

2009



FLOODPLAIN MANAGEMENT IN ALABAMA

Quick Guide

Alabama Department of Economic and Community Affairs

Office of Water Resources, Floodplain Management Branch

National Flood Insurance Program



Table of Contents

1	<u>About This Guide</u>	21	<u>Levee Certification for FEMA Flood Maps</u>
2	<u>Introduction</u>	22	<u>Flood Map Revisions: LOMAs and LOMR-Fs</u>
3	<u>Why Do Communities Regulate the Floodplain?</u>	23	<u>Flood Map Revisions: CLOMRs and LOMRs</u>
4	<u>What is the National Flood Insurance Program?</u>	24	<u>Is Your Building Site Higher than the BFE?</u>
5	<u>Community Responsibilities</u>	25	<u>Activities in SFHAs that Require Local Permits and Approvals</u>
6	<u>Flood Insurance: Property Owner's Best Protection</u>	26	<u>Some Key Floodplain Development Permit Review Steps</u>
7	<u>The NFIP's Community Rating System (CRS)</u>	27	<u>Applying for a Floodplain Development Permit</u>
8	<u>Alabama's Flood Map Modernization Program</u>	28	<u>Alabama's Coastal Area Management Program</u>
9	<u>Looking for FEMA Flood Map Information?</u>	29	<u>Safer Uses of the Floodplain</u>
10	<u>FIRMette: FEMA Flood Maps Online</u>	30	<u>What is Meant by Pre-FIRM and Post-FIRM Structures?</u>
11	<u>Understanding the Riverine Floodplain</u>	31	<u>Nature Doesn't Read Flood Maps</u>
12	<u>Understanding the Floodway</u>	32	<u>Think Carefully Before You Seek A Floodplain Variance</u>
13	<u>Flood Insurance Rate Map (Riverine)</u>	33	<u>Freeboard: Build Higher, Reduce Damage, Save on Insurance</u>
14	<u>Old Format Flood Insurance Rate Map</u>	34	<u>What is the Elevation Certificate and How is it Used?</u>
15	<u>Use the Riverine Flood Profile to Determine Riverine BFEs</u>	35	<u>Completing the Elevation Certificate</u>
16	<u>Approximate Flood Zones</u>	36	<u>Paperwork is Important – for You and Your Community</u>
17	<u>Limited Detailed Study</u>	37	<u>Floodplain Fill Can Make Things Worse</u>
18	<u>Understanding the Coastal Floodplain</u>	38	<u>Required "No Rise" Certification</u>
19	<u>Flood Insurance Rate Map (Coastal)</u>	39	<u>How to Elevate Your Floodplain Building (Riverine)</u>
20	<u>The Coastal A Zone (CAZ)</u>	40	<u>Compaction of Floodplain Fill (A Zones)</u>

Table of Contents (continued)

41	<u>Enclosures Below the Lowest Floor (A Zone)</u>
42	<u>Crawlspace Details (A Zone)</u>
43	<u>Basements Are Especially Flood-Prone</u>
44	<u>Manufactured Homes Require Special Attention</u>
45	<u>Typical Elevation Methods for Coastal Buildings</u>
46	<u>Coastal Houses Must Resist Wind and Water Forces</u>
47	<u>Enclosures Below V Zone Buildings</u>
48	<u>V Zone Certification</u>
49	<u>Utility Service Outside Buildings</u>
50	<u>Utility Service Inside Enclosures</u>
51	<u>Accessory Structures</u>
52	<u>Recreational Vehicles</u>
53	<u>Planning to Improve Your Floodplain Building?</u>
54	<u>Non-Substantial Improvements</u>
55	<u>Substantial Improvement: Renovation Only</u>
56	<u>Substantial Improvement: Lateral Addition Only</u>
57	<u>Substantial Improvement: Addition Plus Other Work</u>
58	<u>What About After Damage?</u>
59	<u>Paying for Post-Flood Compliance</u>
60	<u>Elevating a Pre-FIRM Building</u>

61	<u>Some Flood Protection for Older Homes is Easy and Low Cost</u>
62	<u>Some Flood Mitigation Projects are More Costly</u>
63	<u>Be Prepared for Flood Emergencies</u>
64	<u>Turn Around Don't Drown™</u>
65	<u>Useful Resources and Common Acronyms</u>
66	<u>Want to Learn More About Floodplain Management?</u>
67	<u>Want to Learn More About Flood Insurance?</u>
68	<u>Alabama Association of Floodplain Managers</u>

Prepared by:

RCQUINN
CONSULTING, INC.

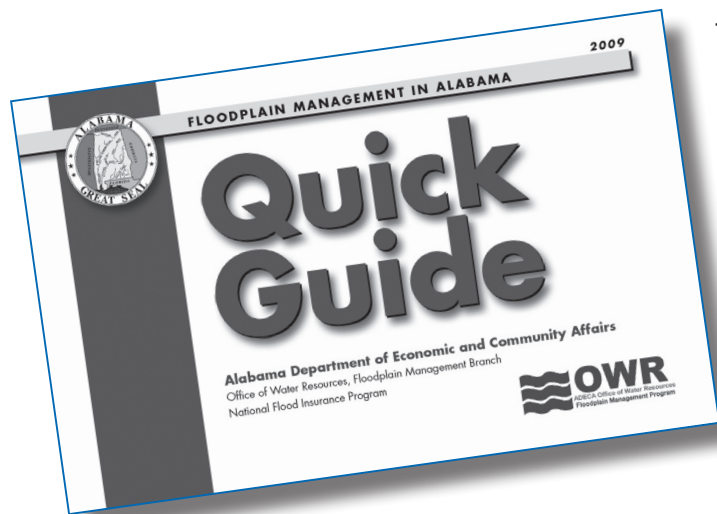
www.rcquinnconsulting.com

In association with:



This publication is supported with funding from the U.S. Department of Homeland Security, FEMA. It does not necessarily reflect the views of that agency.

About This Guide



This **Quick Guide** will help you understand more about why and how communities in the State of Alabama manage floodplains to protect people and property.

Flood-prone communities adopt ordinances and building codes that detail the rules and requirements for floodplain development. In case of conflict, that ordinance and not this publication, must be followed. If you have questions, be sure to talk with your local planning, permit, engineering, or floodplain management officials.

For questions about floodplain management and comments on the **Quick Guide**, call the Office of Water Resources (OWR) at (334) 242-5499 or 1-877-ALA-WATER (1-877-252-9283) and ask for the NFIP State Coordinator's office. You may email us at water@adeca.alabama.gov. Visit www.adeca.alabama.gov/floods.

Introduction

The Alabama Office of Water Resources, Floodplain Management Branch, is pleased to provide this **Quick Guide** to help our citizens understand what floodplain management is and why floodplain development is regulated.

Counties and local communities regulate development in floodplains to:

- **Protect** people and property
- **Ensure** that Federal flood insurance and other disaster assistance are available
- **Save** tax dollars
- **Reduce** liability and lawsuits
- **Reduce** future flood losses

Floods have been, and continue to be, a destructive natural hazard in terms of economic loss to the citizens of Alabama. Since 1978, Federal flood insurance policy holders in Alabama have received over \$923 million in claim payments. Even though that represents many insurance payments, most of the State's flood-prone property owners do not have flood insurance.



Why Do Communities Regulate the Floodplain?

- **To protect people and property.** Floodplain management is about building smart. It makes good sense. If we know part of our land will flood from time to time, we should be able to make reasonable decisions to help protect our families, homes, and businesses.
- **To make sure that Federal flood insurance and disaster assistance are available.** Federal flood insurance is available only in communities that agree to regulate floodplain development. Standard homeowners insurance does not cover flood damage. If your home or business is in the floodplain, and Federal flood insurance isn't available, then you can't get some types of Federal financial assistance. Home mortgages will be hard to find and you won't be able to get some types of State and Federal loans and grants.
- **To save tax dollars.** Every flood disaster affects your community's budget. If we build smarter in and near floodplains, we'll have fewer problems the next time the water rises. Remember, Federal disaster assistance isn't available for all floods. And even when the President declares a disaster, most of the time your community still has to pay a portion of the costs of evacuation, temporary housing, repair, and clean-up.
- **To avoid liability and lawsuits.** If we know an area is mapped as a floodplain, if we know people could be in danger, and if we know that buildings could be damaged, it makes sense to take reasonable protective steps when we develop and build.
- **To reduce future flood losses in Alabama.** Development that complies with the minimum floodplain management requirements is better protected against major flood-related damage.

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 20,200 communities participate in the NFIP— nearly all of Alabama’s flood-prone communities 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.** In partnership with FEMA, the State produces flood maps 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.gov.

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 all types of development in the floodplain ([see page 25](#)).
- **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 or floodproofed above the BFE.
- **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

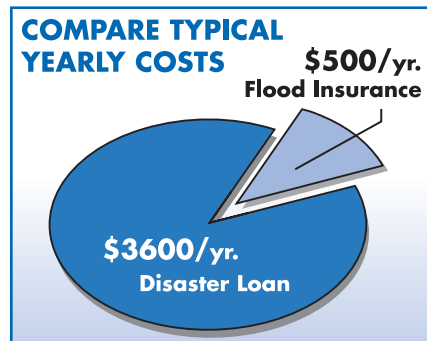
Who needs flood insurance? Federal flood insurance is required for all buildings in mapped Special Flood Hazard Areas (SFHAs) shown on FEMA's maps if they are financed by Federally-backed loans or mortgages. All homeowners, business owners, and renters in communities that participate in the NFIP may 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 that those structures will be overtopped or fail. If your community's levee provides "100-year" flood protection, there is still a chance that 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.gov. To purchase a policy, call your insurance agent. To get the name of an agent in your community, call the NFIP's toll free number (888) 356-6329.



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
- Develop hazard mitigation plans
- Undertake engineering studies and prepare flood maps
- Obtain grants to buy out or elevate houses or to floodproof businesses
- Enforce higher standards for safer development through zoning, stormwater, subdivision, and flood damage protection ordinances
- 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 66](#)).

Property owners in 15 Alabama local jurisdictions that qualify for the CRS receive premium discounts ranging from 5% to 20% (as of 2008).

Alabama's Flood Map Modernization Program

Alabama entered into a partnership with FEMA to develop and update flood hazard maps for all counties and incorporated municipalities. The State works with communities to identify map needs and to facilitate the formal process to adopt revised maps.

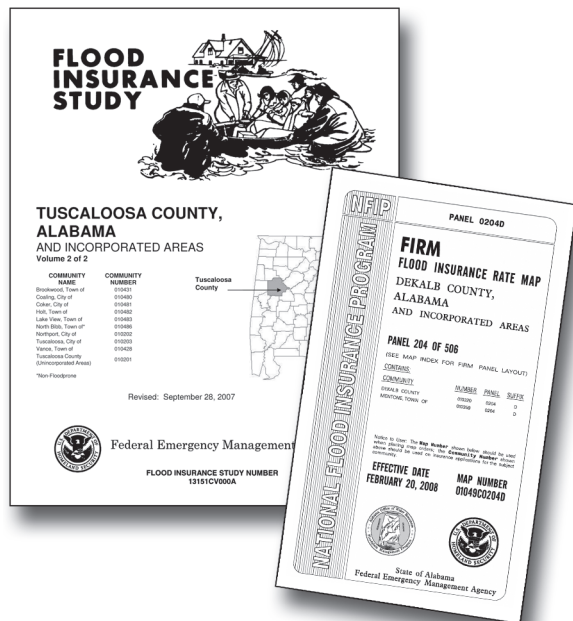
The new Digital Flood Insurance Rate Maps (DFIRMs) are designed to view digitally on a computer within a Geographic Information System (GIS), as a raster image in Portable Document Format (pdf), or as paper maps. Digital flood maps are composites of base data, topographic data, and flood layers that can be overlain with local parcel information or other data to more easily determine if a house or other property is or will be located in a floodway or floodway fringe.



Benefits of Alabama's Initiative:

- Help communities and property owners to make better decisions about locating and designing new developments or rebuilding after disasters
- Allow online access 24 hours a day
- Easy way for citizens to learn about their risk of flooding and the value of purchasing flood insurance

Looking for FEMA Flood Map Information?



- Enter the FEMA Flood Map Service Center at <http://msc.fema.gov>. Digital scans of flood maps can be downloaded. Maps on CD-ROMs and hardcopy maps can be ordered. Call the Flood Map Service Center at (800) 385-9616.
- Most FIRMs show Special Flood Hazard Areas (SFHAs, also called the “1% annual chance floodplain”) and floodways. Some FIRMs show floodplains delineated using approximate methods.
- Not all waterways have designated floodplains—but all waterways will flood, even though a floodplain study may not have been prepared.

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

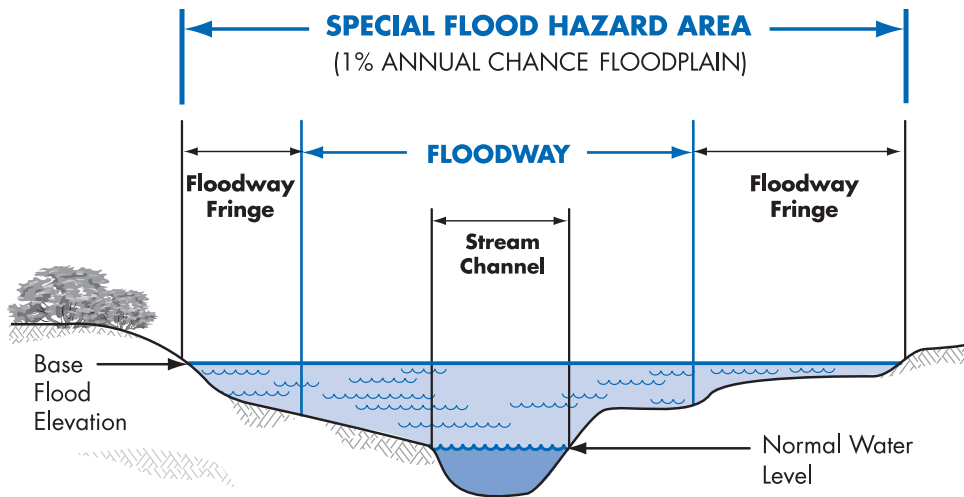
FIRMette: FEMA Flood Maps Online



You can find and print a portion of a FIRM by using online tools at <http://msc.fema.gov>.

- Use "Product Search by Address" on the left OR click on "Product Catalog" at the top of the page, select "FEMA Issued Flood Maps", select the State, county and community, then click on "Find FEMA Issued Flood Maps"
- Click the "View" button to display the map panel and use "Zoom" to enlarge the map.
- Use the pan and zoom tools to find the specific area of interest – a miniature map on the left side of the screen shows a red box around the area you are viewing.
- Click the "Make a FIRMette" button and drag the pink translucent box over the area you wish to print.
- Select paper size and Adobe Acrobat (pdf) or Image File (tif).
- Your FIRMette will be displayed and you can print the map or save the file to your hard drive.

Understanding the Riverine Floodplain



For floodplains with Base Flood Elevations (BFEs) determined by detailed flood studies, the Flood Profile in the Flood Insurance Study (FIS) shows water surface elevations for different frequency floods ([see page 15](#)).



