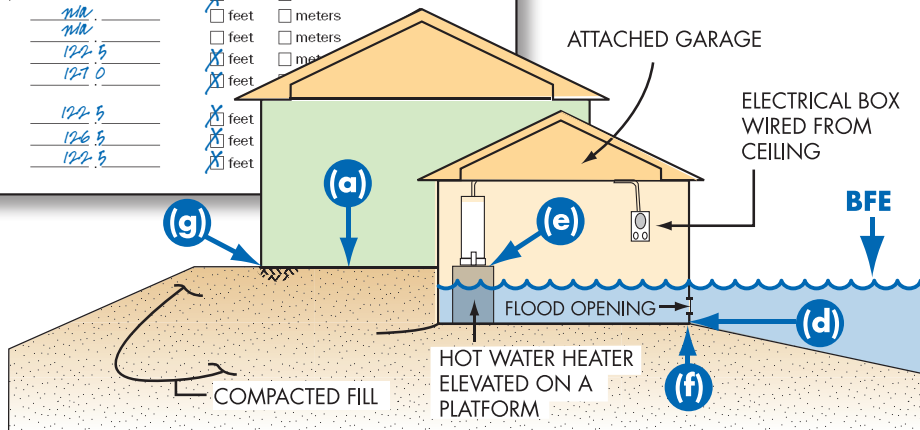
[illegible]

## Completing the Elevation Certificate

SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)	
C1. Building elevations are based on:	<input type="checkbox"/> Construction Drawings* <input type="checkbox"/> Building Under Construction* <input checked="" type="checkbox"/> Finished Construction *A new Elevation Certificate will be required when construction of the building is complete.
C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.	
Benchmark Utilized: _____	Vertical Datum: _____
Indicate elevation datum used for the elevations in items a) through h) below. <input type="checkbox"/> NGVD 1929 <input type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other /Source: _____	
Datum used for building elevations must be the same as that used for the BFE.	
a) Top of bottom floor (including basement, crawlspace, or enclosure floor) _____ b) Top of the next higher floor _____ c) Bottom of the lowest horizontal structural member (V Zones only) _____ d) Attached garage (top of slab) _____ e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments) _____ f) Lowest adjacent (finished) grade next to building (LAG) _____ g) Highest adjacent (finished) grade next to building (HAG) _____ h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support _____	Check the measurement used. <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters <input type="checkbox"/> feet <input type="checkbox"/> meters <input type="checkbox"/> feet <input type="checkbox"/> meters <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters

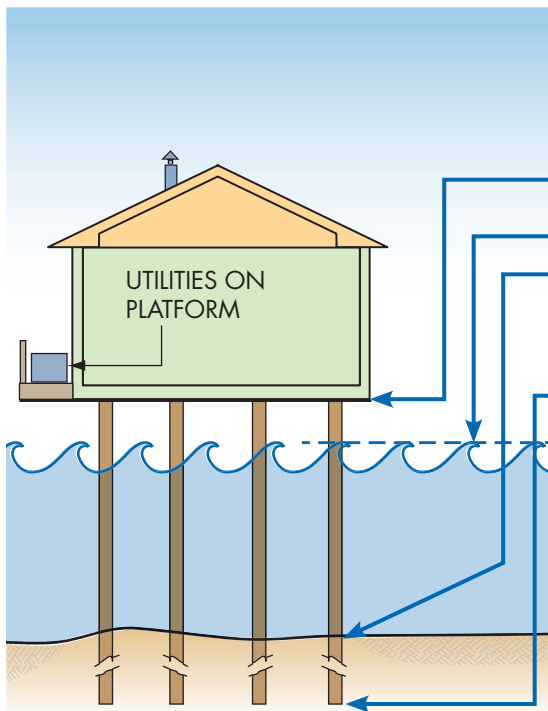
## ELEVATION CERTIFICATE (partial)

In this example, the BFE is 125.0 feet.  
 The slab-on-grade house was elevated on fill 2 feet above the BFE; the garage is 2.5 feet below the BFE (with flood openings).



When you get your building permit you will be informed about when in the construction process you **must** submit Elevation Certificates. You must have a New Jersey Professional Licensed Surveyor fill out and seal the EC. The EC includes diagrams for eight building types. Several points must be surveyed.

## The Zone V Design Certificate



### ZONE V DESIGN CERTIFICATE (Partial)

#### SECTION II: Elevation Information Used for Design

- 1 Datum..... ☐ NGVD ☒ NAVD ☐ Other
- 2 Elevation of the Bottom of Lowest Horizontal Structural Member ..... 14 feet above datum
- 3 Base Flood Elevation (BFE)..... 12 feet above datum
- 4 Elevation of Lowest Adjacent Grade ..... 6 feet above datum
- 5 Approximate Depth of Anticipated Scour/Erosion used for Foundation Design..... 3 feet above datum
- 6 Embedment Depth of Pilings or Foundation Below Lowest Adjacent Grade..... 16 feet above datum

A New Jersey Professional Engineer or Registered Architect must review and/or prepare the building design and complete the Zone V Design Certificate for any new construction, substantial improvement, or the repair of a substantially damaged structure.

## The Floodway “No Rise” Certification

- Floodways can be dangerous because water may flow very fast.
- Development is not allowed unless certified that it will cause “no rise” (no increase) in the Base Flood Elevation.
- An engineer must evaluate the hydraulic impact of proposed development.
- A “no rise” certification must be signed, sealed, and dated by a Professional Engineer licensed in New Jersey.
- Check with your community for guidance before you decide to develop in a floodway.
- Contact NJ DEP; State regulations may prohibit development in floodways.

XYZ Engineering, Inc.,  
Anytown, New Jersey

Mr. Floodplain Manager  
1000 Main Street  
Anytown, New Jersey

Re: 1200 Jackson Street  
Anytown, New Jersey

This is to certify that I am a duly qualified Professional Engineer licensed to practice in the State of New Jersey. It is to further certify that the attached technical data supports the fact that the proposed (Name of Development) will not impact the Base Flood Elevation, floodway elevations and the floodway widths on (Name of Stream) as published in the Flood Insurance Study for (Name of Community), dated (Date of Effective FIS).

*John H. P.E.*

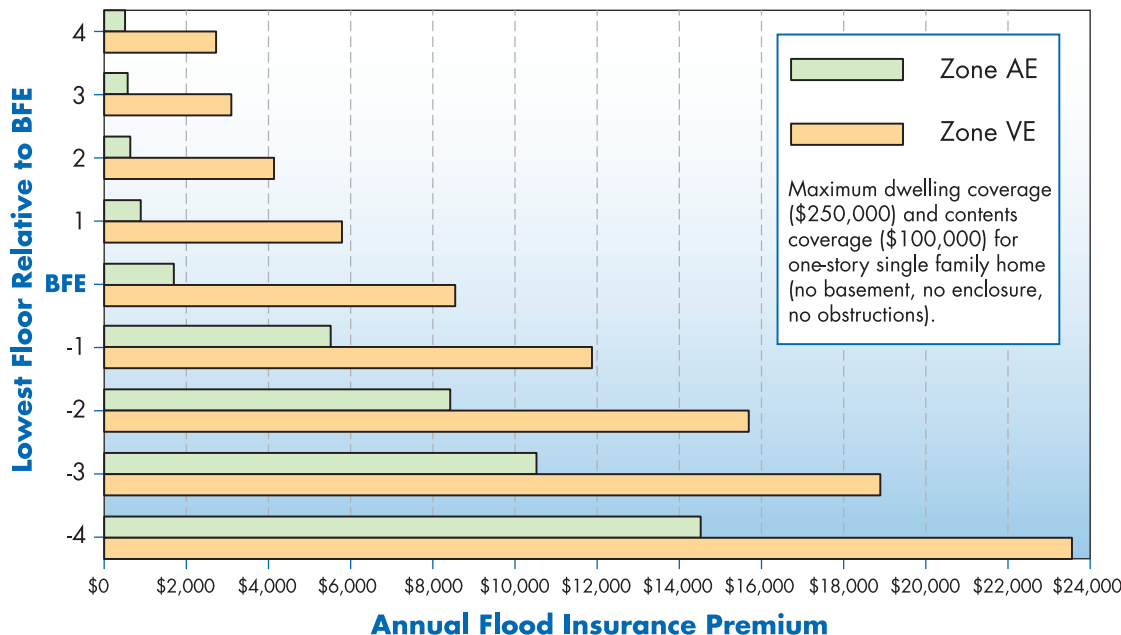


The engineering analysis must be based on technical data obtained from FEMA.

**Reduce flood risk – don’t build in the Floodway!**

## Freeboard: Build Higher, Reduce Damage, Save on Insurance

Want to save some money and have peace of mind at the same time?  
Add freeboard to build higher than the minimum elevation requirement!  
Freeboard is a factor of safety, usually one to four feet above the BFE.



