FLOODPLAIN MANAGEMENT IN GEORGIA

Quick Guide

2015

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
Environmental Protection Division
Floodplain Management Office
www.gadnr.org

Table of Contents

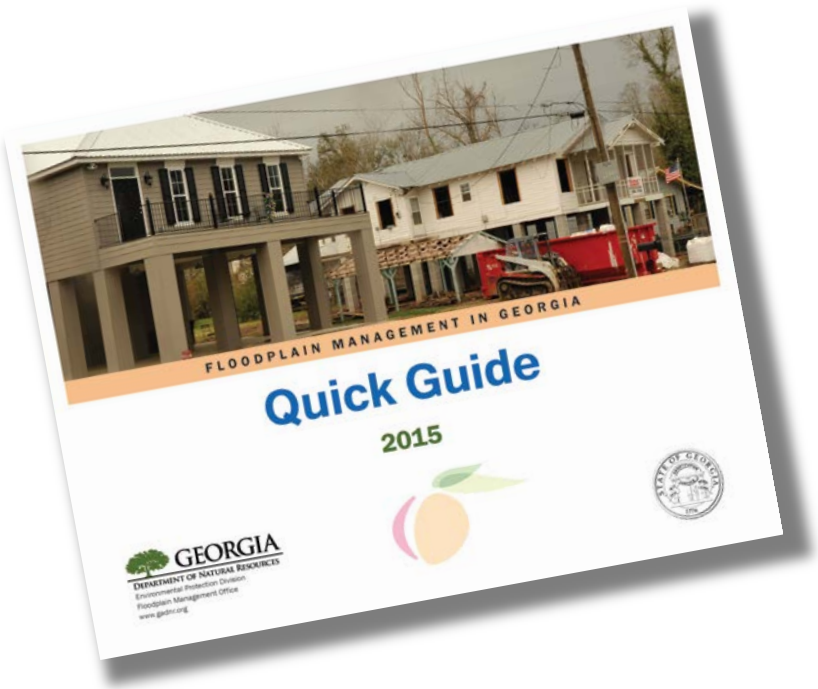
Section 8 – Other Development Strategies

Section 9 – Additional Resources

Table

Figures

About This Guide



This **Quick Guide** was prepared by the Floodplain Management Office of the Georgia Department of Natural Resources (GADNR) to help you understand more about why and how communities in the State of Georgia 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, the local ordinance must be followed. If you have questions, be sure to talk with your local planning, permit, engineering, or floodplain management officials.

The Georgia Floodplain Management Office coordinates the National Flood Insurance Program (NFIP) with Georgia's local jurisdictions. Please send questions and comments on this **Quick Guide** to Tom Shillock at Tom.Shillock@dnr.state.ga.us.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES

This publication was developed with funding from the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA). It does not necessarily reflect the views of that agency.

Guide Objectives

This guide discusses:

- How human development interacts with the natural process of flooding
- The purpose of the NFIP
- The role FEMA, the GADNR, and communities play in the NFIP
- How to use floodplain studies and maps
- How to apply for changes to floodplain maps
- The regulatory requirements for floodplain development
- Floodplain management best practices
- Where floodplain development permits are required and the application process
- Additional resources available to support Georgia and its citizens

Table 1. Common Acronyms

BFE = Base Flood Elevation

CBRS = Coastal Barrier Resource System

CFR = Code of Federal Regulations

CTP = Cooperating Technical Partner

EC = Elevation Certificate

FEMA = Federal Emergency Management Agency

FIRM = Flood Insurance Rate Map

GADNR = Georgia Department of Natural Resources

Map Service Center = Map Service Center

NFIP = National Flood Insurance Program

SFHA = Special Flood Hazard Area (100-year floodplain)

Introduction

The Georgia Floodplain Management Office 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 disaster assistance are available
- **Save** tax dollars
- **Reduce** liability and law suits
- **Reduce** future flood losses

Floods have been, and continue to be, a destructive natural hazard in terms of economic loss to the citizens of Georgia. Since 1978, federal flood insurance policy holders in Georgia have received over $315.8 million in claim payments covering over 16,200 losses. As of December 2014, 92,657 Georgia residents carried flood insurance. Even though this represents many insurance policies, most of the State's flood-prone property owners do not have flood insurance.