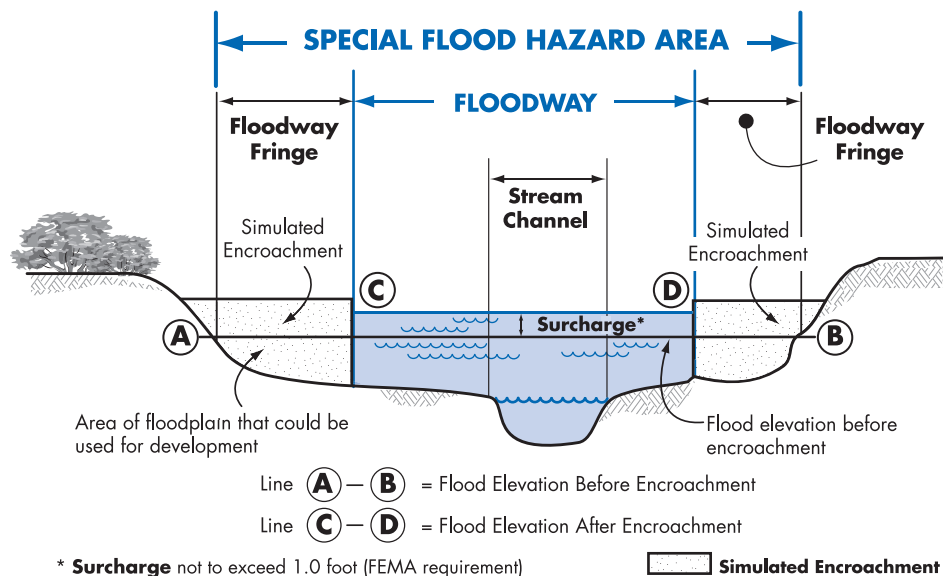
Terms and Definitions

The **Special Flood Hazard Area (SFHA)** is that portion of the floodplain 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 numbered A Zones (A1-A30).

[See page 12](#) to learn about the floodway, the area of the floodplain where flood waters usually are deeper and flow faster.

[See page 6](#) to learn about flood insurance requirements in SFHAs.

Understanding the Floodway



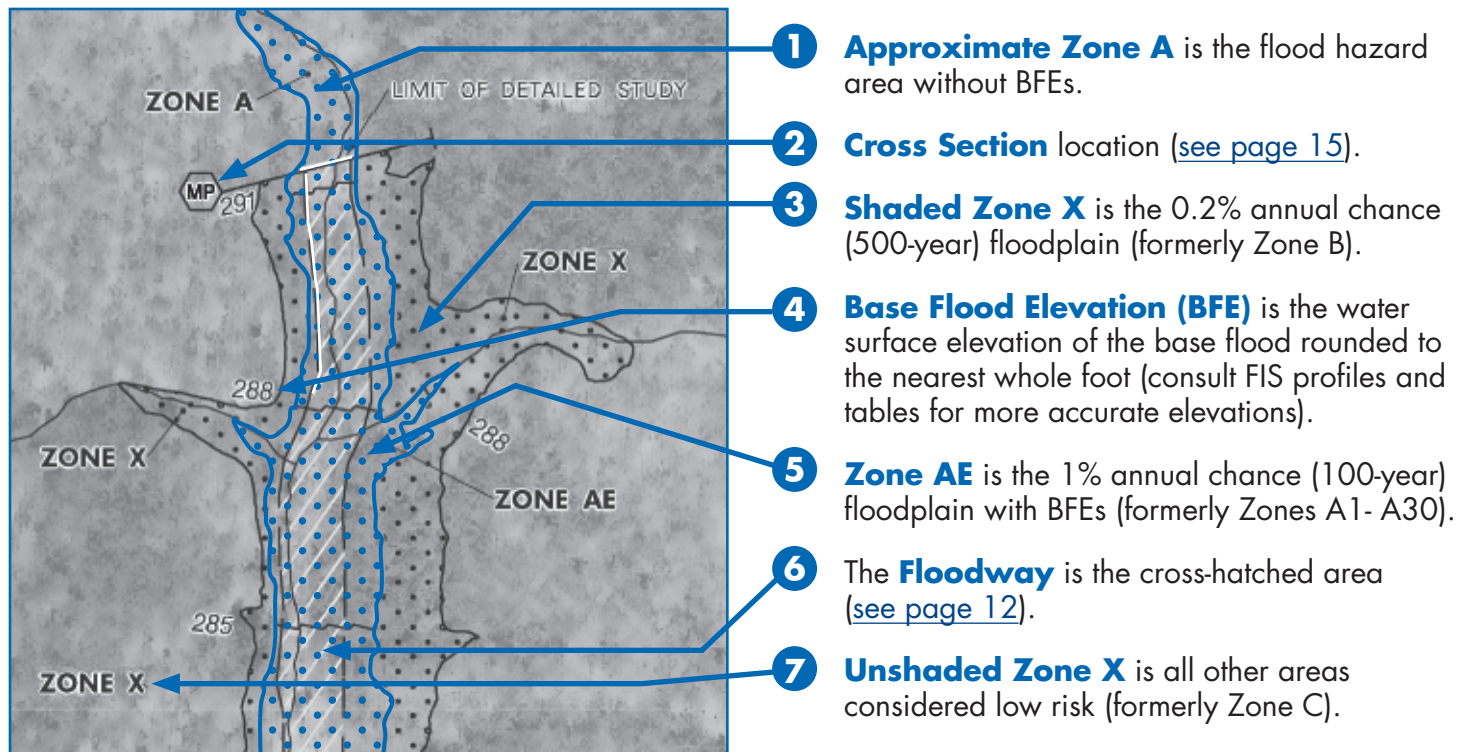
Terms and Definitions

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.

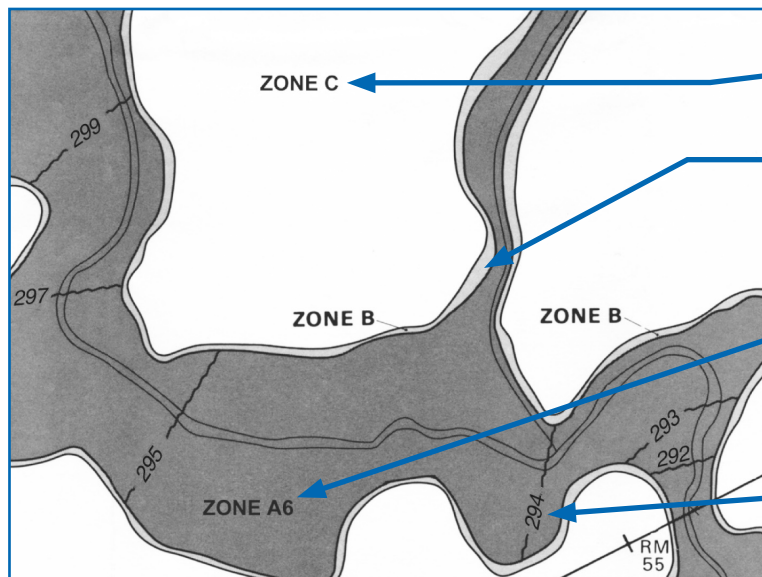
Computer models of the floodplain are used to simulate “encroachment” or development in the flood fringe in order to predict where and how much the Base Flood Elevation would increase if the floodplain is allowed to be developed.

For any proposed floodway development, permit applicants 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 23](#)). You will need an experienced registered 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)



Old Format Flood Insurance Rate Map

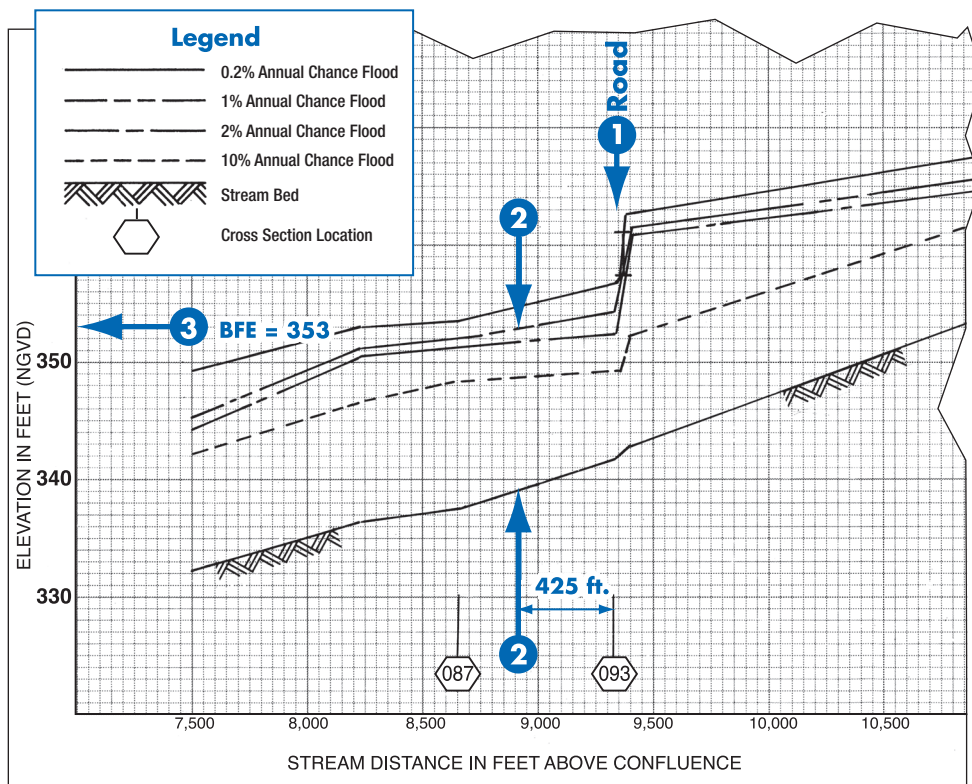


RIVERINE FLOOD HAZARD ZONES

- 1 Zone C** (or Zone X) is all areas considered to be low risk.
- 2 Zone B** (or shaded Zone X) is moderate risk areas subject to flooding by the 0.2% annual chance flood (500-year).
- 3 Zone A, Zones A1-A30 or Zone AE** are subject to flooding by the base or 1% annual chance flood (100-year), and are considered high risk areas.
- 4 Base Flood Elevation (BFE)** is the water surface elevation of the base flood, in feet above the vertical datum shown on the map.

FEMA prepares Flood Insurance Rate Maps (FIRMs) to show areas that are at high risk of flooding. These “old format” FIRMs, and companion Flood Boundary and Floodway Maps ([next page](#)), are being replaced as part of the Alabama Flood Map Modernization Program ([see page 8](#)).

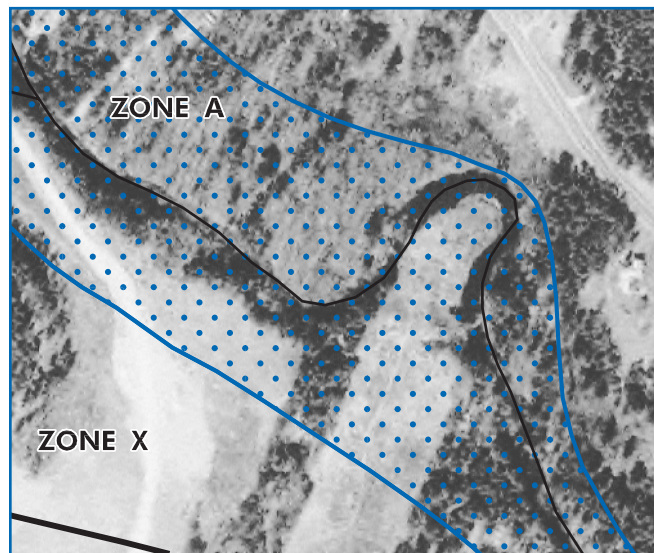
Use the Riverine Flood Profile to Determine Riverine BFEs



Use the Flood Profiles in the FIS to determine the BFE at a specific site:

- 1 On the FIRM, locate a cross section, bridge, or other feature near your site (e.g., the road at cross section 093). Measure the distance from the cross section or bridge to your site, measuring along the center-line of the stream channel (e.g., 425 ft downstream).
- 2 Using that measurement and paying attention to the scale on the bottom axis of Flood Profile, find your site.
- 3 Read up to the water surface profile of interest (100-year), then across to the side axis to find the BFE (e.g., 353 ft).

Approximate Flood Zones



Approximate flood zones are delineated using historical information and methods to approximate the floodplain. Data on BFEs may be available from the USDA Natural Resources Conservation Service, US Army Corps of Engineers, private engineering firms, or these Alabama State agencies: Conservation; Forestry; Transportation.

For help determining BFEs in Approximate A Zones, check with your community's planning, engineering, or permit office or contact the OWR Floodplain Management Branch.

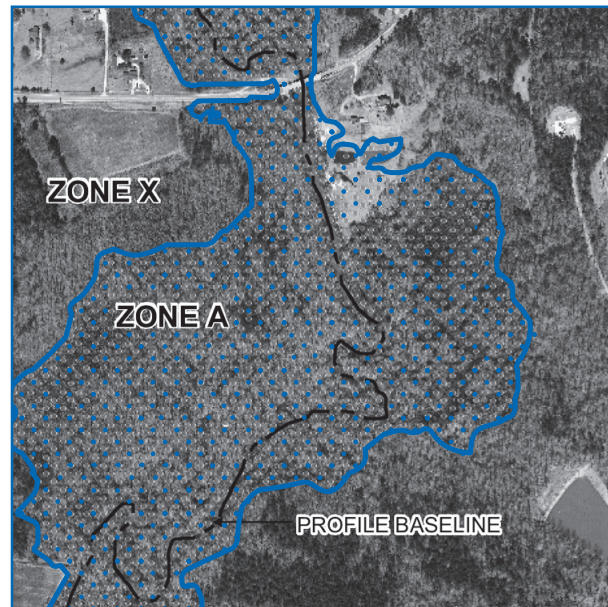
The FEMA publication *Managing Floodplain Development in Approximate Zone A Areas* (FEMA 265) is useful for engineers and community officials.

Even if the estimated BFE indicates flooding might be only a foot or two deep, it is recommended that the lowest floor be at least 3 feet above the highest adjacent grade. Not only does this improve flood protection, but lower flood insurance premiums may apply.

Limited Detailed Study

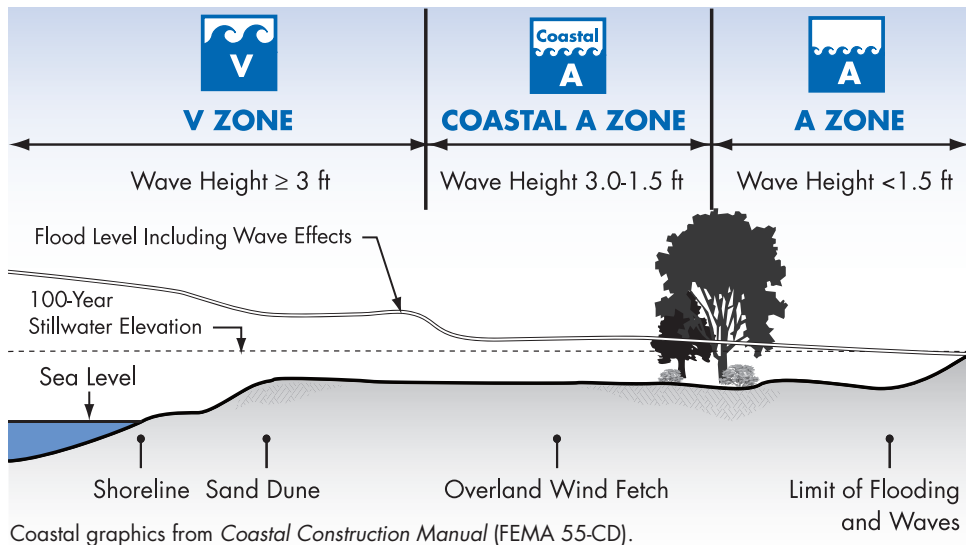
Limited Detailed Study (LDS) is a type of approximate flood study that is based on available topography and other information, but does not include field surveyed bridges, culverts, or channel cross-sections. SFHAs delineated using LDS methods are shown as “Zone A.”