Important

### Information

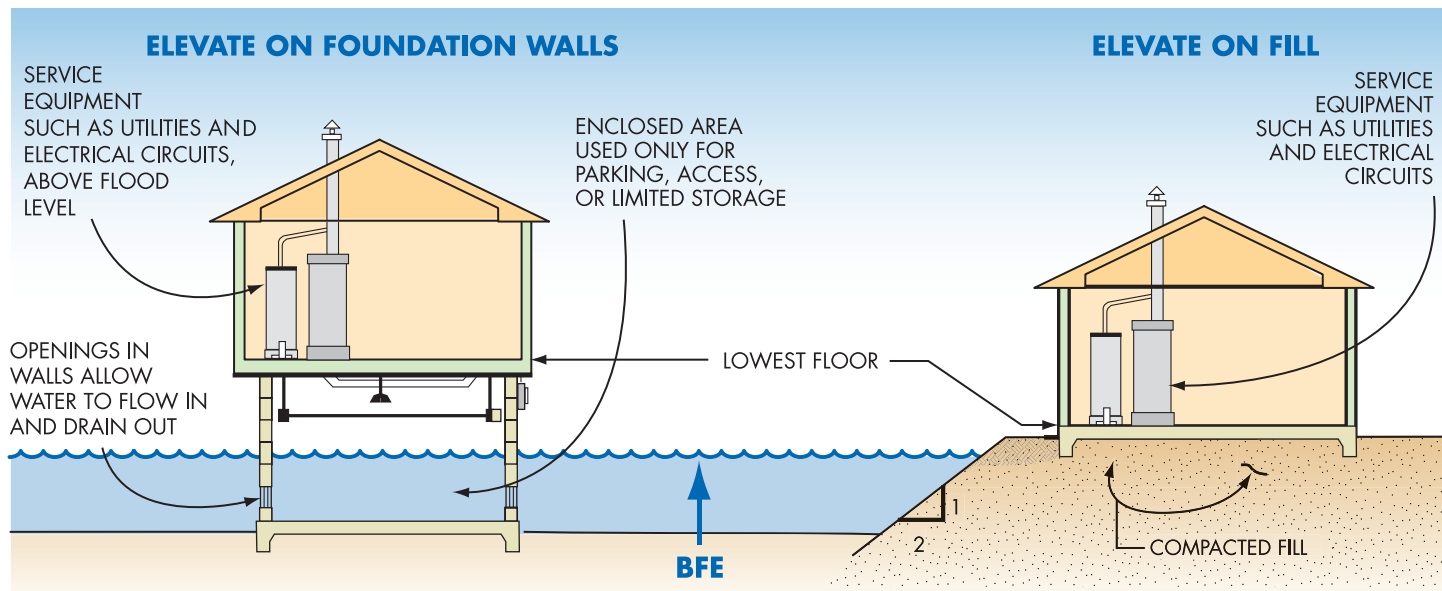
**NOTE!** Flood insurance rates and various fees change from time to time. Rather than specific costs for insurance, these figures give a feel for how much difference just a foot or two can make.

**Remember!** When building a new home, be sure the builder checks the floor elevation as part of the foundation inspection. An error of just 6 to 12 inches could more than double what you pay for NFIP flood insurance.

A community may be able to grant a variance, but the owner will probably be required to buy insurance. Imagine trying to sell a house if the bank requires insurance that costs more than \$10,000 to \$20,000 a year!



## How to Elevate Your Floodplain Building (Zone A)

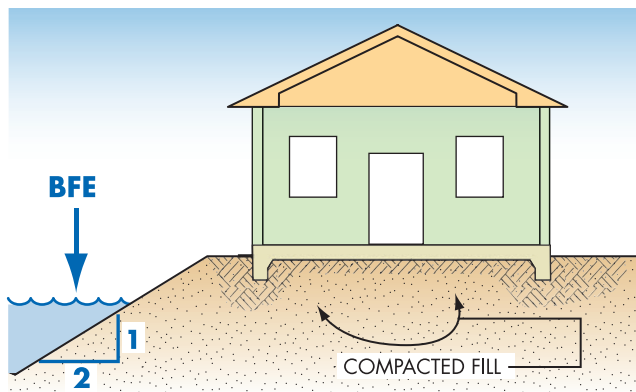


**CAUTION!** Enclosures (including crawlspaces) have some special requirements ([see pages 46 and 47](#)). When the walking surface of the lowest floor is at the BFE, under-floor utilities are not allowed. Fill used to elevate buildings must be properly placed and compacted ([see page 42](#)).

## Compaction of Floodplain Fill (Zone A Only)

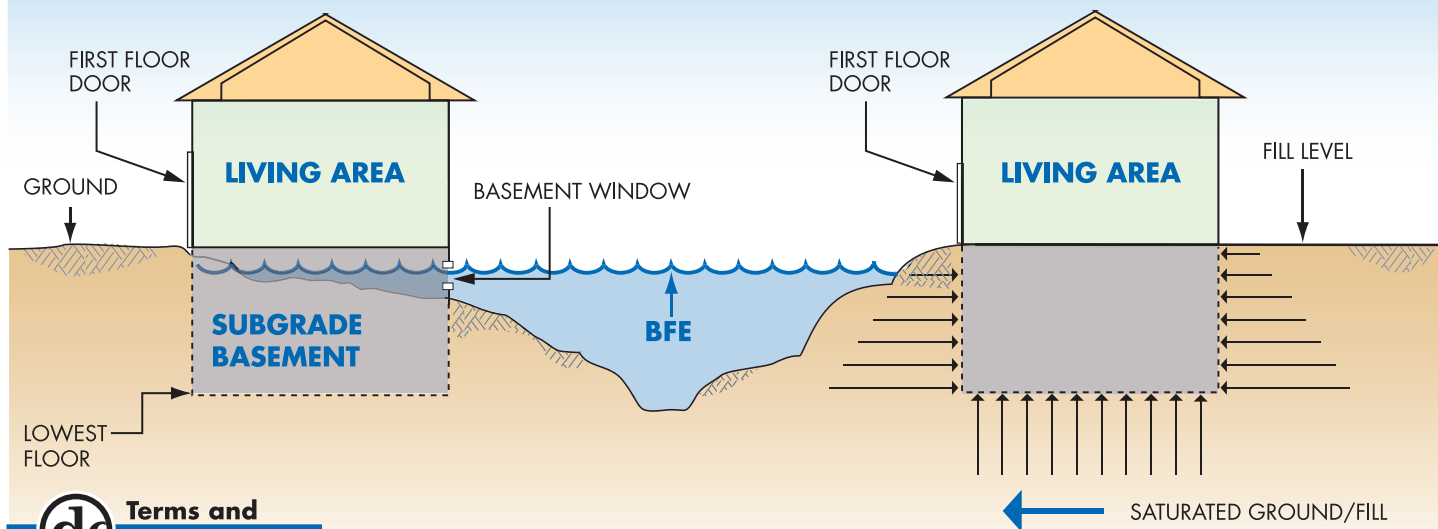
Earthen fill used to raise the ground above the flood elevation must be placed properly so it does not erode or slump when water rises. For safety and to meet floodplain requirements, floodplain fill should:

- Be certified clean soil, free of large rocks, construction debris, and woody material (stumps, roots)
- Be machine-compacted to 95 percent of the maximum density (determined by a design professional)
- Have graded side slopes that are not steeper than 2:1 (one foot vertical rise for every 2 feet horizontal extent); 3:1 flatter slopes are recommended
- Have slopes protected against erosion (vegetation for “low” velocities, durable materials for “high” velocities – determined by a design professional)



Your engineer can find more information in FEMA's instructions for Letters of Map Revision based on Fill (FEMA Form MT-1) and NFIP Technical Bulletin #10.

## Basements Are Unsafe

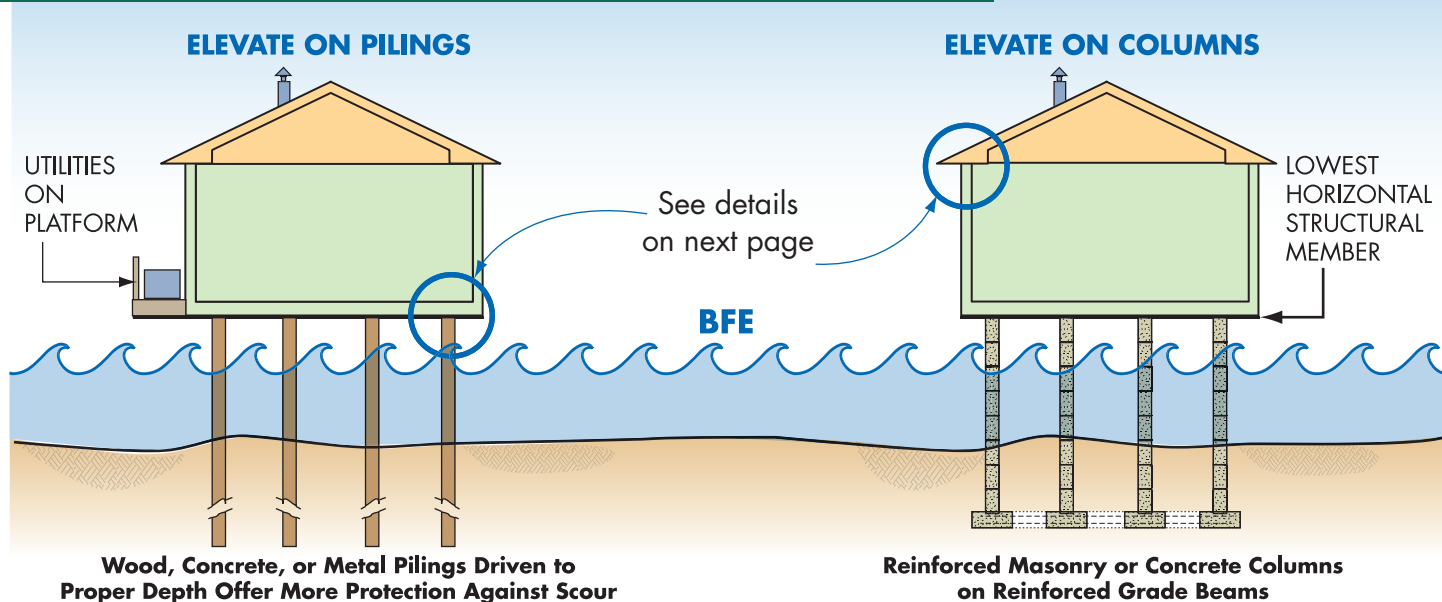


### Terms and Definitions

A **basement** is any portion of a building that has its floor sub-grade (below ground level) on all sides.