Development along waterways and shorelines has been spurred by the aesthetic and recreational value of these sites.

The result has been an increasing level of damage and destruction wrought by the natural forces of flooding on human development. It is possible that you are reading this guide because you have experienced flooding first hand. You, someone you know, or individuals in your community may have suffered through a flood and a long, painful and expensive repair and recovery process.

The purpose of this guide is to familiarize you with how local flood risk can be curbed through proper floodplain development management.

A **flood** occurs from an overflow of inland or tidal waters from any source onto normally dry land.

Flood damage is any damage to a structure from surface water—whether that water originated from a body of water or not. Most homeowner insurance policies do not cover damage from floods.

Flood damage prevention starts with planning and wise floodplain development. Communities that guide development following the standards of the NFIP have seen the results—their compliant buildings and neighborhoods have had less damage and suffering from flooding.

(Source: The Evaluation of the National Flood Insurance Program: Final Report, American Institutes for Research, 2006)

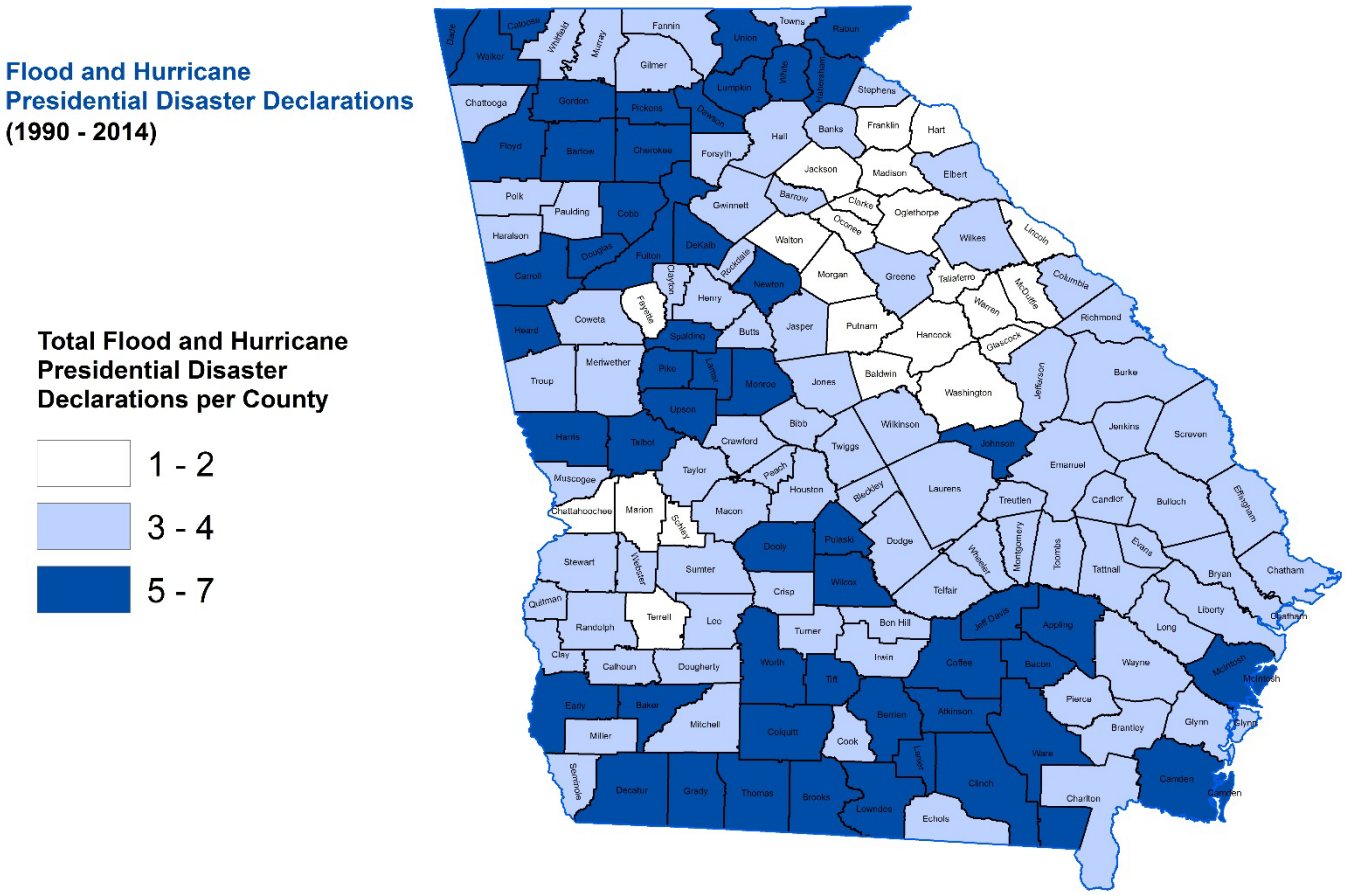


Figure 1. Georgia flood and hurricane Presidential Disaster Declarations (1990-2014)

Not all flood events are declared major disasters. Many floods are local, affecting only relatively small areas or a few watersheds.

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 21,000 communities participate in the NFIP.

The NFIP is based on an agreement between the federal government and communities. A **participating community** can be any political entity that has the authority to adopt and enforce floodplain ordinances for the area under its jurisdiction. Communities that participate agree to regulate floodplain development according to certain criteria and standards.

The partnership involves:

- **Regulations.** Communities must adopt and enforce minimum floodplain management regulations so that development, including buildings, is undertaken in ways that reduce exposure to flooding.
- **Flood Insurance Rate Maps.** In partnership with FEMA, contractors and Cooperating Technical Partners such as the GADNR produce flood hazard risk maps in accordance with FEMA standards. The maps are used by communities, insurance agents, and others.
- **Flood Insurance.** Property owners in participating communities are eligible to purchase federal flood insurance for buildings and contents. Renters are eligible to purchase coverage for contents.
- **Outreach and Education.** Communities are supported in their efforts to reduce the risks and consequences of flooding through outreach and education strategies that promote the purchase of flood insurance and flood protection measures.
- **Non-regulatory Products.** FEMA and its partners also produce flood risk products to help community officials in planning efforts to reduce flood risk, communicate with the public, and create a dialogue with neighboring communities.