Communities with waterways studied using the LDS method receive a Limited Detailed Study report that contains information on estimated 1% annual chance flood water surface elevations. When development is proposed in these areas, the distances marked along the stream on the map are used to locate the site of the development, and the water surface elevation for that location is found in the LDS report. This elevation is used for floodplain management purposes.



If you are proposing any development activity in a Zone A area, check with your community's planning, engineering or permit office to get the BFE data necessary to plan and design your project.

Understanding the Coastal Floodplain



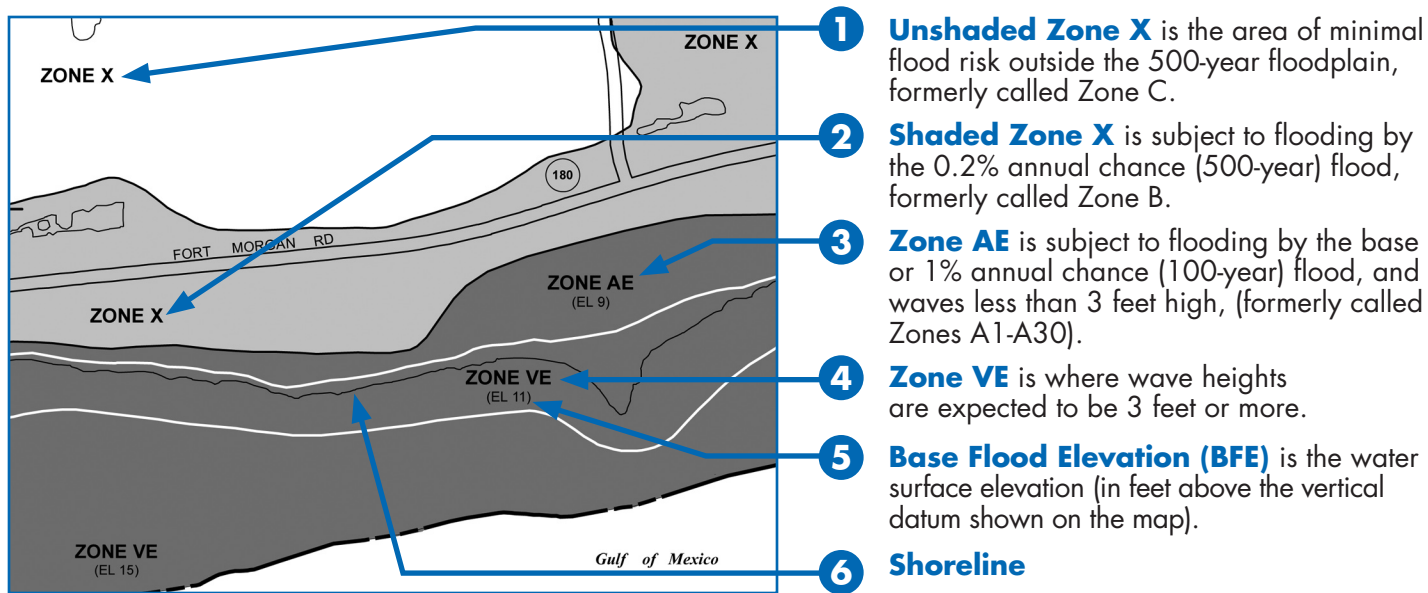
Areas subject to Coastal A Zone conditions (wave heights between 3 feet and 1.5 feet) may not be shown on FIRMs ([see page 20](#)). Some communities may treat the CAZ area as a V Zone and require development to comply with the V Zone requirements.

Terms and Definitions

The **Coastal High Hazard Area (V Zone)** 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** refers to the portion of the SFHA landward of the V Zone or landward of a shoreline that does not have a mapped V Zone. The principal sources of flooding are associated with astronomical tides, storm surges, seiches or tsunamis. Coastal A Zones may be subject to wave effects, velocity flows, erosion, scour or combinations of these forces.

Flood Insurance Rate Map (Coastal)

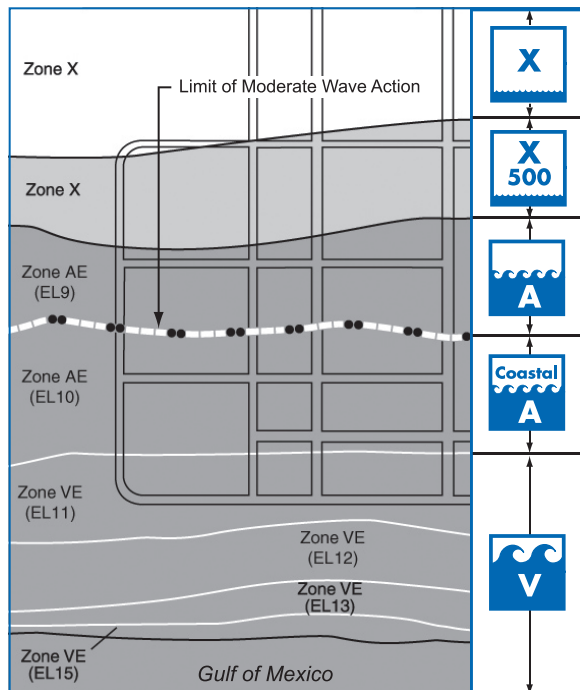



Coastal Barrier Resources System (CBRS) Areas


Otherwise Protected Areas (OPA)

In Coastal Barrier Resource System (CBRS) Areas, known as "CoBRA Zones", and in Otherwise Protected Areas (OPAs) shown on the FIRM, NFIP flood insurance is not available for new or substantially improved structures built after the date the areas were identified.

The Coastal A Zone (CAZ)



For illustrative purposes only. Flood Insurance Rate Maps do not show the Coastal A Zone Boundary depicted in this example (heavy dashed line).

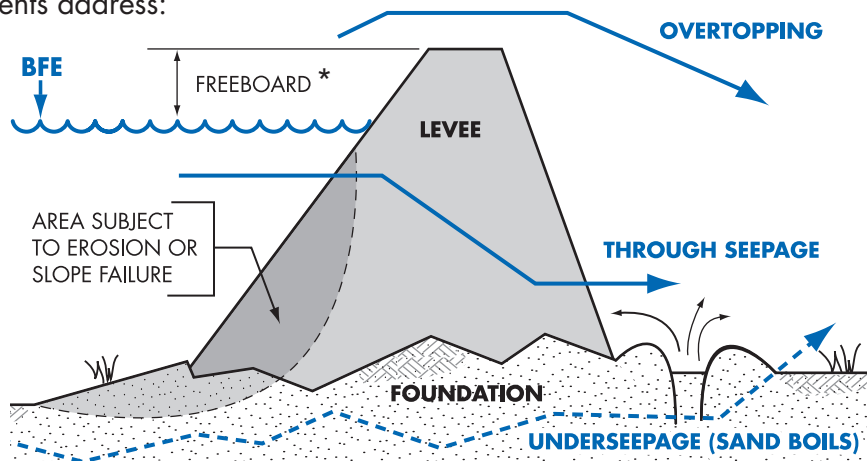
- Post-flood evaluations and laboratory tests confirm that breaking waves as small as 1.5 feet high cause damage to walls and scour around foundations.
- The Limit of Moderate Wave Action may be shown on revised FIRMs.
- CAZ conditions are found inland of V Zones and along shorelines without V Zones.
- CAZ conditions occur where stillwater depths are between 2 and 4 feet, which can support 1.5 to 3-foot waves ([see page 22](#)).
- V Zone construction methods are recommended in CAZs, including pile, post and column foundations and breakaway walls around enclosures.
- Raising the lowest horizontal structural member of the lowest floor higher than the BFE is recommended.
- Federal flood insurance in CAZs is rated using A Zone rates (lower than V Zone rates).

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:

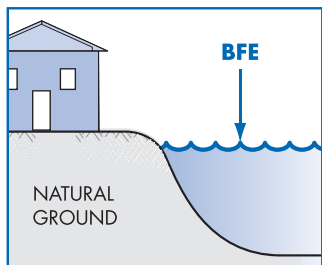
- Freeboard
- Closures
- Embankment protection for erosion
- Embankment and foundation stability
- Settlement
- Interior drainage and seepage
- Operation and maintenance plans
- Other site specific criteria



* Freeboard is the distance between the BFE and the top of the levee; for FEMA accreditation freeboard is at least 3 feet.

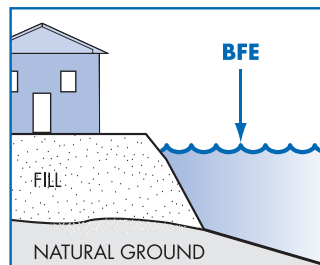
Flood Map Revisions: LOMAs and LOMR-Fs

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 Professional Land Surveyor or Civil Engineer, such as ground and building elevations 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 is issued to document FEMA's determination that a structure or parcel of land has been elevated by fill

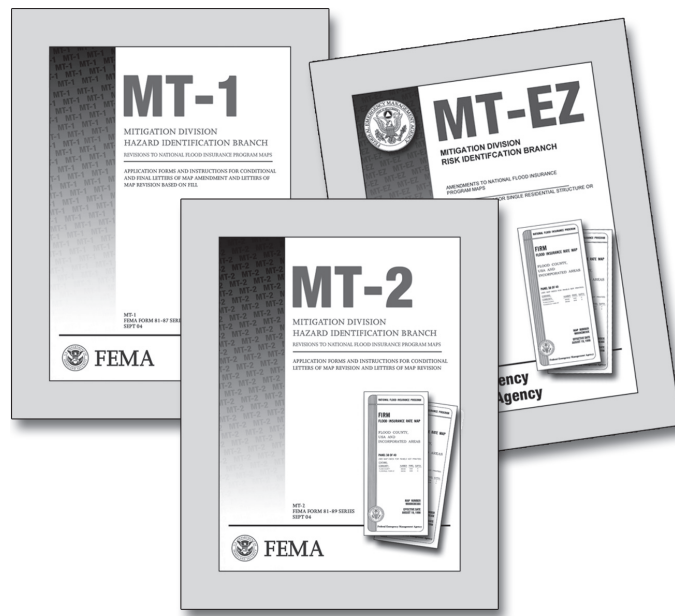
above the BFE, and therefore is no longer in the SFHA. Lenders may waive the insurance requirement if the LOMR-F removes a building site from the SFHA.

Check online at www.fema.gov/plan/prevent/fhm/ for more about map revisions for different user groups (homeowners, floodplain managers, surveyors, engineers and insurance professionals).

Also learn about **eLOMA**, a web-based application for Land Surveyors and Civil Engineers to submit applications for simple LOMAs to FEMA.

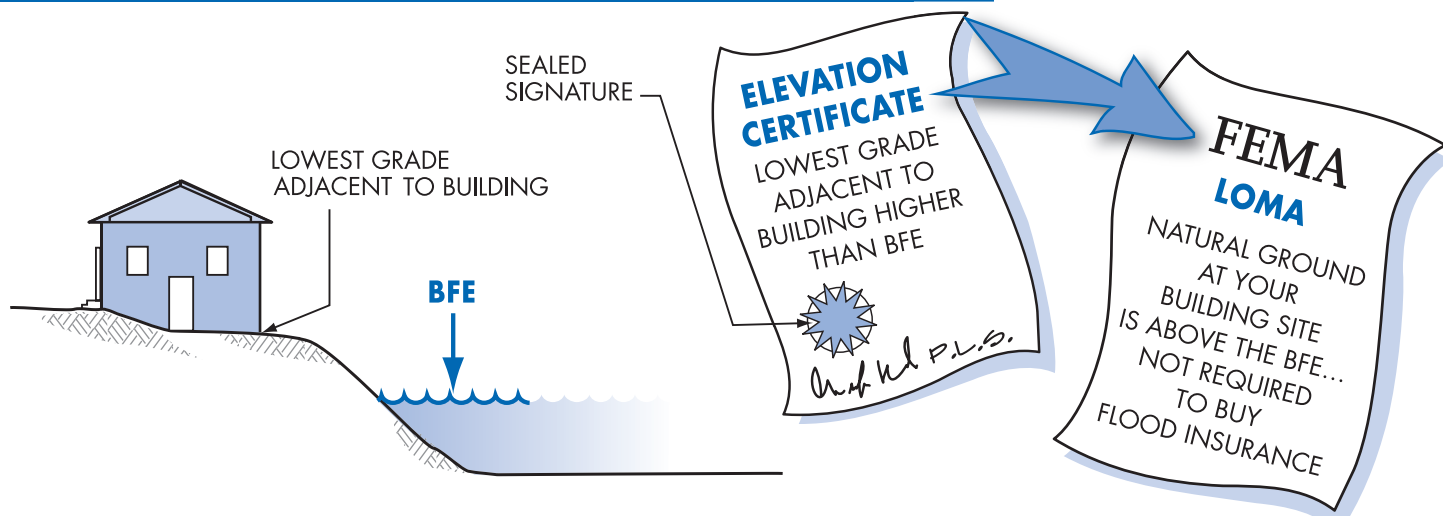
Flood Map Revisions: CLOMRs and LOMRs

- **Conditional Letter of Map Revision (CLOMR)** is a letter commenting 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.



To download the forms used to submit map revisions, go to www.fema.gov/library, click on “Search by Resource Title,” and search on “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 Professional Land Surveyor or Civil Engineer to complete a FEMA Elevation Certificate. 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 22](#)). 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
- Renovation 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
- Alteration of stream channels



You need local floodplain development permits for these and **ANY** land-disturbing activities in SFHAs.

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?
- Have other State and Federal permits been obtained?
- 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?



Applying for a Floodplain Development Permit

Owner's Name: <u>DAVID & SALLY JONES</u>		Part of a Sample Application (may vary by community)
Site Address, Tax #, Parcel #: <u>781 REED STREET, 025-1-182-00-0</u>		
A. Description of Work 1. <input checked="" type="checkbox"/> 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 2. Size and Location of Development <u>SINGLE FAMILY (2,000 CY FILL);</u> <u>FLOODWAY FRINGE OF OAK CREEK</u> 3. <input checked="" type="checkbox"/> 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 checked="" type="checkbox"/> Accessory structure <input type="checkbox"/> Temporary		Community, Map, and Elevation Data: 1. Community No: <u>010030</u> 2. Panel No: <u>0100300785L</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>
Applicant's Signature: <u>David M. Jones</u>		

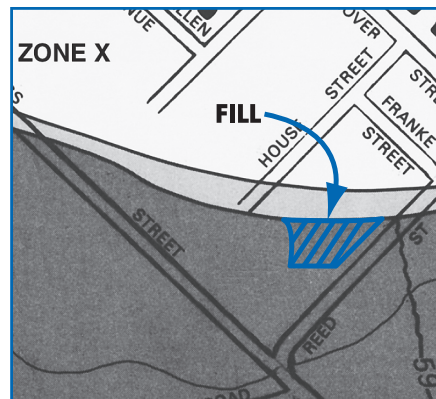
Good information will lead to better construction and less exposure to future flood damage.