New buildings are not allowed to have basements below the BFE and NFIP flood insurance coverage is very limited in existing basements for a very good reason. It only takes an inch of water over a door threshold or window sill and the entire basement fills up! Excavating a basement into fill doesn't always make it safe because saturated groundwater can damage the walls.

## How to Elevate Your Floodplain Building (Zone V & CAZ)

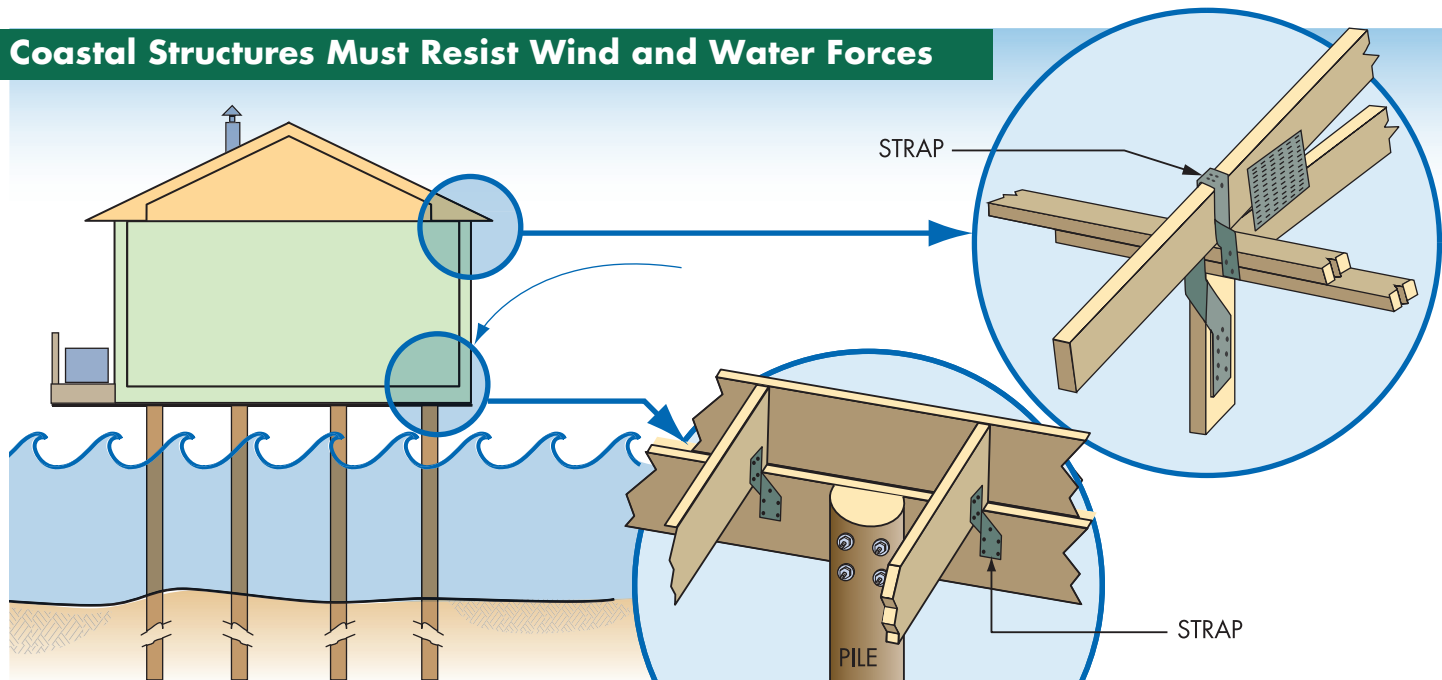


In Zone V, the design specifics will be determined by an architect or engineer based on the site, including how the building will be elevated and how deep the foundation elements will be in the ground.

A Zone V Design Certificate or statement will be required ([see page 38](#)).

For more information, see FEMA P-499, *Home Builder's Guide to Coastal Construction*.

## Coastal Structures Must Resist Wind and Water Forces



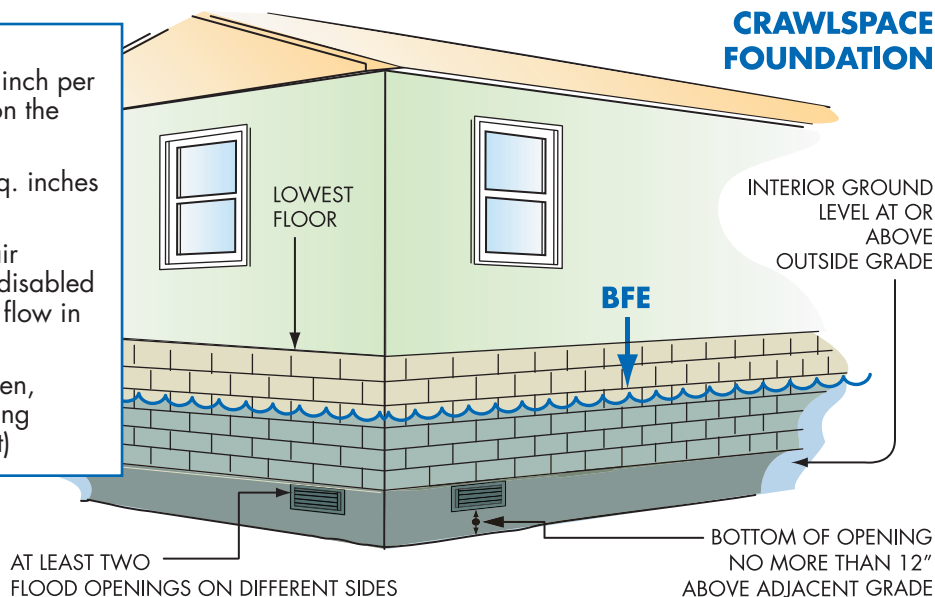
Coastal buildings may be exposed to hurricane winds, waves, and floodwaters. Structural building components must be connected together to transfer forces in a continuous load path from the roof to the foundation. The details above are some examples of how this is done. An architect or engineer must determine the types of connections required for the roof, building, and foundation.

## Enclosures Below the Lowest Floor (Zone A)

### NOTE:

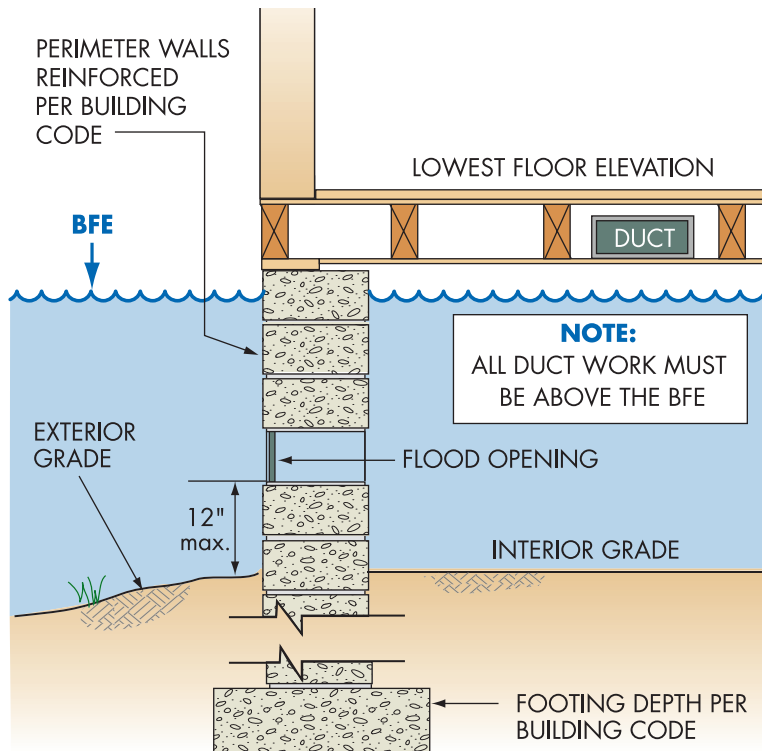
- Total net area of all openings is 1 sq. inch per sq. foot of enclosed area (measured on the outside)
- A 30' x 40' enclosure needs 1,200 sq. inches of openings
- If inserted in flood openings, typical air ventilation units must be permanently disabled in the open position to allow water to flow in and out
- A typical air ventilation unit, with screen, provides 42 to 65 sq. inches of opening (look for "net free area" stamp on unit)

**ALTERNATIVE:** Engineered openings are acceptable **if certified** to allow adequate automatic inflow and outflow of floodwaters.