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. Learn more about FEMA non-regulatory products on FEMA's Flood Risk Product page.

Who needs flood insurance? **Federal flood insurance is required for all buildings located in Special Flood Hazard Areas** (SFHAs) as shown on FEMA's maps if they are financed by federally-backed loans, mortgages, or as a condition of federal assistance (e.g., SBA disaster loans). However, areas outside of the mapped SFHA still have flood risk. Therefore, **property owners and renters may voluntarily purchase NFIP flood insurance for structures located outside of the SFHA** as long as their community participates in the NFIP. Flood insurance will cover flood damage to a building and its contents. If your structure is in a mapped SFHA, it is five times more likely to be damaged by a flood than by a 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 20% of federal flood insurance claim dollars are paid for buildings outside the SFHA.**

Protected by a levee? Even if you live in an area protected by a levee or other flood control structure, there remains risk that those structures will fail or be overtopped. If your community's levee provides "1 percent annual chance" flood protection, there is still a chance a greater event will cause flooding.

Terms and DEFINITIONS

Base flood—The identification and management of flood-prone areas under the NFIP is founded on that flood that has a 1 percent chance of being equaled or exceed in any year. Areas affected by the base flood are shown as **Special Flood Hazard Areas (SFHAs)** on FEMA maps.

See page 16 to learn about SFHAs.

Figure 2. Comparison of average disaster loan to a flood insurance policy

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

Want to know more? Learn more at www.FloodSmart.gov. To purchase a policy, call your insurance agent. To find an agent in your area, call the NFIP's toll free number (888) 356-6329.

Flood Insurance Rates

A number of factors are considered in determining flood insurance premiums. They include the amount of coverage purchased; the location, age, occupancy, and design of the building; and, for buildings in SFHAs, the elevation of the building in relation to the **Base Flood Elevation** (BFE). Buildings that are situated at or above the level of the BFE are at less risk than buildings below BFE and therefore have insurance rates commensurate with that risk. The farther below BFE a building lies, the higher its flood risk and flood insurance rate will be.

A second element in the determination of insurance rates is the date a building was constructed. The NFIP makes a distinction between what it labels **pre-FIRM** and **post-FIRM** construction. In general, pre-FIRM insurance rates are lower because theoretically at the time of construction the community and property owner had no way of knowing what the flood risk would be at that site and thus how to protect the building by elevating it or other means. In contrast, the post-FIRM policy rates are based on actuarial determinations of the flood risk.