Important

Information

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



Alabama's Coastal Area Management Program

Alabama's Coastal Area Management Program regulates various activities in the coastal area. The coastal area includes the waters and adjacent shorelines lying seaward of the continuous 10-foot contour in Baldwin and Mobile counties.

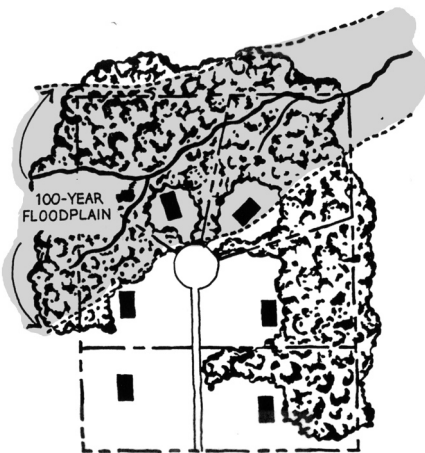
The Alabama Department of Environmental Management (ADEM) issues coastal program permits and makes "coastal consistency determinations." Anyone proposing to engage in certain activities may be required to obtain ADEM's approval, in addition to other permits (such as local building permits).

Regulated structures include gazebos, dune walkovers, houses, duplexes, motels, hotels, and condominiums, and existing buildings that are to be substantially improved ([see page 53](#)). Other regulated activities include beach and dune construction projects, developments and subdivision of properties greater than 5 acres in size, dredging and filling of state water bottoms and wetlands, discharges of treated wastewater, drilling and operation of groundwater wells with a capacity of 50 gpm or greater, siting of energy facilities, and other activities that may impact coastal resources.

Coastal consistency determinations are required prior to engaging in activities that require a federal permit or license, use federal financial assistance provided to state and local governments, are federal activities, and involve energy exploration and development activities on the outer continental shelf.

To learn more, go to www.adem.state.al.us (click on "Coastal Information").

Safer Uses of the Floodplain

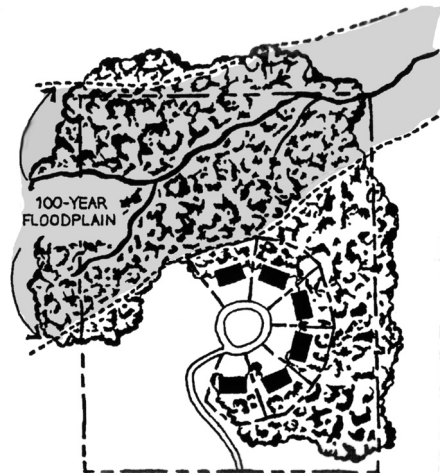
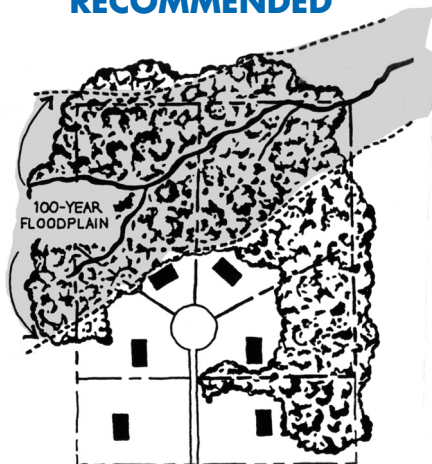


All land subdivided into lots, some homesites and lots partially or entirely in the floodplain.

NOT RECOMMENDED

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

RECOMMENDED

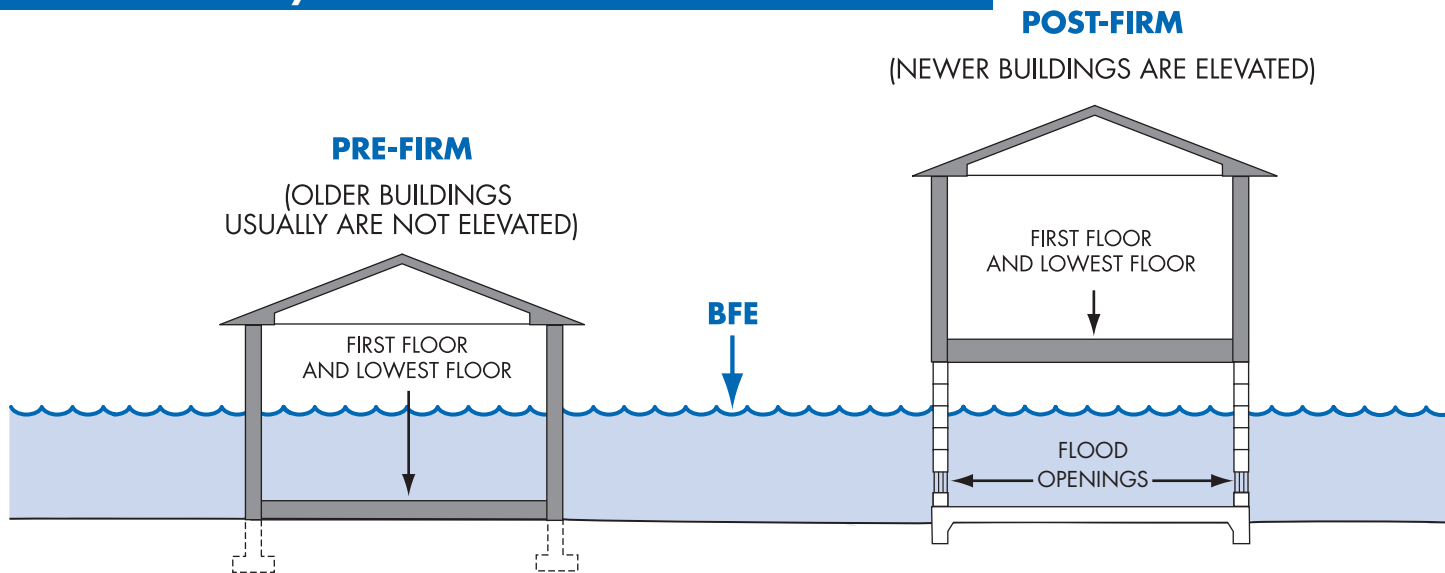


Floodplain land put into public/common open space, net density remains, lot sizes reduced and setbacks modified to keep homesites on high ground.

RECOMMENDED

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

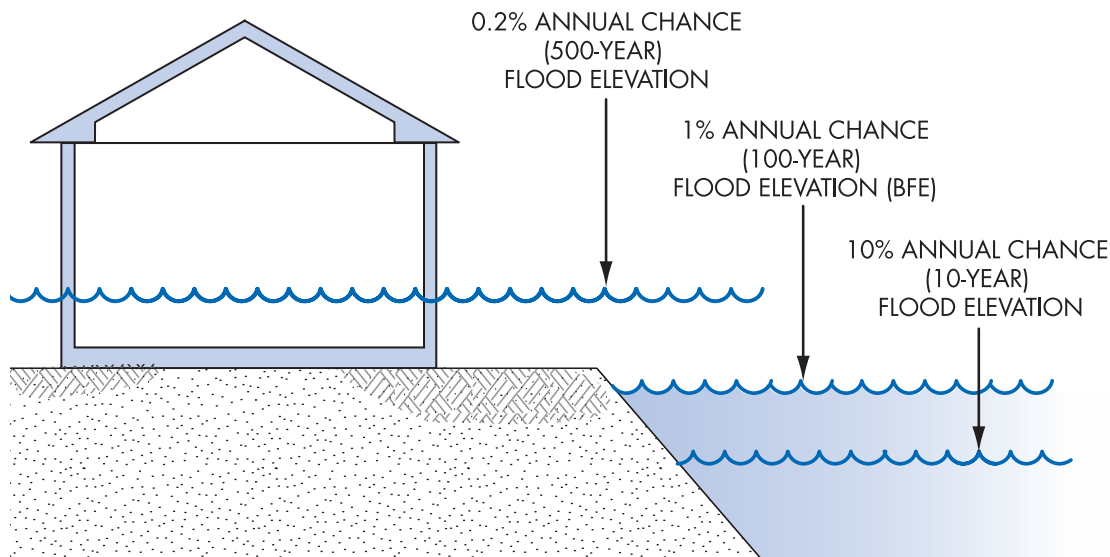
What is Meant by Pre-FIRM and Post-FIRM Structures?



A building is **Pre-FIRM** if it was built **before** the date of your community's first FIRM. If built or substantially improved **after** that date, a building is **Post-FIRM**. Find the initial FIRM's date online at www.fema.gov/cis/AL.pdf or call your community's planning, engineering, or permit office.

Permits are required for improvements or repairs to Pre-FIRM buildings, which may have to be elevated to the current BFE and flood zone requirements ([see pages 53 through 60](#)).

Nature Doesn't Read Flood Maps



Important

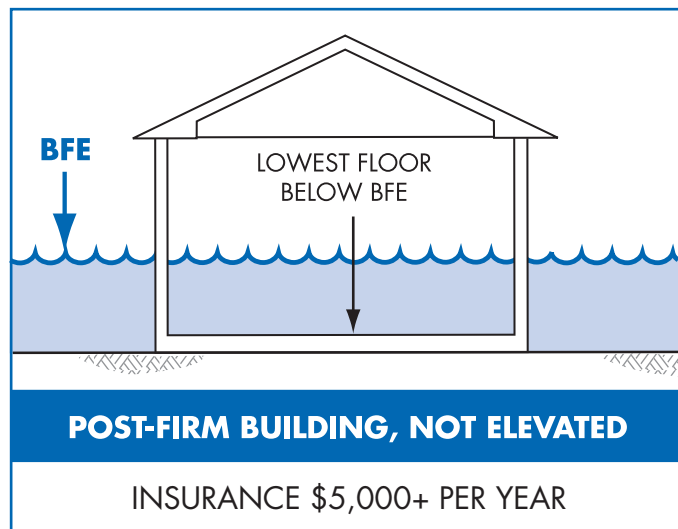
Information

Many people don't understand just how risky the floodplain can be. There is a greater than 26% chance that a non-elevated home in the SFHA will be flooded during a 30-year mortgage period. The chance that 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 33](#) to see how this will save you money on flood insurance.

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 a variance:

- 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 \$5,000 per year ([see next page](#))!

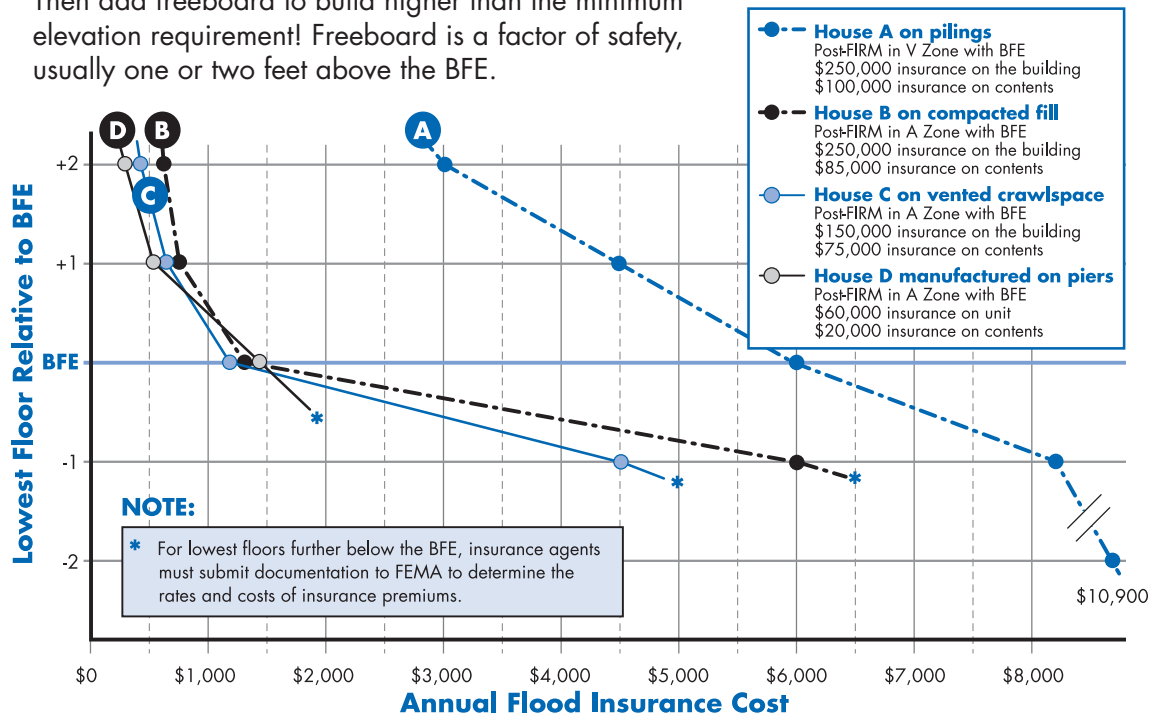
Think carefully before seeking a variance to build below the Base Flood Elevation.

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

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

Freeboard: Build Higher, Reduce Damage, Save on Insurance

Want to save some money and have peace of mind at the same time? Then add freeboard to build higher than the minimum elevation requirement! Freeboard is a factor of safety, usually one or two 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 have to pay for NFIP flood insurance.

The 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 \$5,000 a year!

What is the Elevation Certificate and How is it Used?

- The Elevation Certificate (EC) is a FEMA form. Go to www.fema.gov and search for "Elevation Certificate."
- The EC must be completed and sealed by a Professional Land Surveyor or Civil Engineer.
- The property owner, owner's representative or the community official may complete the EC for sites in Approximate A Zones and AO Zones.
- It can be used to show that the grades of building sites are above the Base Flood Elevation ([see page 24](#)).
- It is used to verify building and equipment elevations ([see page 35](#)).
- Insurance agents use the EC to write and rate flood insurance policies.
- [See page 66](#) for online EC training.

By itself, the EC cannot be used to waive the requirement to obtain flood insurance. [See page 22](#) to learn about FEMA's Letter of Map Amendment process.

The image shows a FEMA National Flood Insurance Program Elevation Certificate form. The form is titled "ELEVATION CERTIFICATE" and includes the FEMA logo. It is a form used to document the elevation of a building and its contents relative to the base flood elevation. The form is divided into several sections: Section A: Property Information, Section B: Flood Insurance Rate Map (FIRM) Information, Section C: Building Elevation Information (Survey Required), and Section D: Surveyor, Engineer, or Architect Certification. The form also includes a section for the property owner's signature and a section for the surveyor/engineer/architect's signature. The form is used to determine the flood insurance rate for a building and to provide information to the insurance company.