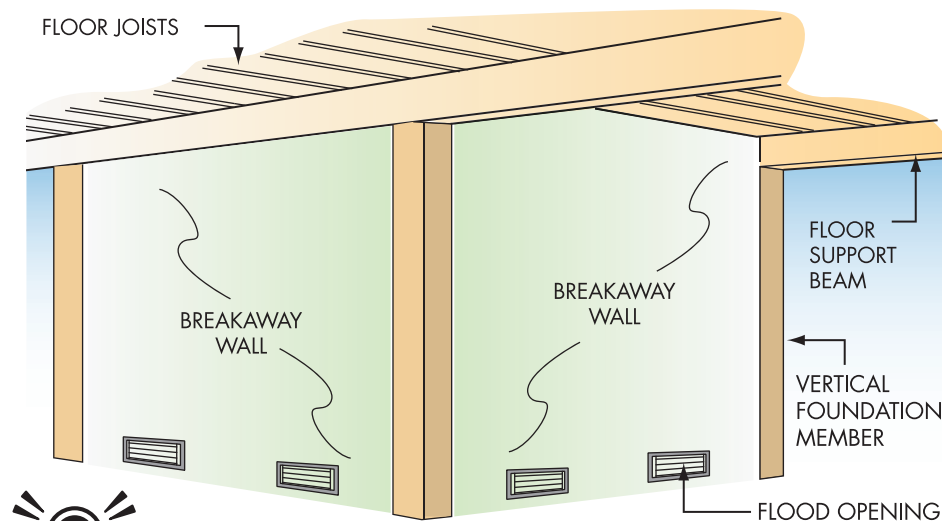
Solid perimeter wall foundations can enclose flood-prone space. A crawlspace is a good way to elevate just a couple of feet. In all cases, the following are required: flood openings, elevated utilities, flood-resistant materials, and limitations on use.

## Crawlspace Details (Zone A)



- The Lowest Floor Elevation must be at or above the required elevation. New Jersey recommends an additional 2 to 4 feet or more for greater protection.
- All materials below the BFE must be flood resistant.
- Flood openings must provide 1 sq. in. of net open area for every sq. ft. of area enclosed by the perimeter walls – or certified engineered openings may be used.
- A 30' x 40' building needs 1,200 sq. in. of net opening.
- The bottom of flood openings must be no more than 12 inches above grade.
- Standard air ventilation units must be permanently disabled in the "open" position to allow water to flow in and out.
- Interior grade must be equal to or higher than exterior grade on at least one side.

## Enclosures Below Zone V and CAZ Buildings



### Important

### Information

Do not modify an enclosure below an elevated Zone V building (or any zone for that matter)! It is a violation of your community's regulations and the UCC, and you may have increased damage when it floods. Plus, your flood insurance policy will cost a lot more!

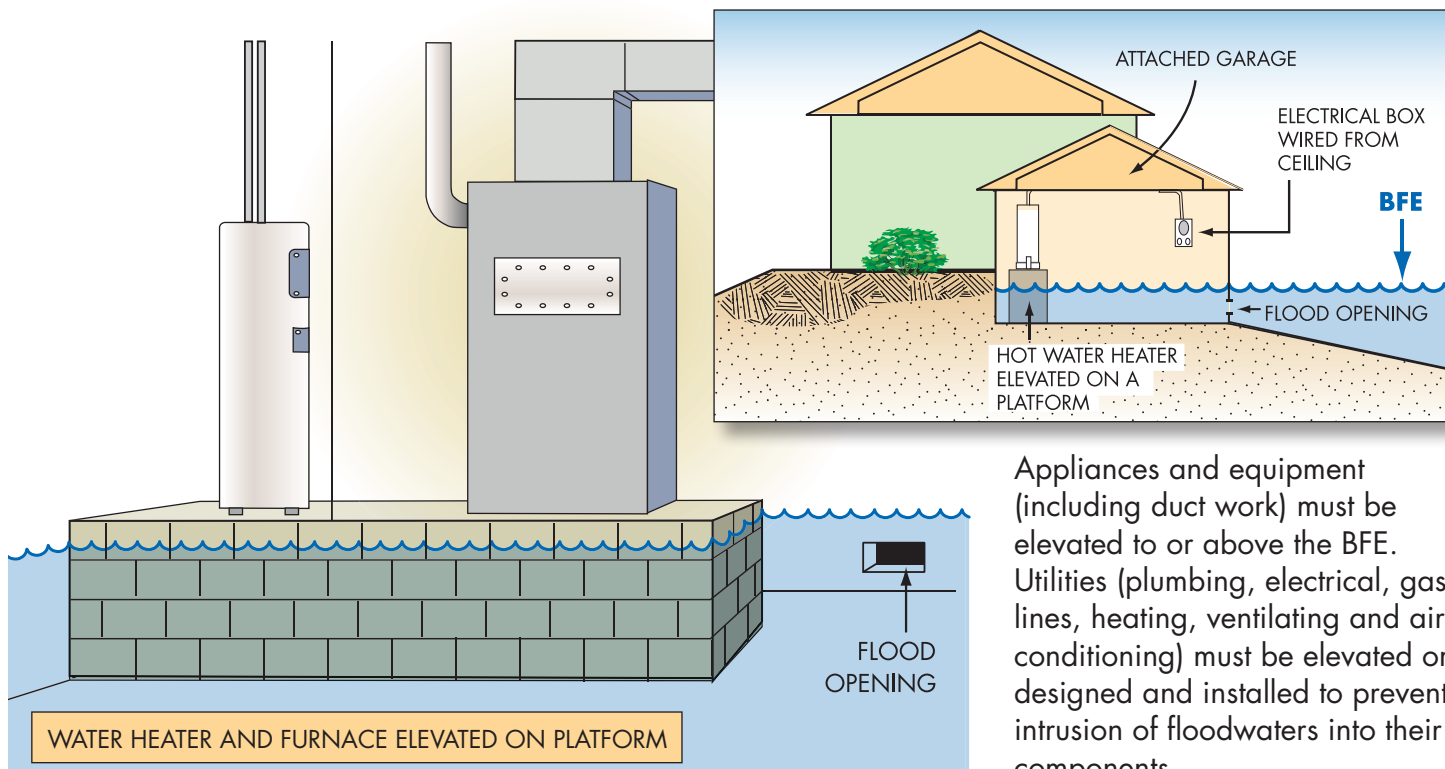
Avoid building an enclosure under your Zone V or CAZ building. If you must enclose a small area:

- Walls must have flood openings and be designed to collapse or "breakaway"
- It must be unfinished and use flood resistant materials
- Utility wires and pipes must not go through or be attached to the breakaway walls
- It must be used only for parking, building access, and limited storage
- Bathrooms, utility rooms, and electric service are not allowed below BFE

Enclosures larger than 299 sq. ft. may have higher flood insurance premiums.

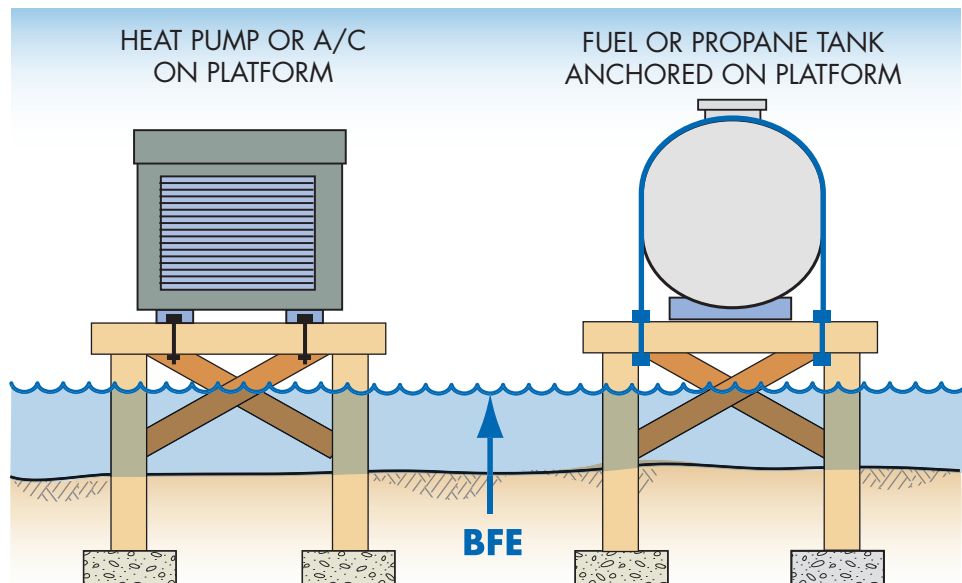


## Utility Service and Equipment Inside Enclosures



Appliances and equipment (including duct work) must be elevated to or above the BFE. Utilities (plumbing, electrical, gas lines, heating, ventilating and air conditioning) must be elevated or designed and installed to prevent intrusion of floodwaters into their components.