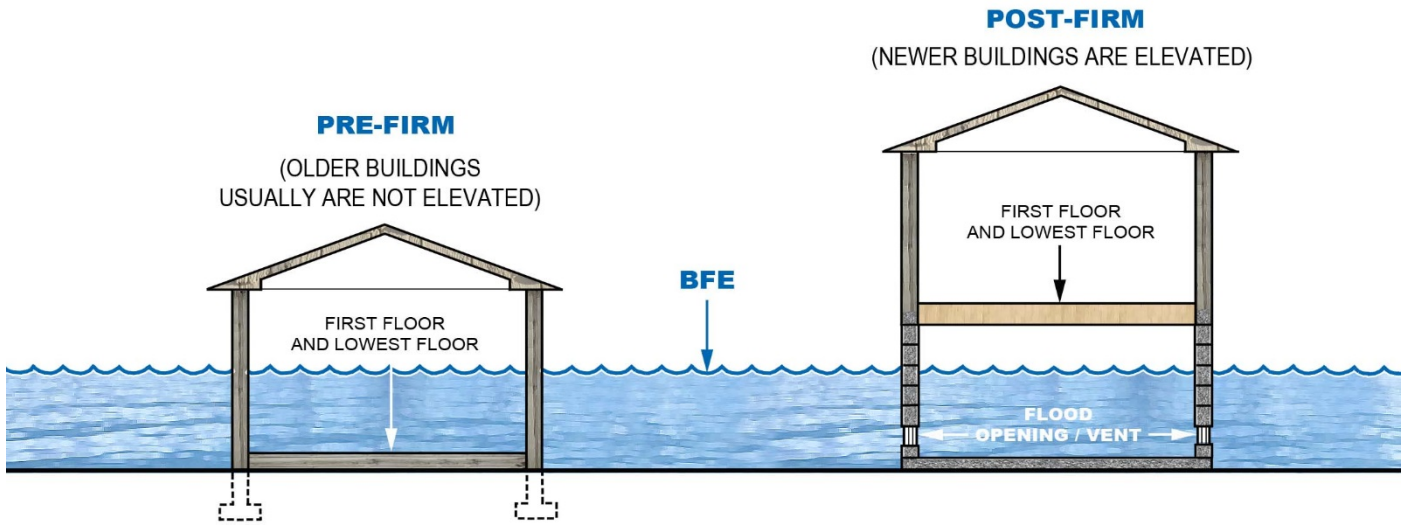


Figure 3. Pre-FIRM versus Post-FIRM construction

The **base flood**—that flood that has a 1 percent chance of being equaled or exceeded in any year. This is also commonly referred to as the 100-year flood. BFEs are established and depicted on the FIRM for the flood-prone area.

The NFIP's Community Rating System

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 85).

Property owners in approximately 50 Georgia local jurisdictions receive flood insurance premium discounts ranging from 5% to 25% as a result of their community's participation in CRS (as of December 2014).

Why Do Communities Regulate the Floodplain?

- **To protect people and property.** Floodplain management is about smart development. If we as community leaders and residents know where our high risk flood areas are located, we should be able to make reasonable decisions to help protect our communities.

- **To make sure that federal flood insurance and disaster assistance are available.** If your home or business is in the SFHA, and federal flood insurance isn't available, then you can't get some types of federal financial assistance. Home mortgages will be difficult to secure and homeowners won't be able to get some types of state and federal loans or 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 law suits.** If we know an area is mapped as a high-risk flood area, if we know people could be in danger, and if we know that buildings could be damaged, it makes sense to take reasonable protective measures when we develop and build.

- **To reduce future flood losses in Georgia.** Development that complies with the minimum floodplain management requirements is better protected against major flood-related damage.

Georgia Floodplain Management: Roles and Responsibilities

Floodplain management is a shared responsibility.