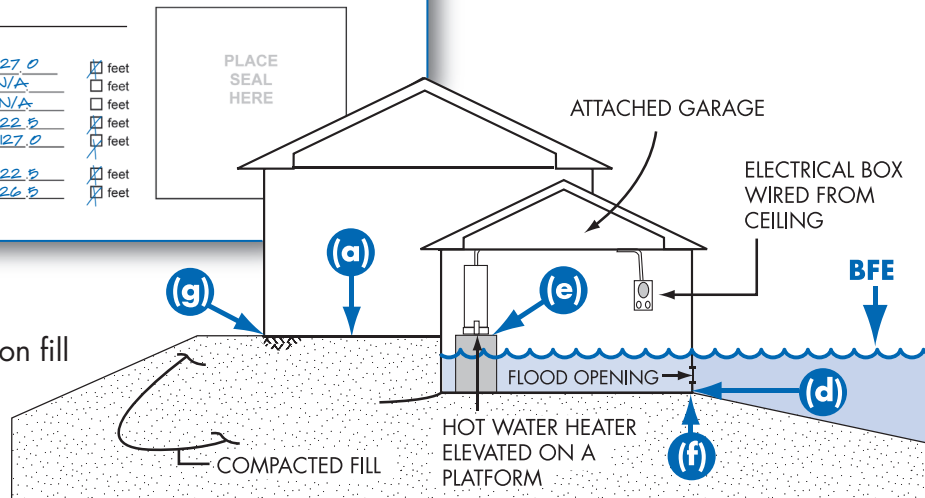
Completing the Elevation Certificate

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-g below according to the building diagram specified in Item A7.			
Benchmark Utilized <u>PA0025</u> Vertical Datum <u>NAVD 1988</u>			
Conversion/Comments _____			
a)	Top of bottom floor (including basement, crawl space, or enclosure floor).	<u>127.0</u>	<input checked="" type="checkbox"/> feet
b)	Top of the next higher floor	<u>N/A</u>	<input type="checkbox"/> feet
c)	Bottom of the lowest horizontal structural member (V Zones only)	<u>N/A</u>	<input type="checkbox"/> feet
d)	Attached garage (top of slab)	<u>122.5</u>	<input checked="" type="checkbox"/> feet
e)	Lowest elevation of machinery or equipment servicing the building (Describe type of equipment in Comments)	<u>127.0</u>	<input checked="" type="checkbox"/> feet
f)	Lowest adjacent (finished) grade (LAG)	<u>122.5</u>	<input checked="" type="checkbox"/> feet
g)	Highest adjacent (finished) grade (HAG)	<u>126.5</u>	<input checked="" type="checkbox"/> feet

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 vented garage is 2.5 feet below the BFE.



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 Professional Land Surveyor or Civil Engineer fill out and seal the EC form. The EC includes diagrams for eight building types. Several points must be surveyed.

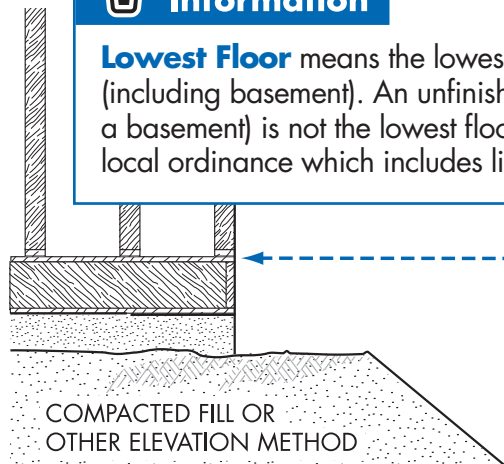
Paperwork is Important – for You and Your Community



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 41](#) and [47](#)).



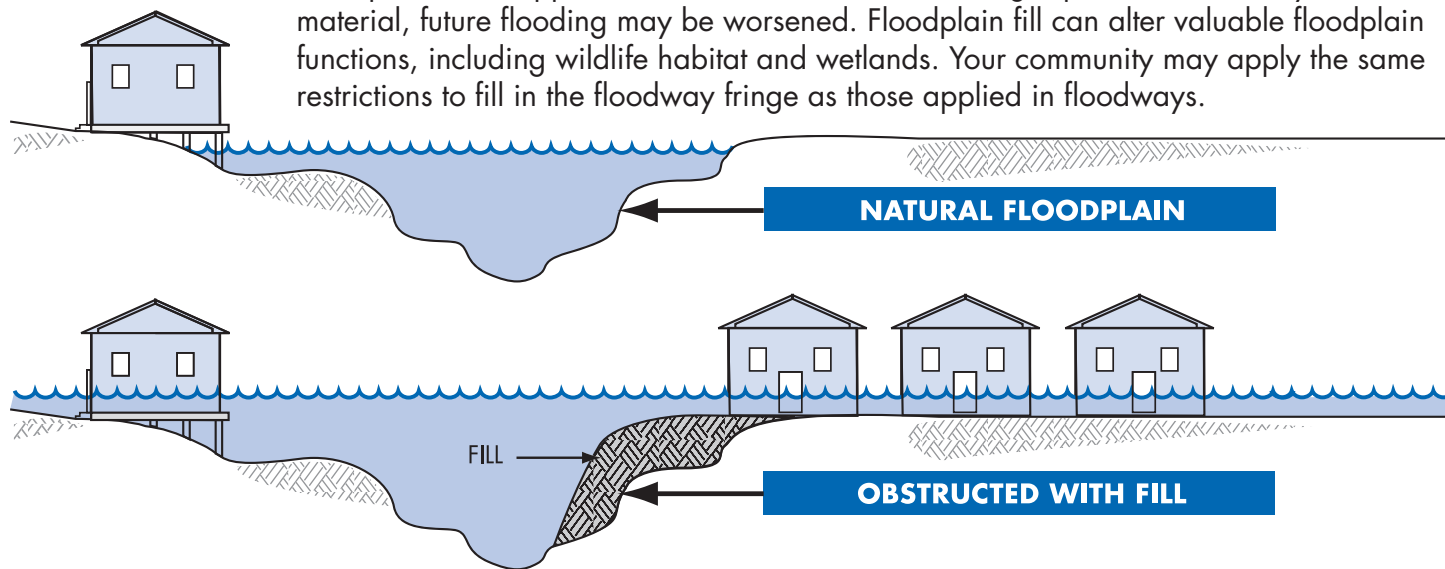
If you get a permit to build in the floodplain, a FEMA Elevation Certificate or a similar documentation will be required as soon as your lowest floor is set. An “as-built” survey and Elevation Certificate will be required when construction is completed.

This form is important! It proves that you built correctly.

It can be used to obtain the correct insurance rating.

Floodplain Fill Can Make Things Worse

Floodplains are supposed to store flood waters. If storage space is blocked by fill material, future flooding may be worsened. Floodplain fill can alter 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 that your project requires the placement of fill, check with your community's planning, engineering, or permit office. You may be required to demonstrate that fill will cause "no rise" ([see next page](#)).

Required “No Rise” Certification

- Floodways can be dangerous because water may flow very fast.
- “No rise” means no increase in flood elevations.
- An engineer must evaluate the hydraulic impact of proposed development. A “no rise” certification with supporting documentation is required and must be signed, sealed and dated by a registered professional engineer.
- Check with your community for guidance before planning work in a floodway.
- If the FIRM for your site shows Approximate A Zones, check with your community before you do any work in the area along the stream that is the width of the stream or 25 feet wide, whichever is greater.

ENGINEERING “NO RISE” CERTIFICATION (example)

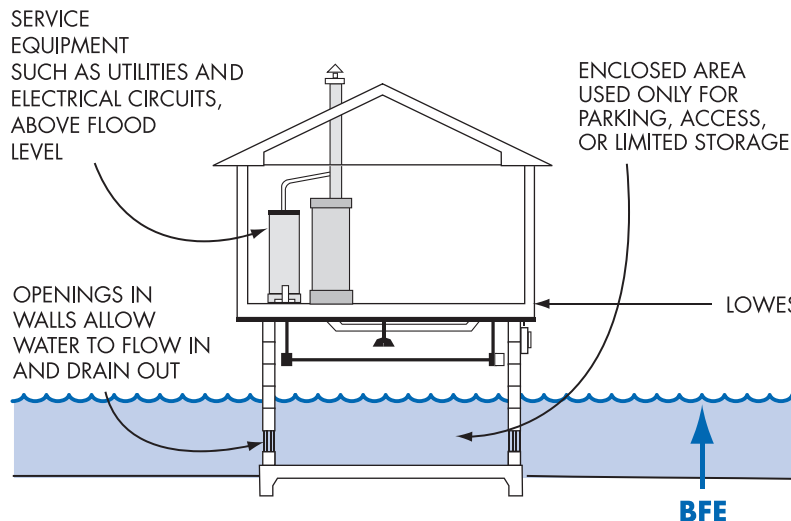
This is to certify that I am a duly qualified engineer licensed to practice in the State of Alabama. It is to further certify that the attached technical data supports the fact that proposed (Name of Development) will not impact the 100-year flood elevations, floodway elevations and floodway widths on (Name of Stream).

Signature _____ Seal _____

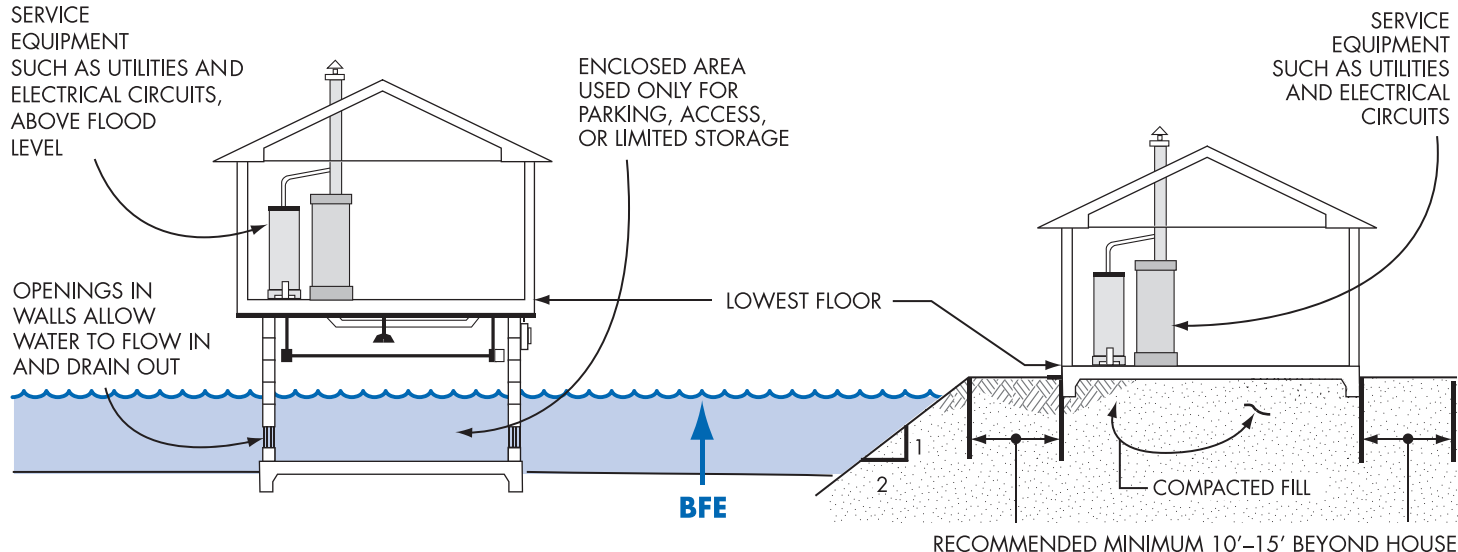
The engineering analysis must be based on technical data obtained from the State or FEMA.
Save time and money – don’t encroach in the floodway!

How to Elevate Your Floodplain Building (Riverine)

ELEVATE ON FOUNDATION WALLS



ELEVATE ON FILL



CAUTION! Enclosures (including crawlspaces) have some special requirements ([see pages 41 and 42](#)).

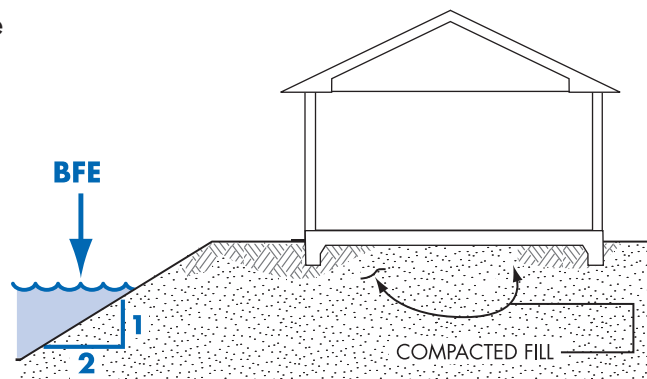
Note: When the walking surface of the lowest floor is at the BFE, under-floor utilities are not allowed.

Fill used to elevate buildings must be placed properly (see next page).

Compaction of Floodplain Fill (A Zones)

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

- Be good 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)
- Extend 10 to 15 feet beyond the footprint of the structure
- Have graded side slopes that are not steeper than 2:1 (one foot vertical rise for every 2 feet horizontal extent); flatter slopes are recommended
- Have slopes protected against erosion (vegetation for "low" velocities, durable materials for "high" velocities – determined by a design professional)



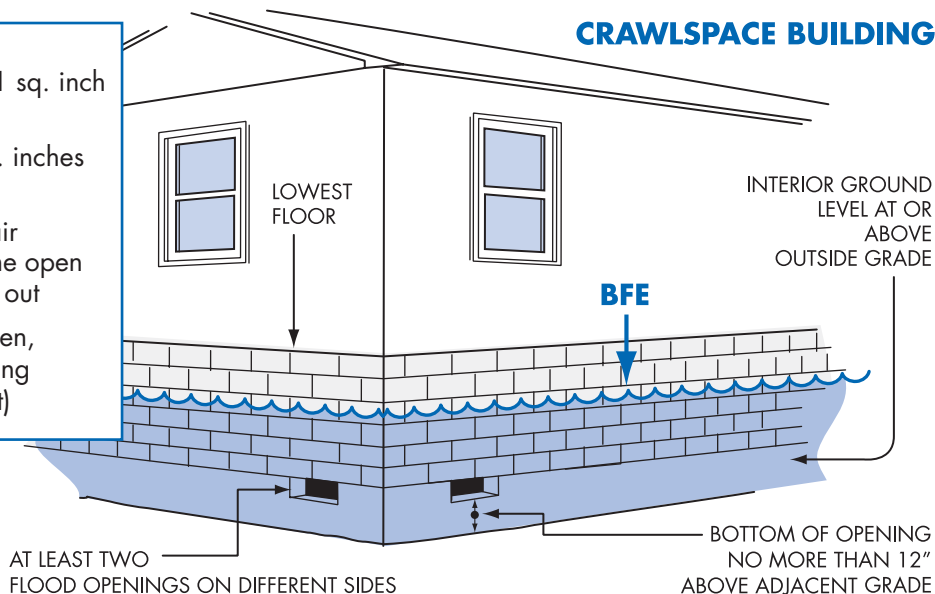
Communities may ask for a professional engineer to certify the fill elevation, compaction, slope, and slope protection materials in order to determine that the proposed structure will be "reasonably safe from flooding."

Enclosures Below the Lowest Floor (A Zone)

NOTE:

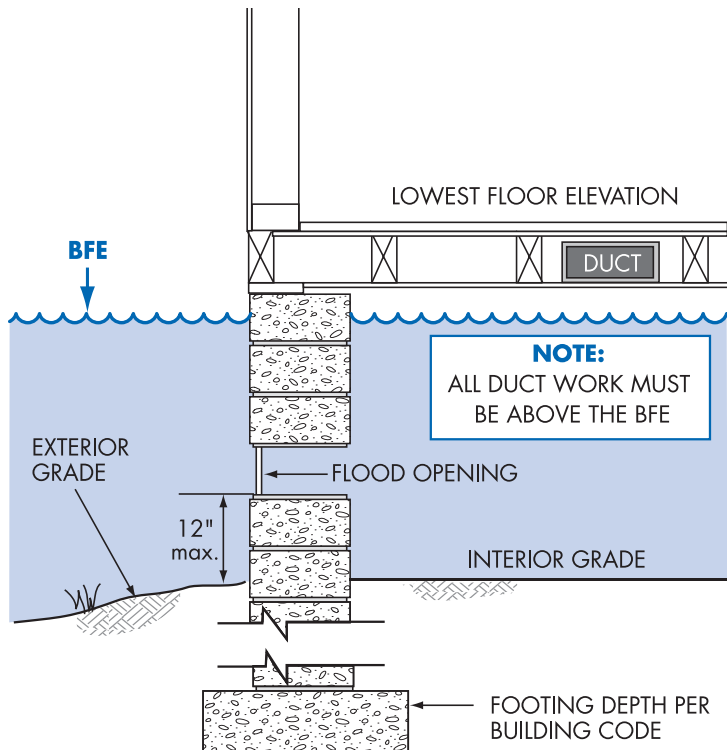
- Total net area of all total openings is 1 sq. inch per sq. foot of enclosed area
- A 30' x 40' building needs 1,200 sq. inches of openings
- If inserted in flood openings, typical air ventilation units must be disabled in the open position to allow water to flow in and out
- A typical air ventilation 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 flood waters.