## Utility Service, Equipment, and Fuel Tanks



### Important

### Information

Fuel and propane tanks may cause explosion and pollution risks during flood conditions. Even shallow water can create large buoyant forces on tanks, so extra care must be taken to ensure all tanks are elevated (all flood hazard areas) and/or anchored to resist flood forces (Zone A only).

See FEMA 348, *Protecting Building Utilities from Flood Damage*.

Whether inside an attached garage or outside a building, all utilities, appliances, and equipment must be elevated above the BFE or protected against flood damage. Utilities include plumbing, electrical components, gas lines, fuel tanks, generators, and heating and air conditioning equipment.

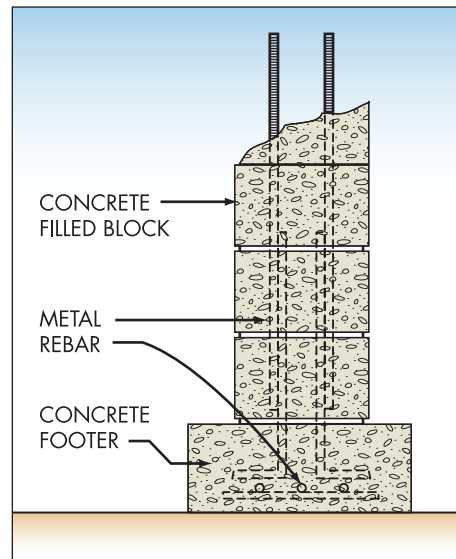
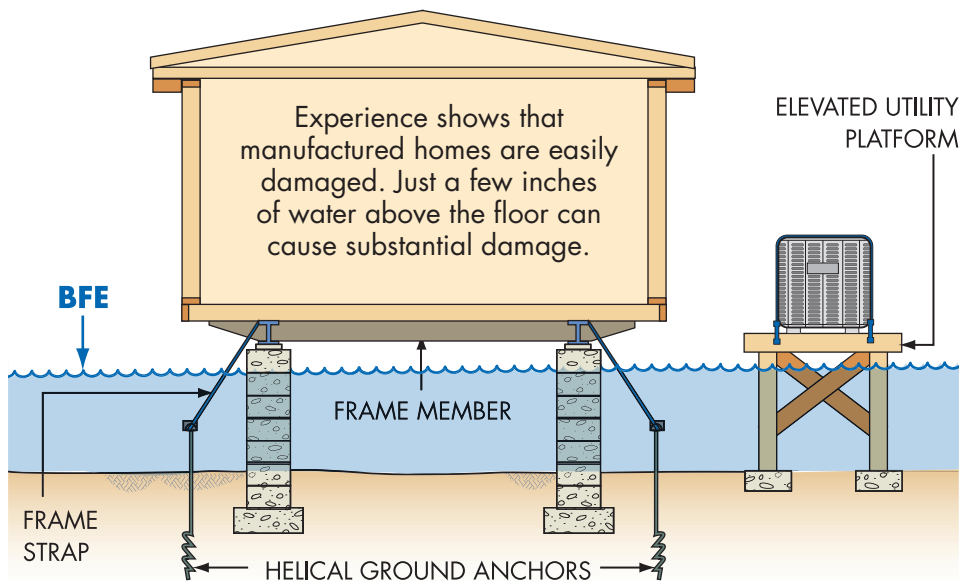
## Pools in Flood Hazard Areas

In addition to local permits, permits from NJ DEP may be required for swimming pools in flood hazard areas. Specific NFIP guidance depends on flood zone:

- **Zone A:** In Zone A inland of coastal bodies of water and in floodway fringes ([see page 9](#)), there are no special requirements for swimming pools.
- **Zone A, floodway:** In floodways, swimming pools that are above-ground or have fill surrounding them are subject to the “no rise” certification requirement ([see page 39](#)).
- **Zone V:** In Zone V, swimming pools must be elevated, designed to break away without producing damaging debris, or sited to remain in the ground during base flood conditions without obstructing flow that could damage adjacent structures.
- **Coastal A Zone:** Because of the presence of moderate waves, swimming pools in Coastal A Zones should be designed the same as pools in Zone V.
- **All Flood Zones:** Pool controls and equipment have to meet the requirements for utilities and equipment ([see page 50](#)).

For guidance, see ASCE 24 Chapter 9 (and commentary). Also see *Coastal Construction Manual* (FEMA P-55), *Home Builder’s Guide to Coastal Construction* (FEMA P-499), and NFIP Technical Bulletin 5 *Free-of-Obstruction Requirements*.

## Manufactured Homes Require Special Attention

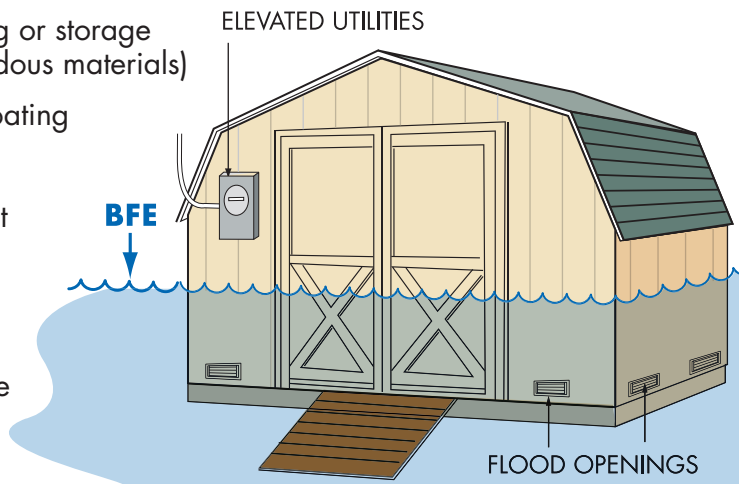


Manufactured homes must be anchored to resist flotation, collapse, and lateral movement by being tied down in accordance with your community's ordinance or the manufacturer's installation specifications for SFHAs. See guidance and some pre-engineered designs in FEMA P-85, *Protecting Manufactured Homes from Floods and Other Hazards*.

## Accessory Structures

In Special Flood Hazard Areas, accessory structures must:

- Not be habitable
- Be used only for parking or storage (not pollutants or hazardous materials)
- Be anchored to resist floating
- Have flood openings
- Be built of flood-resistant materials
- Have elevated utilities
- Not be modified for different use in the future
- Have documented floor elevation



**Terms and Definitions**

**Accessory Structure,** is a structure located on the same parcel of land as a principal structure and whose use is incidental to the use of the principal structure. Accessory structures may not be used for human habitation and must be designed to minimize flood damage. Examples: detached garages, carports, storage sheds, gazebos, pole barns, and hay sheds.

Even small buildings are “development” and permits or variances with noted conditions are required. They must be elevated or anchored to prevent becoming debris that damages other buildings and bridges.

**Caution!** Remember, everything inside will get wet when flooding occurs.

## Recreational Vehicles

In Special Flood Hazard Areas, RVs must:

- Be licensed and titled as an RV or park model (not as a permanent residence)
- Be built on a single chassis
- Measure 400 sq.ft. or less (measured at largest horizontal projection)
- Have inflated wheels and be self-propelled or towable by a light-duty truck
- Have no attached deck, porch or shed
- Be used for temporary recreational, camping, travel or seasonal use (no more than 180 consecutive days)
- Have quick-disconnect sewage, water and electrical connectors



**Important**

**Information**

### **Camping near the water?**

Ask the campground or RV park operator about flood warnings and plans for safe evacuations.

RVs that do not meet these conditions must be installed and elevated like manufactured homes, including permanent foundations and tie-downs ([see page 52](#)).

## Planning to Improve Your Floodplain Building?

To obtain a permit to improve a building in a floodplain:

- You must provide a copy of your construction contract or a cost estimate (including estimated market value of your own or donated labor and materials).
- Your community will compare the cost of the proposed work to the market value of your building and check the value of improvements.
- You may submit an independent assessment of the market value of the building, if performed by a licensed appraiser.
- If the cost of the improvement equals or exceeds 50% of the market value of the building, it is considered a Substantial Improvement and you must bring the entire building into full compliance – this may involve raising the foundation or other measures.
- If the costs do not trigger Substantial Improvement requirements, then you should still consider ways to reduce future damage ([see page 56](#)).



### Terms and Definitions

**Substantial Improvement** means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred substantial damage from any cause (flood, fire, earthquake, hurricanes, tornadoes, etc.), regardless of the actual repair work performed ([see page 61](#)).