- **Federal**
  - NFIP oversight
  - Risk Identification (mapping)
  - Establish development/building standards
  - Provide flood insurance coverage
- **State**
  - State program oversight
  - Establish development/building standards
  - Provide technical assistance to local communities/agencies
  - Evaluate and document floodplain management activities
  - Public education and outreach
- **Local Officials and Floodplain Administrators**
  - Adopt and enforce floodplain management ordinance compliant with Federal/State laws
  - Issue or deny development permits in compliance with the local Flood Damage Prevention Ordinance
  - Inspect development and maintain records
  - Make substantial damage determinations (see page 71)

Successful implementation of the NFIP—and the accompanying minimization of flood risk and flood damage—depends heavily on how well local governments administer their ordinances.

Figure 4. Public documents page on the GeorgiaDFIRM.com website

As part of a Cooperating Technical Partner (CTP) Agreement with FEMA, the Georgia Environmental Protection Division under the GADNR accepted delegation and responsibility of FEMA's mapping program for the State of Georgia. Through this program, the GADNR provided updated, easily accessible digital Flood Insurance Rate Maps (FIRMs) for 159 counties and over 530 communities.

Continuing as a CTP with FEMA, GADNR facilitates the implementation of FEMA's Risk MAP Program through its Georgia Flood M.A.P. (Mapping, Assessment & Planning) program. This program provides direct management and support of NFIP regulatory, engineering, and mapping activities within the State of Georgia. Check out the extensive online archive of floodplain management and mapping resources, tutorials, and tools at GeorgiaDFIRM.com.

Benefits of Georgia's CTP Initiative

Helps communities and property owners make better decisions about locating and designing new developments in the floodplain or rebuilding after disasters

Online access 24 hours a day

Easy way for citizens to find their risk of flooding and learn about the value of purchasing flood insurance

Georgia's Coastal Management Program

The mission of the Georgia Coastal Management Program is to balance economic development in Georgia's coastal zone with preservation of natural, environmental, historic, archaeological, and recreational resources for the benefit of present and future generations. Among the program's many activities are:

- Providing technical assistance to local governments, property owners, developers, and the public to promote smart development, help minimize environmental impacts, clarify regulatory requirements, and coordinate among agencies
- Serving as a forum for local governments, developers, and citizens to discuss potential resource issues and permit requirements
- Operating The Coastal Ark, a mobile training and education platform that visits local governments, classrooms, public festivals, and other events

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESOURCES DIVISION

The Coastal Resources Division issues Marsh Permits and Shore Permits, with the approval of the Coastal Marshlands Protection Committee and the Shore Protection Committee. The Division also issues Federal Consistency determinations and makes recommendations on 401 Water Quality Certifications for projects in the coastal area. Learn more at http://coastalgadnr.org.

Community Responsibilities

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

- **Adopt and enforce** flood damage prevention regulations.
- **Require** permits for all types of development in the floodplain (see page 40).
- **Assure** that building sites are reasonably safe from flooding.
- **Establish** Base Flood Elevations (BFE) where not determined by FEMA.
- **Require** new or substantially improved homes and manufactured homes to be elevated above the BFE.
- **Require** new or substantially improved non-residential buildings to be floodproofed or elevated above the BFE.
- **Determine** if damaged buildings are substantially damaged.
- **Conduct** field inspections; cite and remedy violations.
- **Require** surveyed elevation information to document compliance (see pages 45-46).
- **Carefully consider** requests for variances.
- **Resolve** non-compliant development and violations.
- **Advise and work** with FEMA when updates to flood maps are needed.

Base Flood Elevation (BFE): The elevation of the base flood as referenced to a standard vertical datum. The datum used for new FEMA mapping is North American Vertical Datum of 1988 (NAVD 88).

Special Considerations: Metropolitan North Georgia Water Planning District

The Georgia General Assembly created the Metropolitan North Georgia Water Planning District in 2001, to establish policy, create plans and promote intergovernmental coordination of all water issues in the District from a regional perspective. The District includes 16 counties and 99 cities. The area is home to more than 4 million people, nearly half the population of the State. See www.northgeorgiawater.com.

Figure 5. Counties in the Metropolitan North Georgia Water Planning District

Communities in the District administer floodplain management programs that:

- Develop maps to show future-condition floodplains (see page 21) down to watersheds of 100 acres
- Require that buildings and service equipment and components (including ductwork), are located 3 feet above the BFE elevation or 1 foot above the future-condition flood elevation, whichever is higher
- Require that residential subdivision proposals have sufficient buildable area outside of the future-condition floodplain (see page 21) such that encroachments into the floodplain to construct homes are not necessary

How Does FEMA Define the Special Flood Hazard Area (SFHA)?