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 (A Zones)

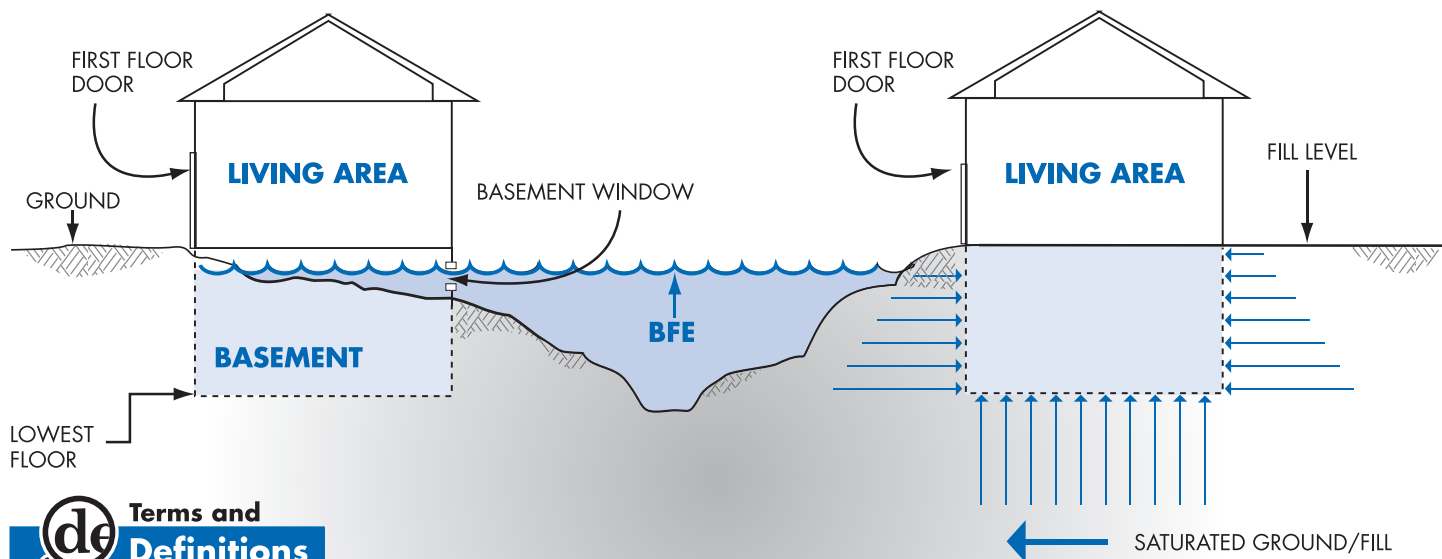


- The Lowest Floor Elevation must be at or above the BFE.
- All materials below the BFE must be flood resistant.
- The bottom of flood openings must be no more than 12 inches above grade.
- Standard air ventilation units must be disabled in the "open" position to allow water to flow in and out.
- Interior grade must be equal to or higher than exterior grade on at least one side.

Calculate Net Flood Opening:

A building that measures 30' x 40' has 1,200 square feet of enclosed crawlspace. Flood openings must provide 1,200 sq. in. of net open area (or have certified engineered openings). If a standard air vent unit provides 60 sq. in. of net open area, 20 vent units are required to satisfy the flood opening requirement (1,200 divided by 60). As an alternative, use certified engineered openings.

Basements Are Especially Flood-Prone

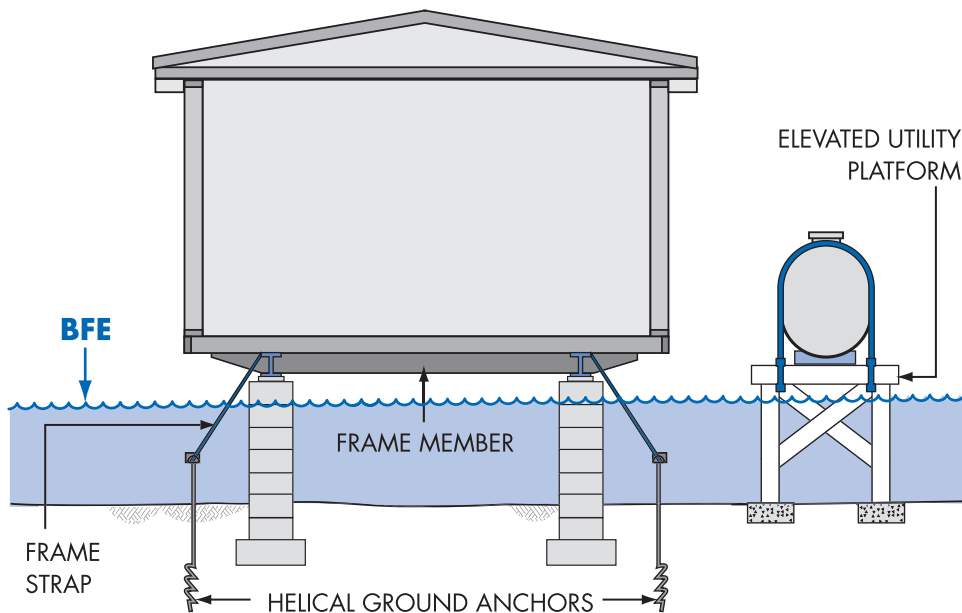


Terms and Definitions

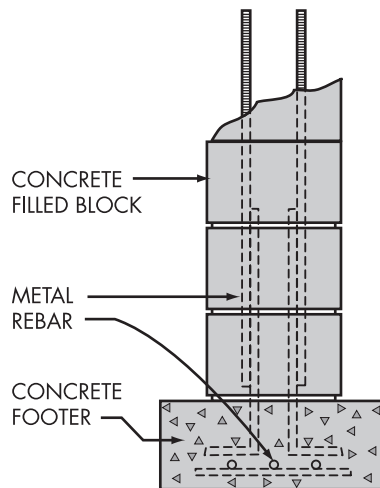
A **basement** is any portion of a building that has its floor sub-grade (below ground level) on all sides.

Basements below the BFE **are not allowed in new buildings**. Flood insurance coverage is very limited in existing basements for a very good reason. It only takes an inch of water over the 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.

Manufactured Homes Require Special Attention

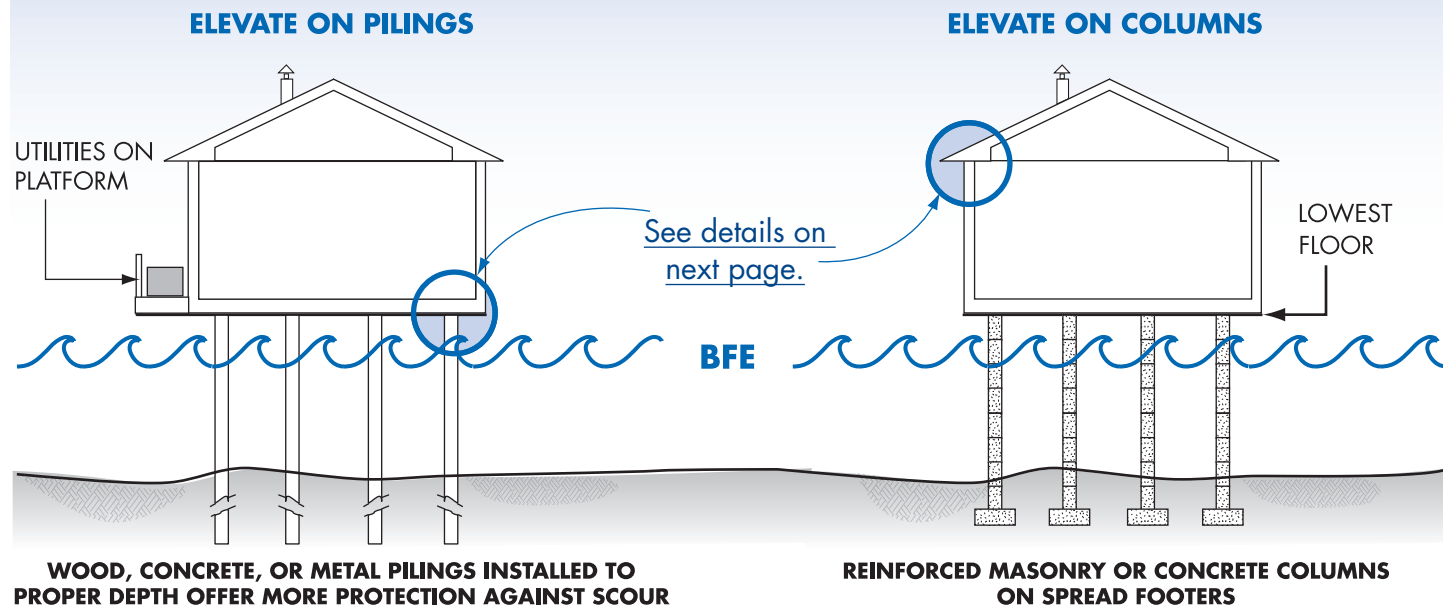


Experience shows that manufactured homes are easily damaged. Just a few inches of water above the floor can cause substantial damage.



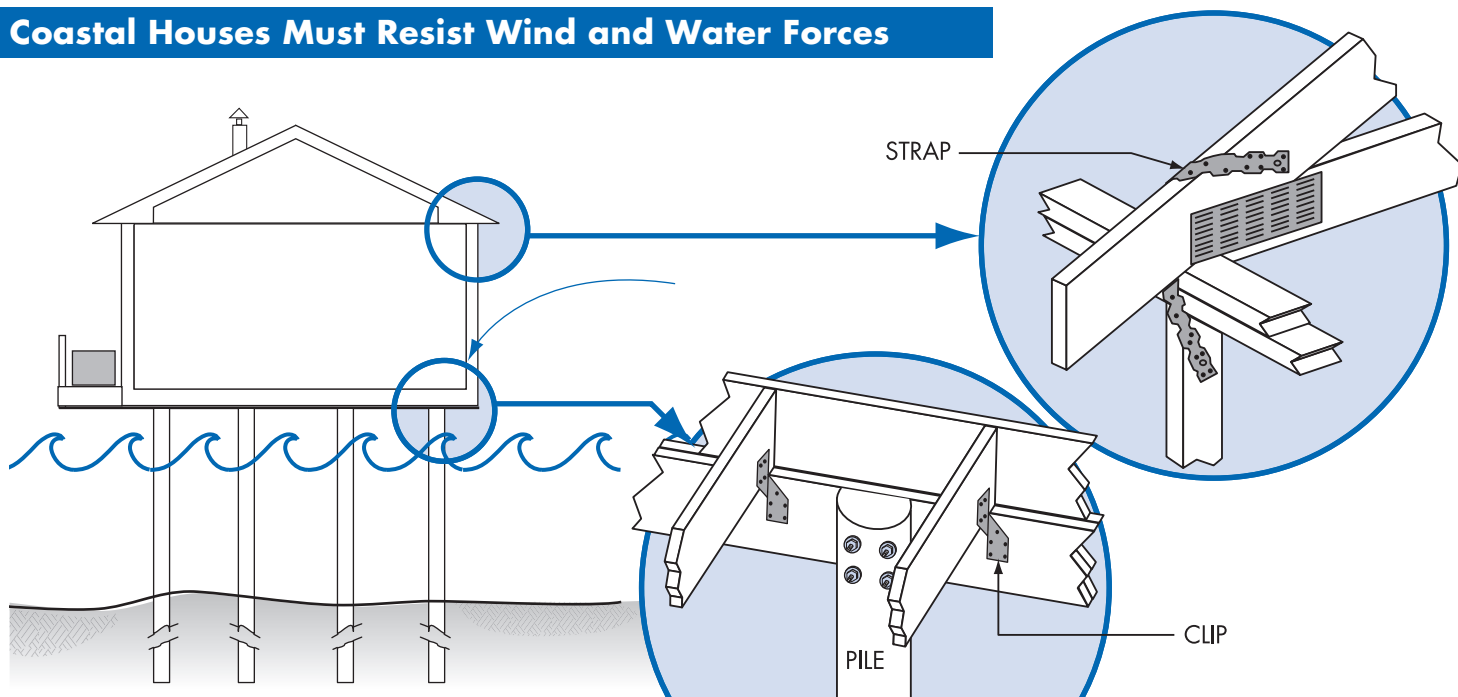
Homes must be anchored to resist flotation, collapse, and lateral movement by being tied down in accordance with your community's ordinance or the manufacturers' installation specifications for SFHAs.

Typical Elevation Methods for Coastal Buildings



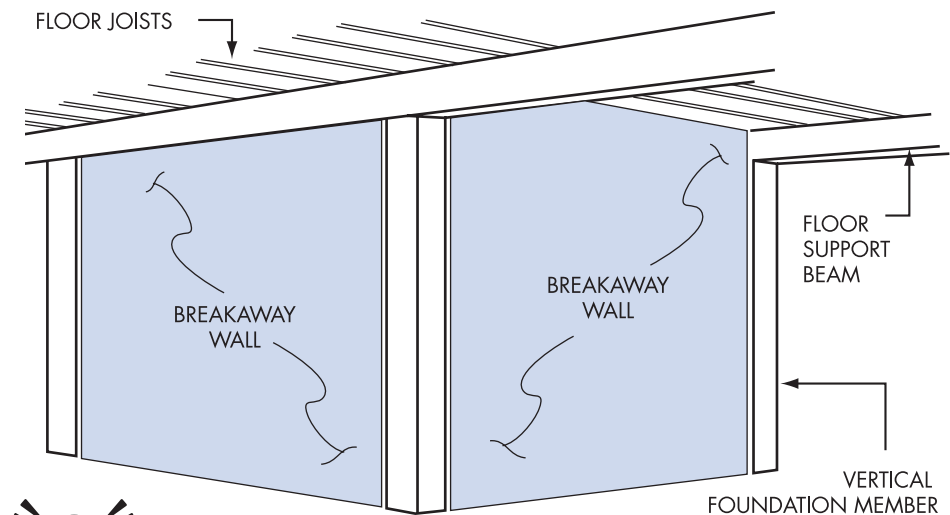
In V Zones, the design specifics will be determined by your architect or engineer based on your site, including how your building will be elevated and how deep in the ground the foundation elements will extend. Your community will require certified building designs and plans ([see page 48](#)).

Coastal Houses Must Resist Wind and Water Forces



Coastal buildings may be exposed to both high winds, waves, and flood water, so they must be built to hold together during storms. These details are only examples. Your architect or engineer will specify the type of corrosion-resistant clips and straps to keep the roof and building connected to the foundation.