### Important

### Information

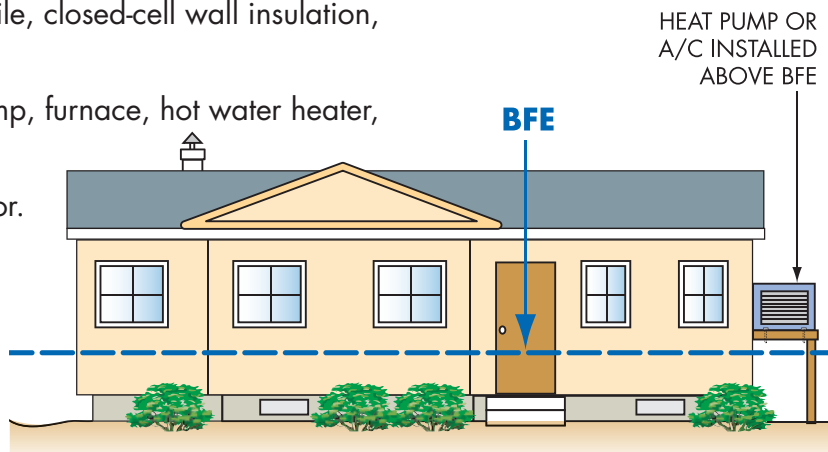
Improvements include:

- Renovation/rehabilitation of the interior of the existing building ([see page 57](#))
- Lateral addition, without renovation or structural alteration of the existing building ([see page 58](#))
- Lateral addition, with renovation or structural alteration of the existing building ([see page 59](#))
- Vertical addition (add new story)

## Non-Substantial Improvements

Your proposed improvements are “non-substantial” if the costs of all improvements are less than 50% of the market value of the building. Although you are not required to bring the existing building into compliance, elevation is the best way to reduce vulnerability. There are many other things you can do to reduce future flood damage. Find out the BFE at your location and consider the following:

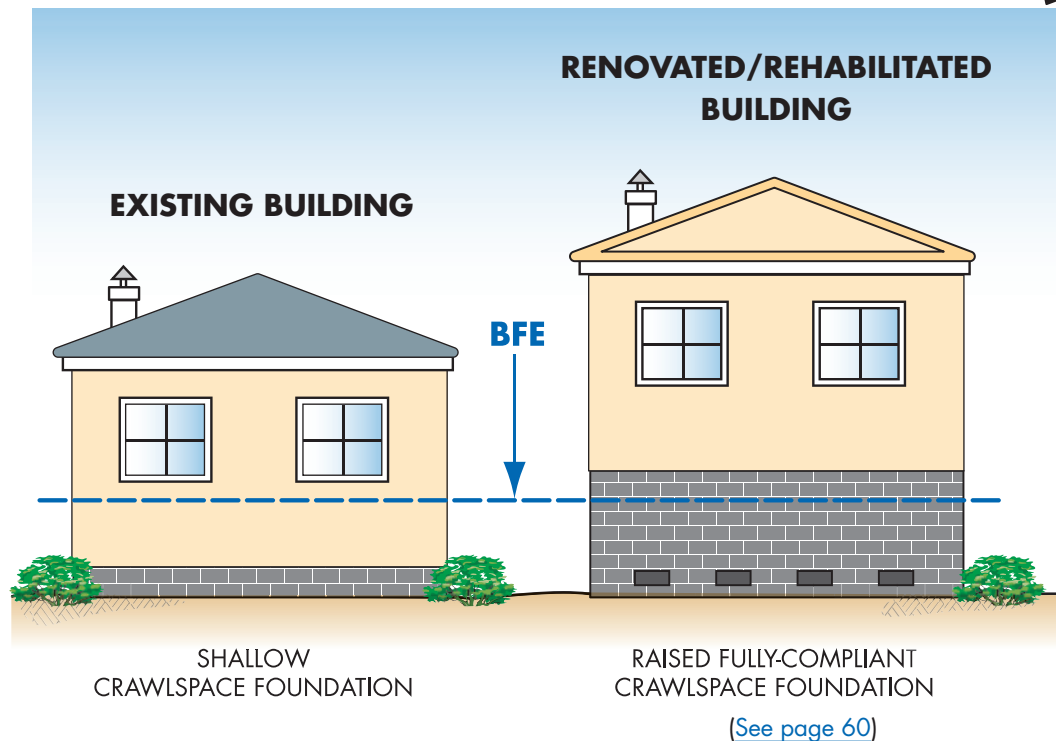
- Use flood resistant materials, for example tile, closed-cell wall insulation, and polyvinyl wall coverings.
- Raise air conditioning equipment, heat pump, furnace, hot water heater, and other appliances on platforms.
- Install electrical outlets higher above the floor.
- Move ductwork out of crawlspaces.
- Retrofit crawlspaces with flood openings.
- Fill in below-grade crawlspaces/ utility space.



**Note!** Be sure to include ALL proposed work in your initial permit application. If you add more work after the permit is issued, your community will make another evaluation for Substantial Improvement.



## Substantial Improvement: Renovation Only



**Important**

### Information

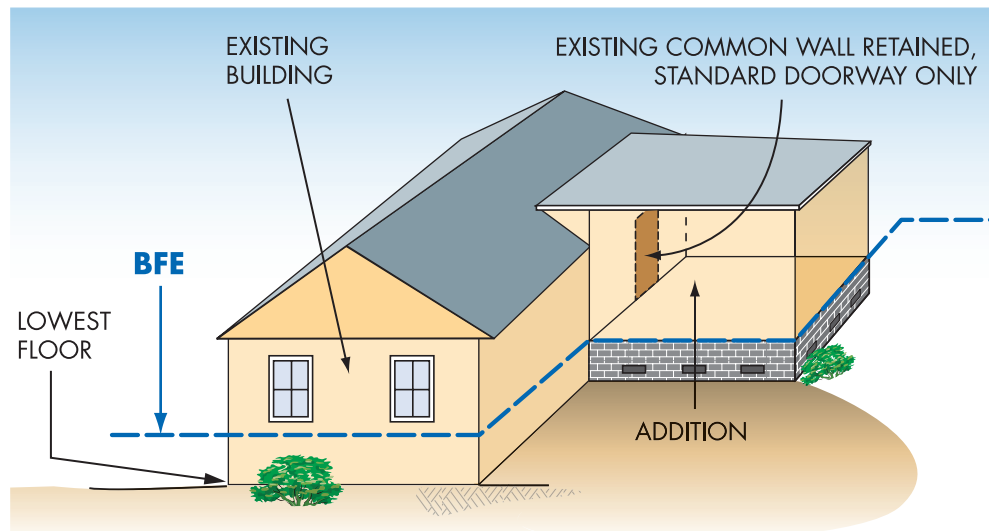
Floodplain buildings can be improved, renovated, rehabilitated or altered, but special rules apply.

Check with your local permit office before you begin. It will be easier to do it right the first time.

The cost to correct previously cited violations of State or local health, sanitary, or safety codes to provide safe living conditions can be excluded from the cost of renovations.

Alteration of a registered historic structure is allowed, by variance, as long as it will continue to meet the criteria for listing as a historic structure.

## Substantial Improvement: Lateral Addition Only



**Important**

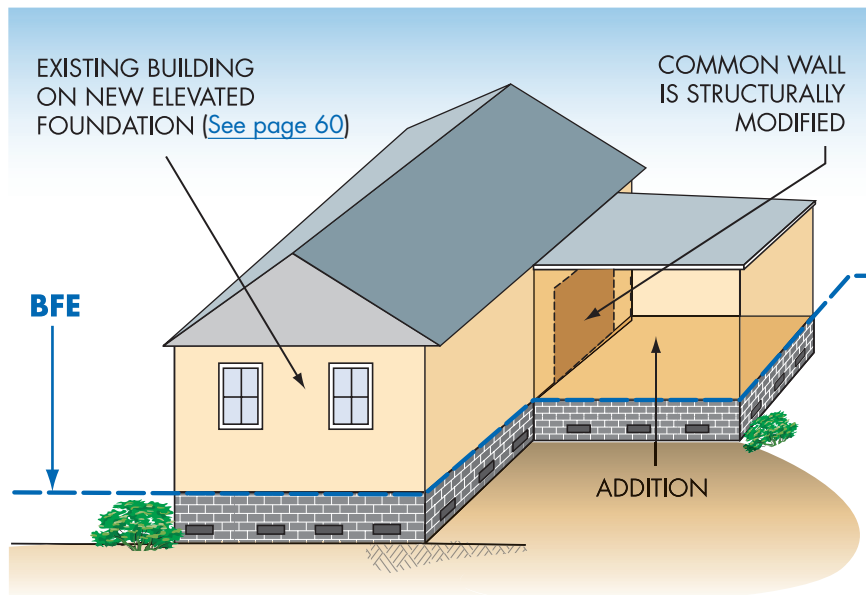
### Information

See [page 59](#) if your project to add a lateral addition also includes modifying the interior of the existing building or making structural modifications to the existing common wall.

You must get a permit to build an addition to your floodplain building. Only the addition must be built with the lowest floor at or above the Base Flood Elevation provided:

- You make no interior modifications to the existing building; and
- You make no structural modifications to the existing common wall other than adding a standard 36" doorway.