The **SFHA** is the area where the NFIP's floodplain management regulations must be enforced by the community as a condition of participation in the NFIP and the area where the mandatory flood insurance purchase requirement applies. FEMA is responsible for identifying all flood-prone areas within the United States and for establishing flood-risk zones within these flood-prone areas.

FEMA with the support of its CTP partner, GADNR, has performed flood studies within Georgia, resulting in the publication of Flood Insurance Study (FIS) reports and Flood Insurance Rate Maps (FIRMs). These studies are the basis for the local floodplain regulations Georgia communities have adopted and enforce.

Riverine flooding occurs in rivers, streams, ditches, or other waterways that are subject to overbank flooding, flash floods, and urban drainage system flooding. Riverine studies involve the collection and analysis of information about the river and watershed's:

- Topography
- Precipitation
- Channel characteristics—including how much flow capacity there is to carry the flood and locations and sizes of culverts, bridges, and other hydraulic structures

In order to determine the SFHA, FEMA must look at the hydrology and hydraulics of the flooding source. The hydraulic study produces determinations of flood elevations, velocities, and floodplain widths at each cross section for a range of flood events. These flood elevations are the primary source of data used to determine the SFHA as mapped on the FIRM.

Coastal flooding: The effects of tides, combined with large amounts of water and waves from storms make coastal areas some of the most at-risk areas when it comes to flooding. To identify and map coastal flood hazards, FEMA evaluates onshore and offshore topography, the amount of development in the area, and the types and strength of storms that historically have affected the area. See page 25 for more information on coastal flood hazard mapping.

Hydrology is the science encompassing the behavior of water as it occurs in the atmosphere, on the surface of the ground, and underground.

Hydrologic analysis of a flooding source establishes peak flood discharges and their frequencies of occurrence. The results of the hydrologic analysis are used to create the flood profiles (see page 23) and establish the BFEs and SFHAs shown on the FIRM.