Enclosures Below V Zone Buildings



Important

Information

Do not modify an enclosure below an elevated V Zone building (or any zone for that matter)! It is a violation of your community's regulations, 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 V Zone building. If you must enclose a small area, your community will require:

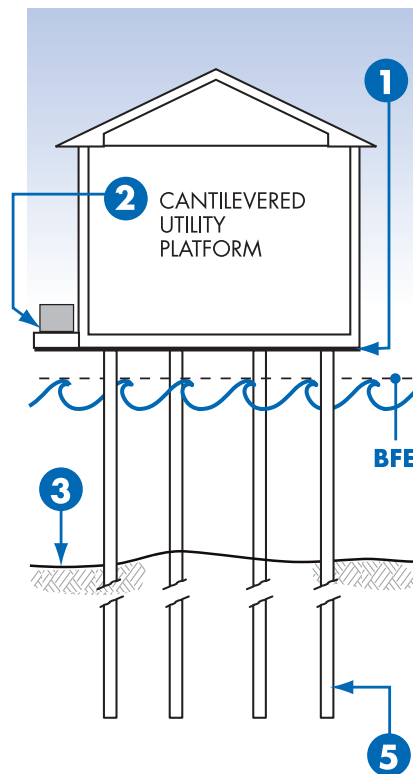
- Walls must be designed to collapse or "breakaway" under storm and flood conditions
- Must be unfinished and use flood resistant materials
- Utility wires and pipes should not go through or be attached to the breakaway walls
- Enclosed area is to be used only for parking, building access, and limited storage
- No bathrooms, utility rooms, or electric service below BFE

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

V Zone Certification

V-ZONE CERTIFICATION (sample)					
Note: This form is not a substitute for an Elevation Certificate. Elevations should be rounded to nearest one tenth (1/10) of a foot.					
Map & Panel Number (10 digits) <i>0105011</i>	Suffix <i>J</i>	FIRM Index Date <i>FEB 16, 2007</i>	FIRM Panel Date <i>APR 5, 2006</i>	FIRM Zone <i>VE</i>	BFE(s) <i>12.0</i>
SECTION II: ELEVATION INFORMATION					
1. Elevation of the Bottom of Lowest Horizontal Structure Member of the Lowest Floor <i>14.0</i> feet					
2. Lowest Elevation of machinery and/or equipment servicing the structure. Describe: <i>ON PLATFORM</i> <i>15.5</i> feet					
3. Elevation of Lowest Adjacent Grade [at structure including attached deck and/or garage location] <i>5.5</i> feet					
4. Approximate Depth of Anticipated Scour/Erosion Used for Foundation Design <i>3.5</i> feet / feet					
5. Embedment Depth of Pilings or Foundation Below Lowest Adjacent Grade <i>14</i> feet					

A registered professional engineer or architect must review or prepare your building design and provide a signed and sealed statement that the design meets minimum design and construction requirements.



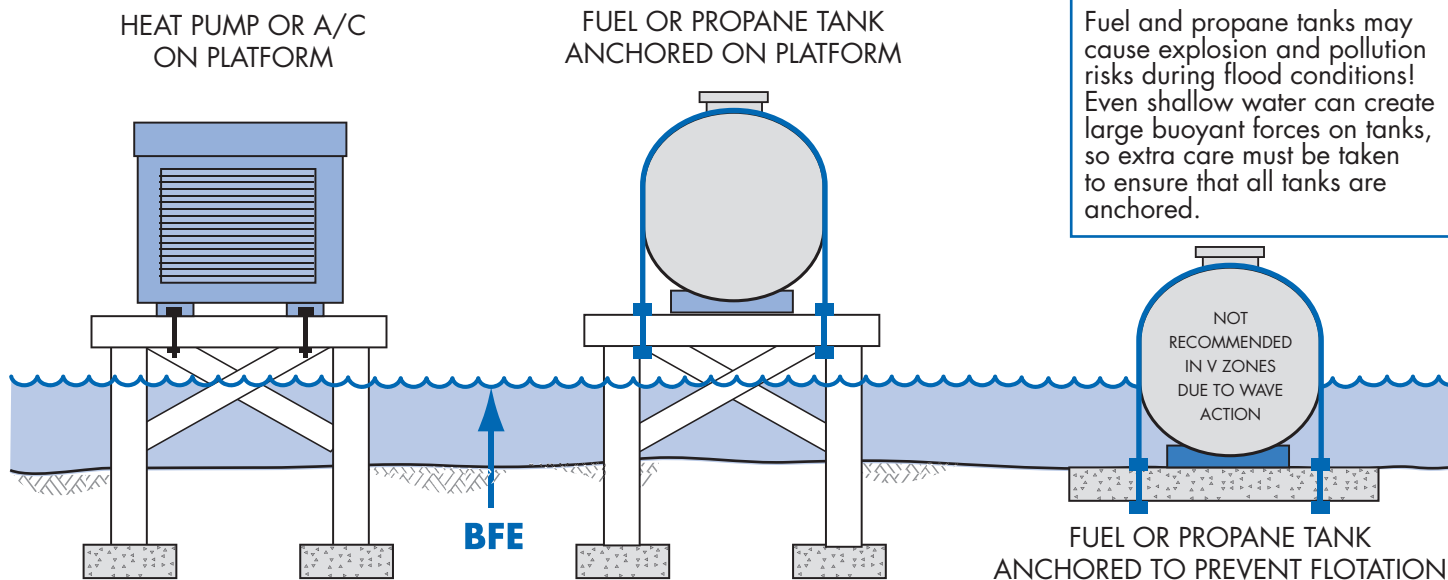
Utility Service Outside Buildings



Important

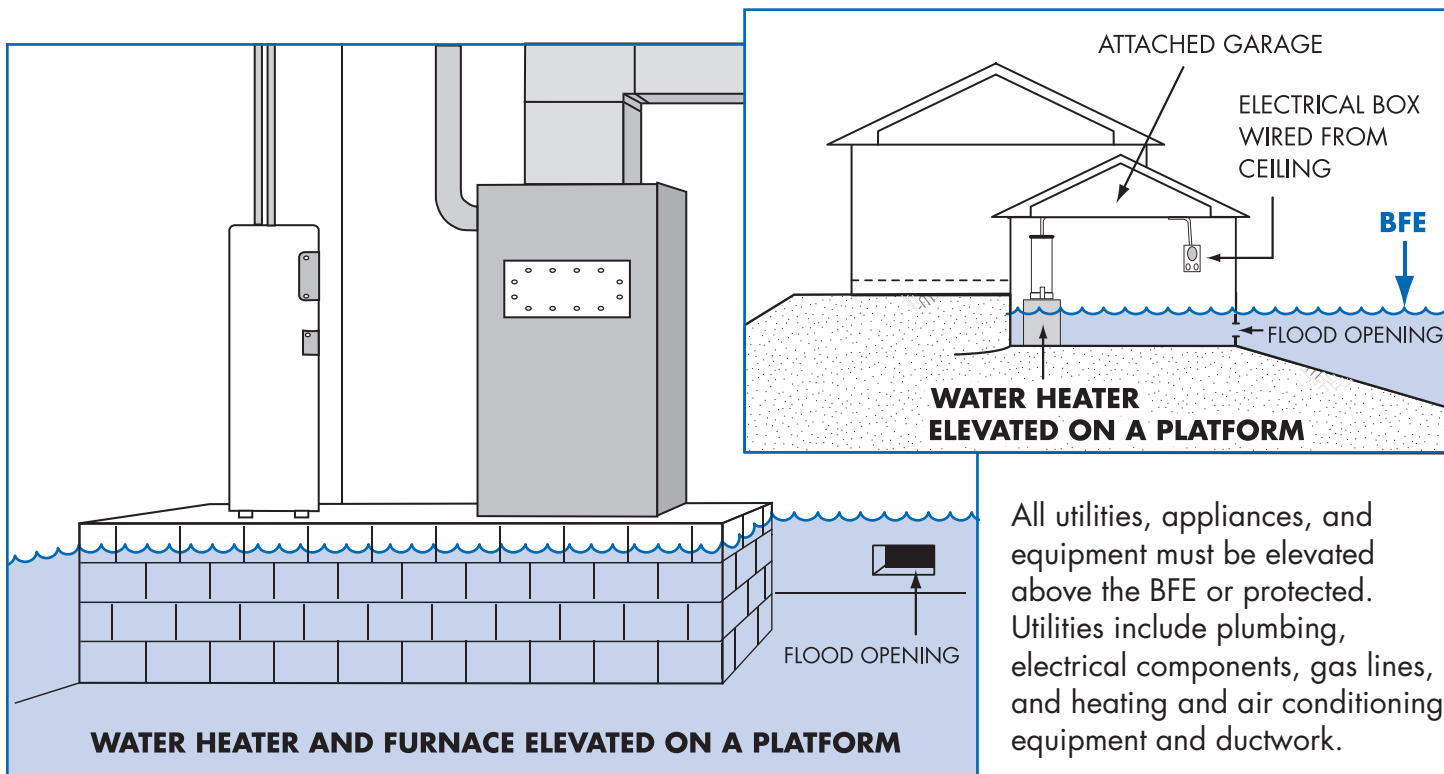
Information

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 that all tanks are anchored.



Whether inside an attached garage or outside the 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, and heating and air conditioning equipment.

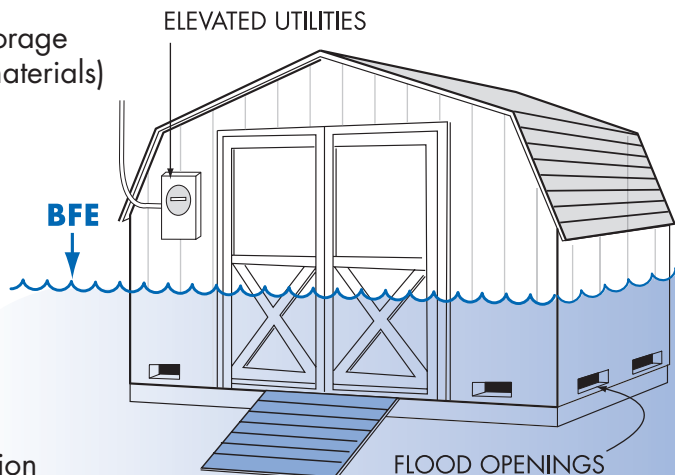
Utility Service Inside Enclosures



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



Even small buildings are “development” and permits or variances with noted conditions are required. They must be elevated or anchored and built to withstand flood damage.

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



Terms and Definitions

Accessory Structure means a structure that is 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.

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
- Must measure 400 sq.ft. or less (measured at largest horizontal projection)
- Have inflated wheels and be self-propelled or towable by light 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 44](#)).

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 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 next page](#)).

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 58](#)).



Important Information

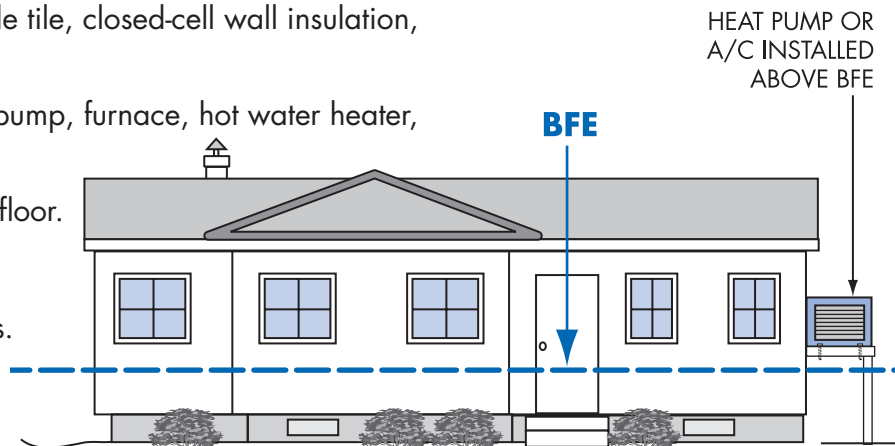
Improvements include:

- Renovation/rehabilitation of the interior of the existing building ([see page 55](#))
- Lateral addition, without renovation or structural alteration of the existing building ([see page 56](#))
- Lateral addition, with renovation or structural alteration of the existing building ([see page 57](#))
- 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, there are many 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



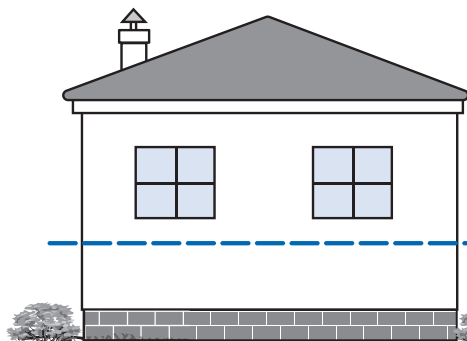
Important

Information

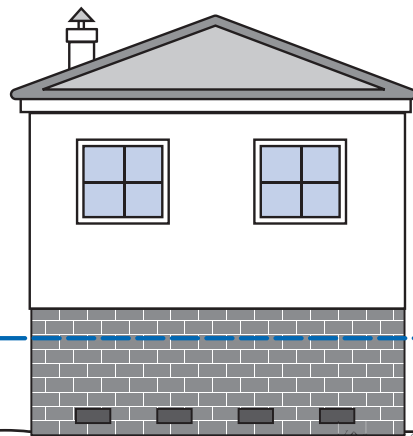
RENOVATED/REHABILITATED BUILDING

EXISTING BUILDING

BFE



SHALLOW
CRAWLSPACE FOUNDATION



RAISED FULLY-COMPLIANT
CRAWLSPACE FOUNDATION

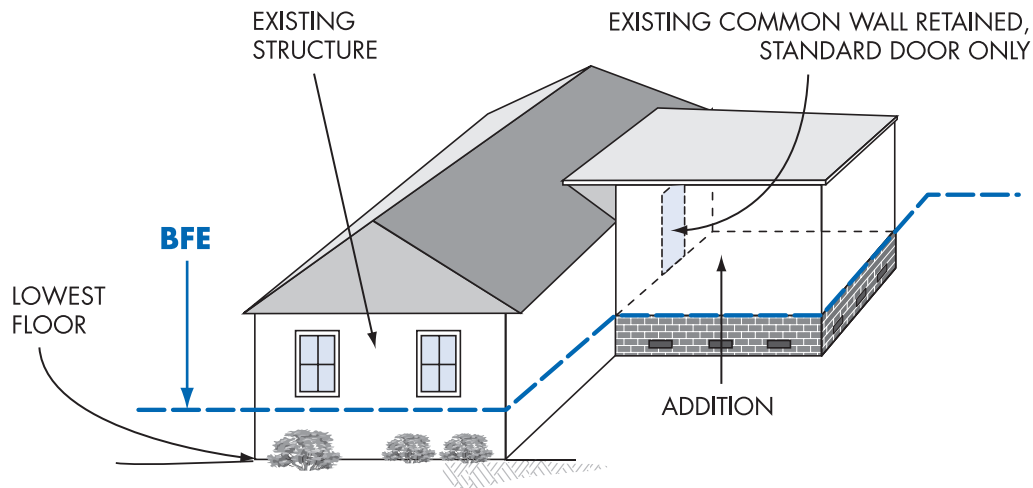
Floodplain buildings can be improved, renovated, rehabilitated or altered, but special rules apply.