## Substantial Improvement: Addition Plus Other Work

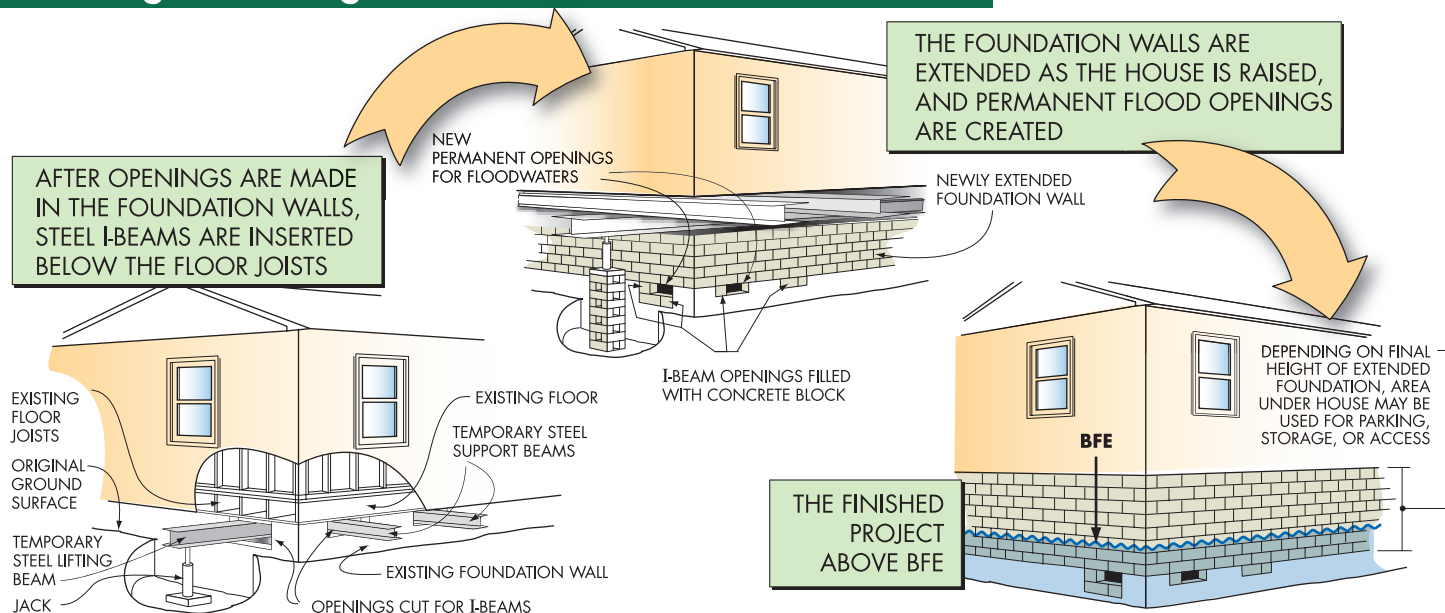


Your community must prepare an evaluation to determine if all of your proposed work will trigger the Substantial Improvement requirement. Substantial Improvement is triggered if:

- The work involves adding a new top floor, modifying the interior of the existing building, or structural modifications to the existing common wall (for lateral addition); and
- The cost of all proposed work plus the cost of improvements equals or exceeds 50% of the market value of the existing building.

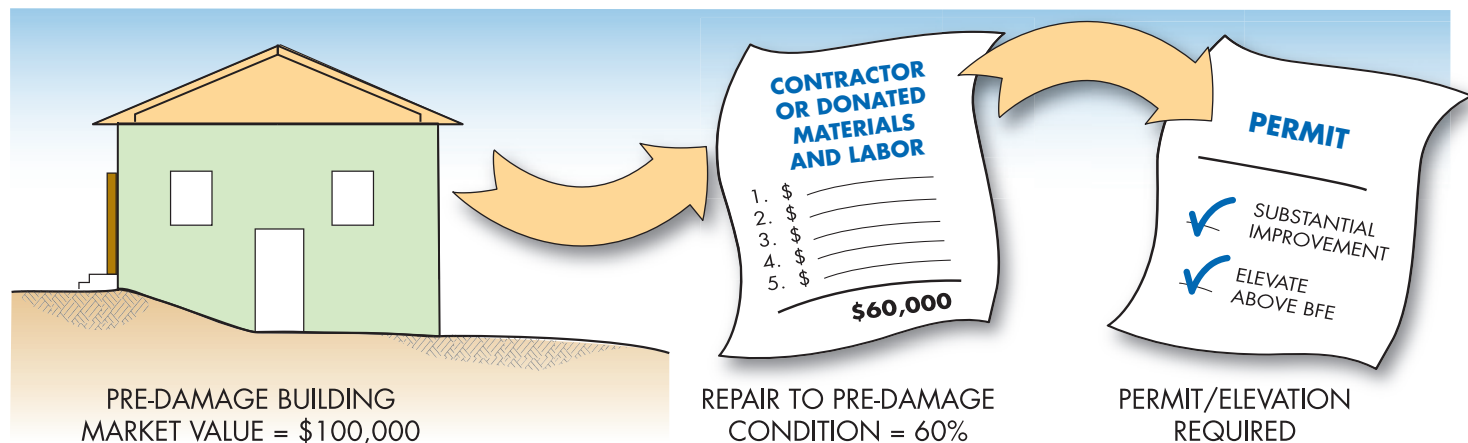
Your community's permit office can help determine which requirements apply. It is always a good idea to request a preliminary review before you get too far along with your plans.

## Elevating an Existing Structure



This is one way to elevate an existing building to comply with building code and floodplain regulations (also see FEMA P-312, *Homeowner's Guide to Retrofitting*). If an NFIP insured building is damaged by flood and the community determines it is substantially damaged, the owner may be eligible for an **Increased Cost of Compliance** claim payment ([see page 62](#)).

## What About After Damage?



A permit is required to repair a damaged floodplain building, regardless of cause — fire, flood, wind, or even vehicle impact. You will be asked to provide a detailed cost estimate to repair to pre-damaged condition. If the repair costs are 50% or more of the pre-damage market value of the building, then the building is substantially damaged and must be brought into compliance, which may involve raising the foundation or other measures. Check with your community before you begin repairs.

[See page 60](#) for more information about elevating an existing building above a crawlspace.

## Paying for Post-Flood Compliance

Owners may be eligible for up to \$30,000 to help pay to bring buildings into compliance with building code and community requirements – if all of the following apply:

- If they have NFIP flood insurance – it includes Increased Cost of Compliance (ICC) coverage.
- If the building is in a mapped Special Flood Hazard Area.
- If the building's lowest floor is below the elevation required by code.
- If the community has made an official determination the building was substantially damaged by flooding.
- If the owner acts quickly with the claims adjuster and community official to process all the required paperwork.
- See FEMA 301, *Increased Cost of Compliance: Guidance for State and Local Officials*.

Owners whose buildings are substantially damaged are required to “bring the building into compliance” with floodplain requirements. Substantial damage is a special case of substantial improvement.

### USE THE ICC CLAIM TO:



ELEVATE-IN-PLACE



RELOCATE TO  
HIGH GROUND

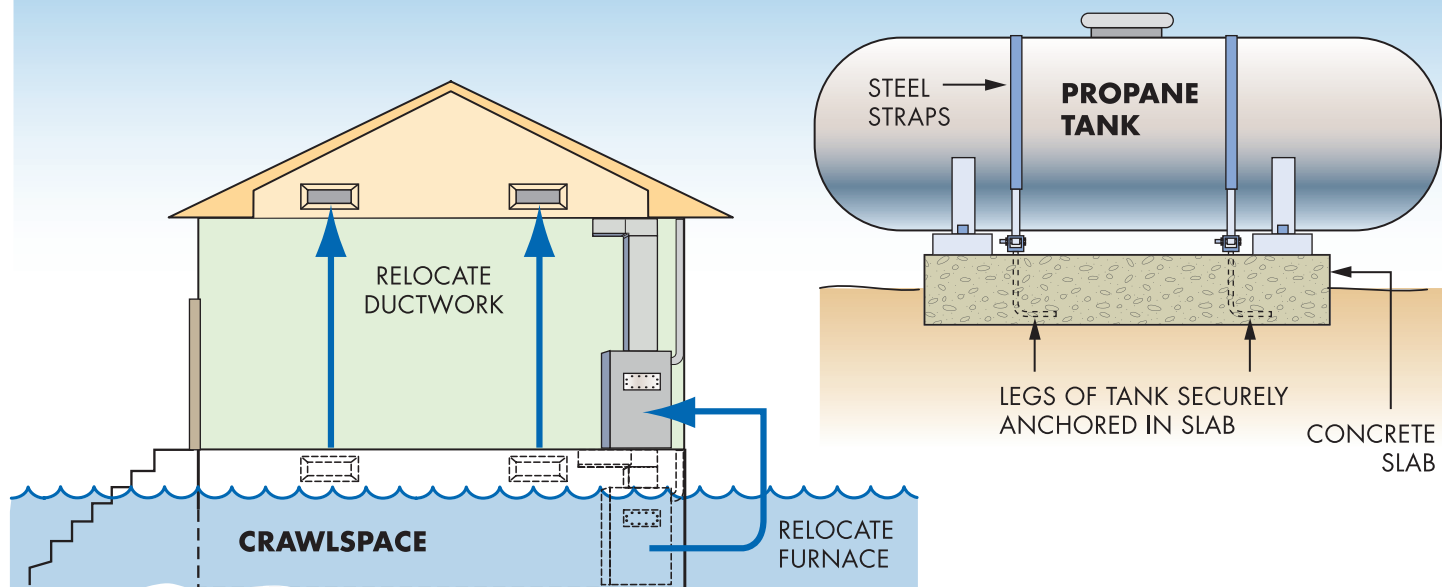


DEMOLISH



FLOODPROOF  
(NON-  
RESIDENTIAL  
ONLY)