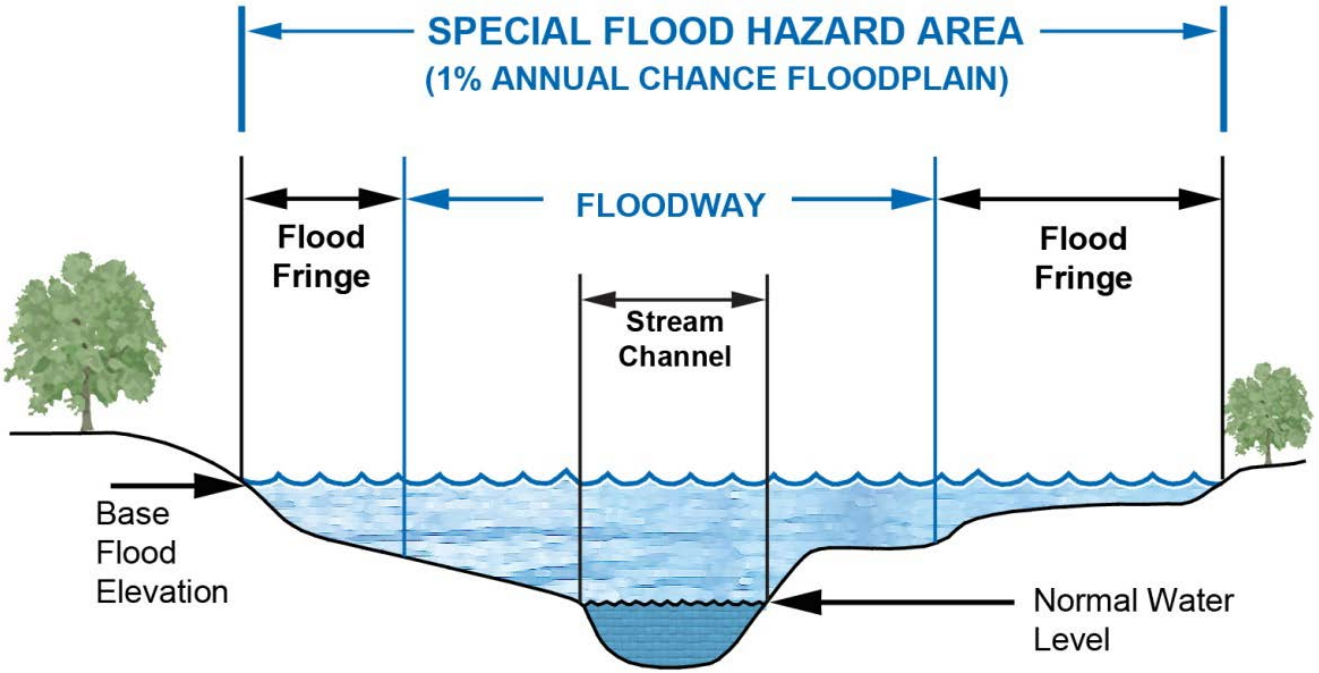


Figure 6. Riverine SFHA Schematic

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.

See page 18 to learn about the floodway, the area of the floodplain where flood waters are deeper and flow faster.

See page 7 to learn about flood insurance requirements in SFHAs.

For floodplains with Base Flood Elevations (BFEs) determined by detailed flood studies, the Flood Profile in the Flood Insurance Study shows detailed water surface elevations for different frequency floods (see page 23). BFEs determined by Limited Detailed Studies are listed in tables in the FIS report (see page 20).

Understanding the Floodway

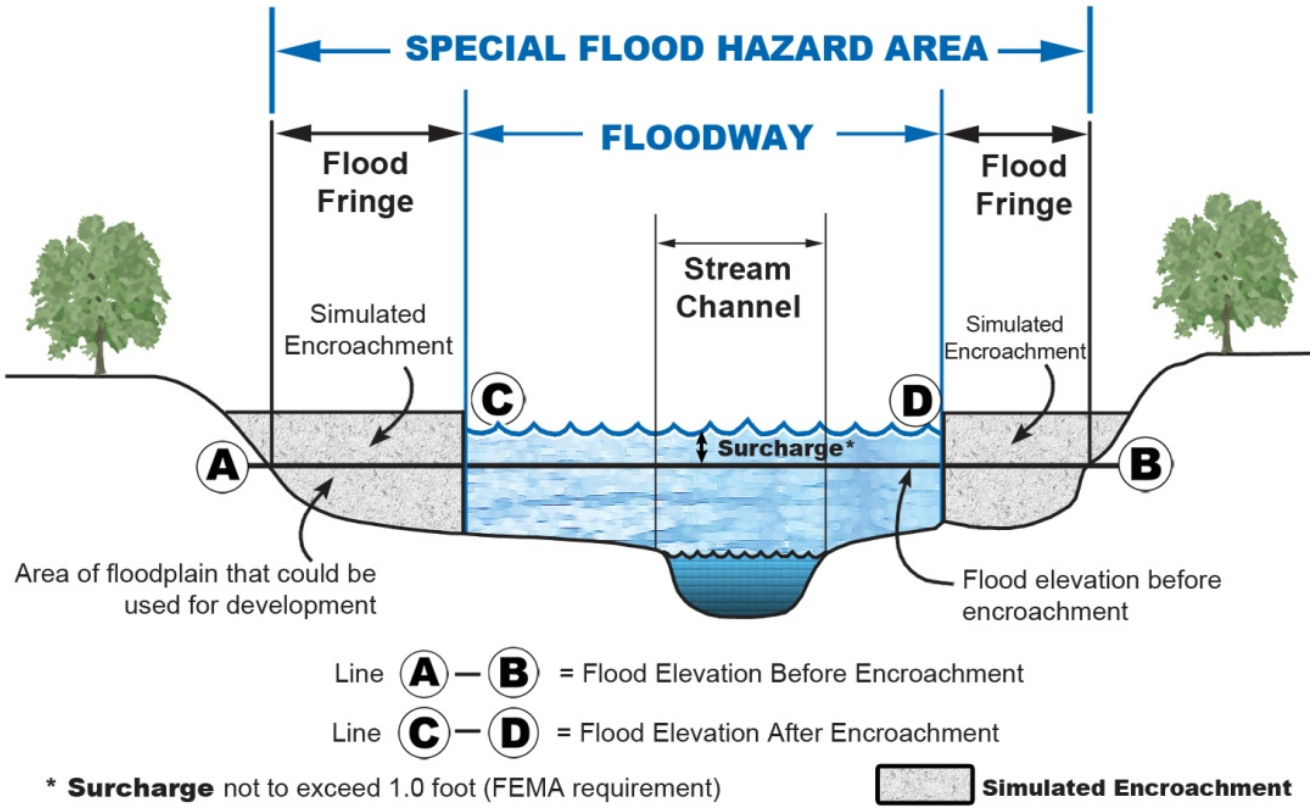


Figure 7. Floodway Schematic

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 the water surface elevation up to 1 foot.