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

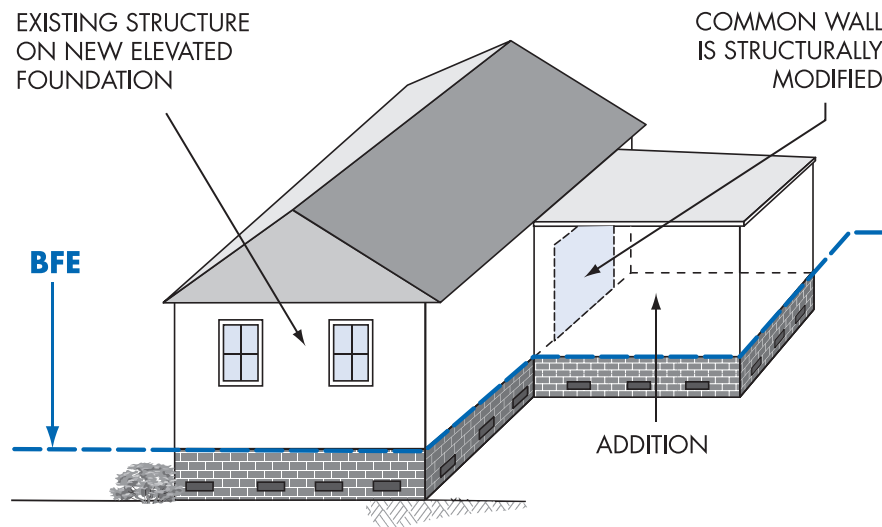
Information

See the next page 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 from your community 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" door.

Substantial Improvement: Addition Plus Other Work

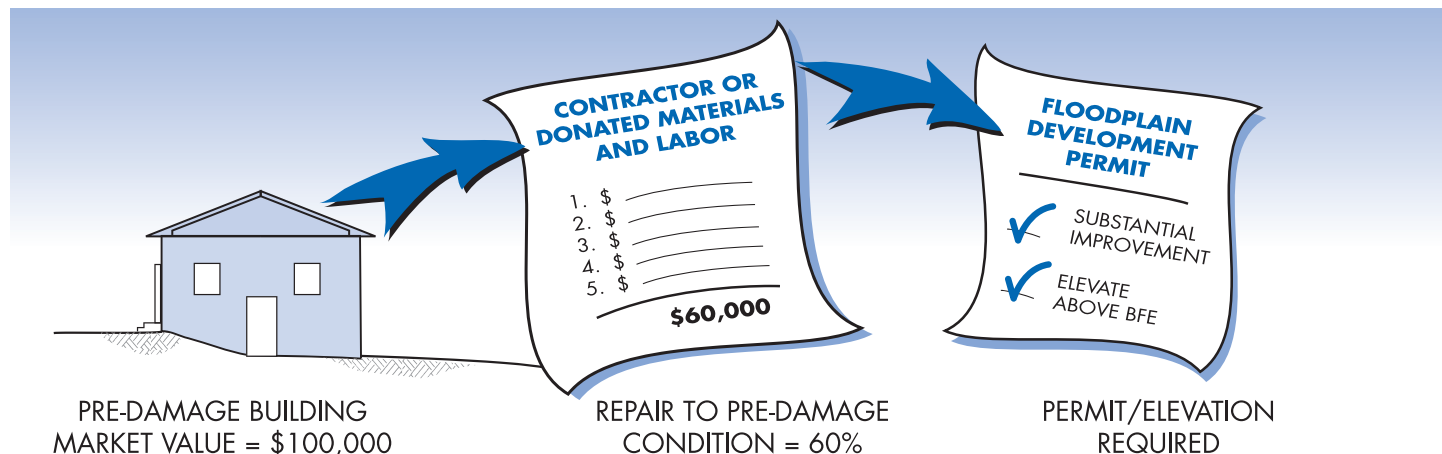


Your community must prepare an evaluation to determine if all of your proposed work will trigger the Substantial Improvement requirement. Substantial Improvement is triggered if:

- 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 you determine which requirements apply. It is always a good idea to request a preliminary review before you get too far along with your plans.

What About After Damage?



A permit is required to repair a damaged floodplain structure, regardless of cause — fire, flood, wind, or even vehicle impact. You will be asked to provide a detailed cost estimate to repair it to its 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

You may be eligible for up to \$30,000 to help pay to protect your building in compliance with your community's requirements – if all of the following apply:

USE THE ICC CLAIM TO:



ELEVATE THE HOUSE ON
YOUR LOT



DEMOLISH AND REBUILD
THE HOUSE



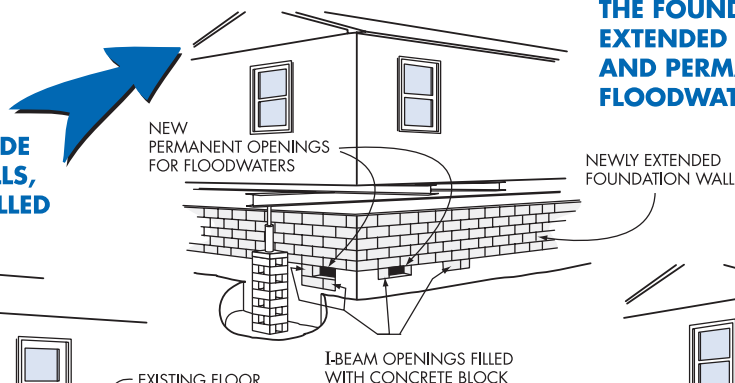
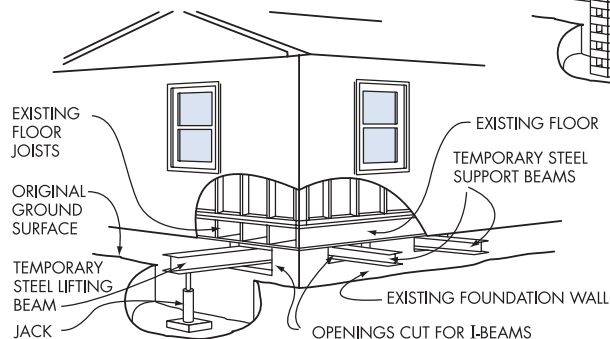
MOVE THE HOUSE TO
HIGH GROUND

- You have NFIP flood insurance – it includes Increased Cost of Compliance (ICC) coverage.
- Your building is in the mapped Special Flood Hazard Area.
- Your building's lowest floor is below the elevation required by your community.
- Your community has made an official determination that the building was substantially damaged by flooding.
- You act quickly with your claims adjuster and community official to process all the required paperwork.

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.

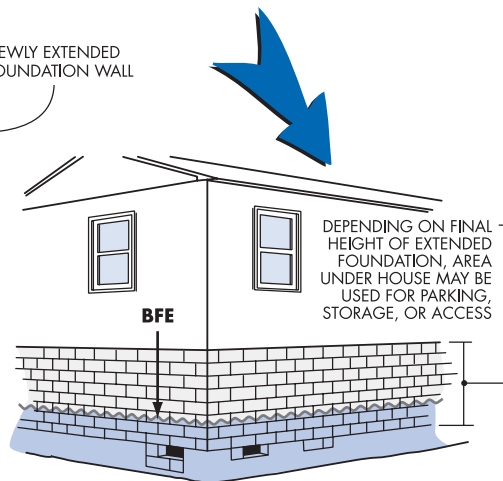
Elevating a Pre-FIRM Building

AFTER OPENINGS ARE MADE IN THE FOUNDATION WALLS, STEEL I-BEAMS ARE INSTALLED BELOW THE FLOOR JOISTS



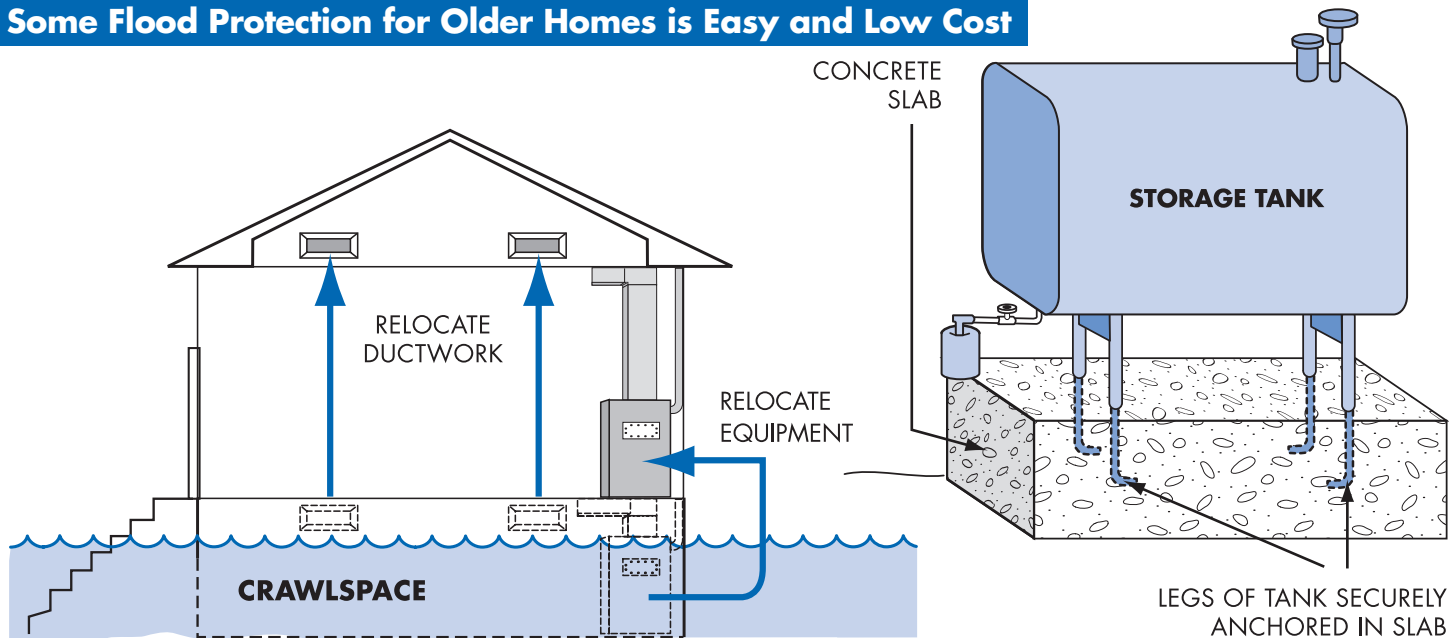
THE FOUNDATION WALLS ARE EXTENDED AS THE HOUSE IS RAISED, AND PERMANENT OPENINGS FOR FLOODWATERS ARE CREATED.

THE FINISHED PROJECT ABOVE BFE



This is one way to elevate an existing building to comply with floodplain regulations. If your insured building is damaged by flood and your community determines it is substantially damaged, you may be eligible for an **Increased Cost of Compliance** payment. The State and FEMA can help with more information and options.

Some Flood Protection for Older Homes is Easy and Low Cost



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

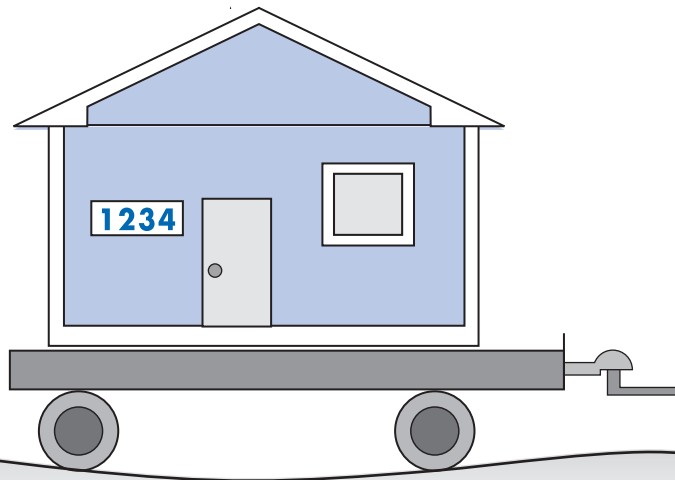
Anchor heating oil and propane gas tanks to prevent flotation and lateral movement.

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

Use water-resistant materials when you repair.

Some Flood Mitigation Projects are More Costly

But Give You More Protection



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

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) are interrupted, at least 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
- Find out if your community has a flood warning system
- Make family and workplace emergency plans
- Know where to go if you're told to evacuate
- Put together a disaster kit with supplies to last a couple of days



**American
Red Cross**

To learn more about preparing for disasters, visit the American Red Cross website at www.RedCross.org and click on "Preparedness."

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 18-24 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.
- Visit www.weather.gov/os/water/tadd/ for more advice.

**FLOODING AHEAD
TURN AROUND
DON'T DROWN**



Useful Resources and Common Acronyms

Useful Resources

- The American Red Cross addresses disaster safety, being prepared, and repairing homes (Disaster Services): www.redcross.org
- FEMA has developed materials to help families and businesses prepare for floods and recover from disasters: www.fema.gov/library
- NFIP regulations (Parts 59, 60, 65 and 70): www.fema.gov/business/nfip/laws1.shtm
- CRS Resource Center: www.training.fema.gov/EMIWeb/CRS
- Association of State Floodplain Managers: www.floods.org

Common Acronyms

- BFE = Base Flood Elevation
- EC = Elevation Certificate
- FEMA = Federal Emergency Management Agency
- FIRM = Flood Insurance Rate Map
- ICC = Increased Cost of Compliance
- NFIP = National Flood Insurance Program
- OWR = Office of Water Resources
- SFHA = Special Flood Hazard Area (100-year floodplain)

Want to Learn More About Floodplain Management?

- For advice on flood information and permits, call your community's building permit office, engineering, or planning department.
- Learn about the Alabama Flood Map Modernization Program at www.adeca.alabama.gov/floods.
- To order flood maps, call FEMA's Flood Map Service Center – (800) 358-9616 or enter the FEMA Map Store to order online at www.msc.fema.gov.
- FEMA's publications can be found at www.fema.gov/library. Search by key word, title or publication number. Call (800) 480-2520 to order free printed copies.
- Find Elevation Certificate training for surveyors by going to www.fema.gov and search on "Elevation Certificate."
- Learn about the NFIP's Community Rating System at: www.fema.gov/business/nfip/crs.
- Find out about floodplain management conferences and training sessions at www.adeca.alabama.gov/floods.

Want to Learn More About Flood Insurance?

- Consumer information about flood insurance, flood risks, and flood maps is online at www.floodsmart.gov. Click on “Flood Insurance Policies” to learn more about estimating the cost of a policy, finding an agent, purchasing a policy, coverage limits and exclusions, filing claims, and other topics.
- At www.floodsmart.gov, click on “About the National Flood Insurance Program” to learn more about flood maps.
- Also at www.floodsmart.gov, click on “Preparation and Recovery” to learn more about what to do before, during, and after a flood.
- To obtain an NFIP flood insurance policy, call your insurance agent. Most insurance companies can write an NFIP policy for you. If you need more help, call the National Flood Insurance Program’s toll free number to get the name of an agent in your area who does write flood insurance, (888) 356-6329.
- To find out how many NFIP flood insurance policies are in force in your community, or how many claims have been paid since 1978, go to www.fema.gov/business/nfip and click on “Flood Insurance Statistics.”



Floodplain solutions for today, tomorrow, and the future.

Be part of the Team

For information about AAFM, send an email to water@adeca.alabama.gov or call the Office of Water Resources (OWR) at (334) 242-5499 or 1-877-ALA-WATER (1-877-252-9283) and ask for the NFIP State Coordinator's office.