## Some Flood Protection for Older Homes is Easy and Low Cost



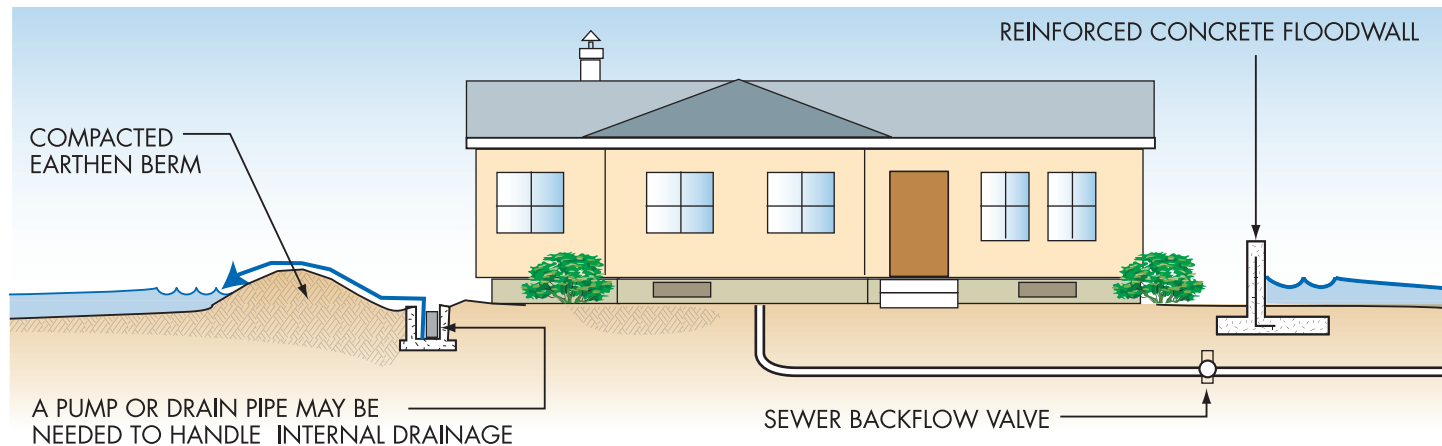
Move fuse boxes, water heaters, furnaces, and ductwork out of crawlspaces and basements.

Anchor heating oil and propane gas tanks to prevent flotation and lateral movement.

**Do not** store valuables or hazardous materials in a flood-prone crawlspace or basement.

Use water-resistant materials when you repair.

## Small Berms and Floodwalls Can Protect Older Buildings



In areas where floodwaters aren't expected to be deep, sometimes individual buildings can be protected by earthen berms or concrete floodwalls. Permits are required for these protection measures and extra care must be taken to avoid directing drainage and floodwater to adjacent properties, and if the site is in a floodway ([see page 39](#)). A small berm or floodwall does not eliminate elevation requirements and cannot be used to achieve compliance for a new or substantially improved building, or one that is repaired after sustaining substantial damage.

**Important!** These protective measures will not reduce your flood insurance premium!

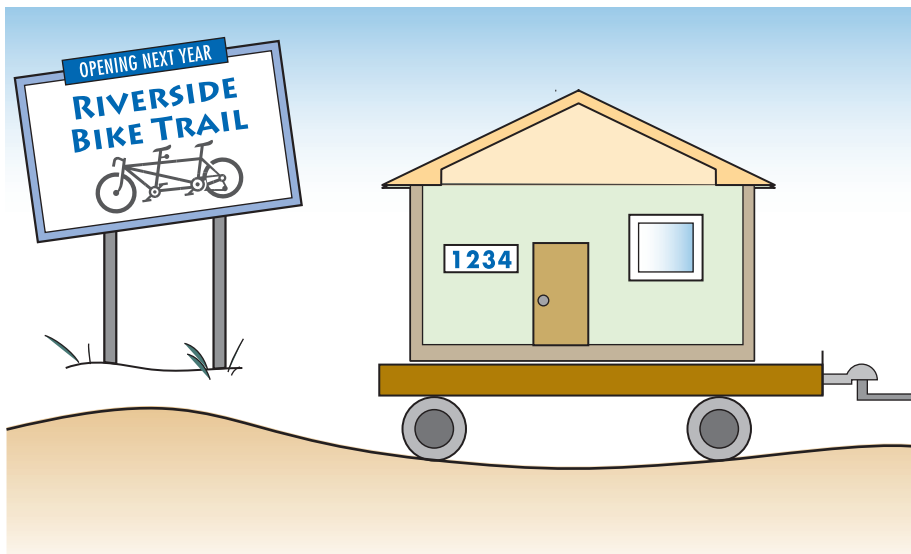


## Some Flood Mitigation Projects are More Costly

### But Give You More Protection

Some homes have been raised up on higher foundations, and others have been moved to safer high ground outside of the floodplain

Some communities buy out and demolish homes that were severely damaged. The acquired land is dedicated to open space and can be used for recreation or to help restore wildlife habitat and wetlands.



The New Jersey Office of Emergency Management administers FEMA mitigation grant programs.

Learn more at [www.state.nj.us/njoem/programs/opb\\_mitigation.html](http://www.state.nj.us/njoem/programs/opb_mitigation.html).

Communities interested in applying for grants should email [NJMitigation@gw.njsp.org](mailto:NJMitigation@gw.njsp.org).

## Be Prepared for Flood Emergencies

Everyone should be prepared for floods and other emergencies. You need to be prepared at home, at work, at school, and in your community.

Sometimes floods and other disasters can strike quickly and without warning. You may have to evacuate your neighborhood, workplace or school, or you may be trapped at home. Ask yourself – what would I do if basic services (water, gas, electricity and telephones) were interrupted, perhaps for several days? Local officials and emergency relief workers will be on the scene after disasters, but they cannot reach everyone right away. You need to be prepared to keep your family safer by preparing now:

- Learn about the risks in your community
- Make a family or workplace emergency plan
- Know where to go if you're told to evacuate
- Put together a disaster kit with supplies to last a couple of days

To learn more about preparing for disasters,  
visit the New Jersey Office of Emergency Management at [www.ready.nj.gov](http://www.ready.nj.gov).

## Turn Around Don't Drown®

Learn about flood risks and follow these safety rules:

- When flooding is expected, stay away from creeks, streams, and rivers.
- NEVER drive through flooded roads – they may be washed out.
- Passenger cars may float in only 12-24 inches of water.
- Be especially cautious at night when it is harder to recognize dangers.
- Just 6 inches of fast-moving water can knock you off your feet.
- <http://tadd.weather.gov>.



## Useful Resources and Common Acronyms

- New Jersey Association for Floodplain Management:  
[www.njafm.org](http://www.njafm.org)
- New Jersey's Floodplain Management Section:  
[http://www.nj.gov/dep/landuse/lu\\_bfm.html](http://www.nj.gov/dep/landuse/lu_bfm.html)
- Excerpts of the flood provisions of the UCC and Highlights of ASCE 24 :[www.njafm.org](http://www.njafm.org)
- NFIP regulations, Title 44 CFR:  
[www.fema.gov/national-flood-insurance-program-laws-regulations](http://www.fema.gov/national-flood-insurance-program-laws-regulations)
- CRS Resource Center:  
[www.fema.gov/national-flood-insurance-program-community-rating-system](http://www.fema.gov/national-flood-insurance-program-community-rating-system)
- New Jersey Building Officials Association, Inc.:  
[www.newjerseyboa.com](http://www.newjerseyboa.com)

## Common Acronyms

- BFE = Base Flood Elevation
- EC = Elevation Certificate
- FIRM = Flood Insurance Rate Map
- ICC = Increased Cost of Compliance
- NFIP = National Flood Insurance Program
- SFHA = Special Flood Hazard Area (100-year floodplain)
- UCC = NJ Uniform Construction Code

## Want to Learn More?

- For information and advice on permits, call your community's building permit office or planning department.
- For information about workshops, training and conferences, contact [secretary@njafm.org](mailto:secretary@njafm.org).
- To learn more about flood maps, view and obtain maps, and contact FEMA map specialists, go to [www.fema.gov/national-flood-insurance-program-flood-hazard-mapping](http://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping).
- FEMA's on-line publications can be found in the FEMA Library ([www.fema.gov/library/](http://www.fema.gov/library/)) or by using an Internet search engine to search by the publication number or title. You can order printed copies of FEMA publications from FEMA Publications at (800) 480-2520.
- To learn about flood insurance, call your insurance agent. Most insurance companies can write an NFIP policy for you. Call the National Flood Insurance Program at (888) 379-9531 to get the name of an agent in your area who writes flood insurance.
- To learn the importance of taking steps to financially protect homes and businesses from flood damage go to [www.floodsmart.com](http://www.floodsmart.com).

This **Quick Guide** may be downloaded from the  
**New Jersey Association for Floodplain Management:**  
[www.njafm.org](http://www.njafm.org)