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, the applicant must provide evidence that "no rise" will occur or obtain a Conditional Letter of Map Revision (CLOMR) before a local floodplain approval and building permit can be issued (see page 35). 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.

Approximate Flood Zones and Unnumbered A Zones

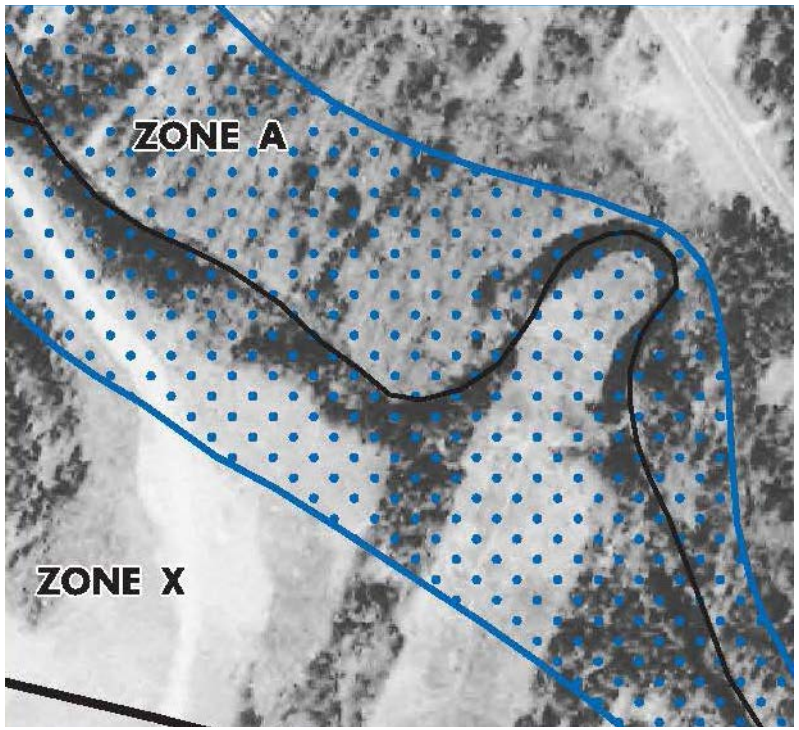


Figure 8. Approximate flood zone on a FIRM

In A Zones without BFEs, no encroachments, including structures or fill material, shall be located within the area defined by the distance from the top of the stream bank that is specified in your community's ordinance. BFE data from any source must be used when development is proposed outside of this setback distance.

Terms and DEFINITIONS

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

All applicants for new subdivision proposals greater than 50 lots or 5 acres, whichever is the lesser, must provide BFE data with the proposal. In unnumbered A Zones, applicants must either:

- Obtain and reasonably use available BFE and floodway data from Federal or State agencies; or
- Develop the BFE in accordance with accepted hydrologic and hydraulic engineering practices. BFE data shall be certified by a State-registered professional engineer (P.E.).

For assistance, contact your community's planning, engineering or permit office, or the GADNR Floodplain Management Office. 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 2 feet above the highest adjacent grade. This will improve flood protection and lower flood insurance premiums may apply.

Limited Detailed Study

Limited Detailed Study (LDS) is the term given to a method of delineating Special Flood Hazard Areas in areas that were originally mapped as Approximate A Zones (without BFEs) or for waterways that were not previously studied.

The map to the right shows distances that are marked every 1,000 feet along the stream centerline (shown as FT10,000 through FT15,000). The distances are measured going upstream from the stream's confluence with another waterway.

Communities with waterways studied using the LDS method receive a Limited Detailed Study report that contains information on estimated 1% annual chance water surface elevations. The distances marked along the stream on the map are used to locate a specific site, and the LDS report information provides the community information that is used in the same way BFEs are used for floodplain management purposes.

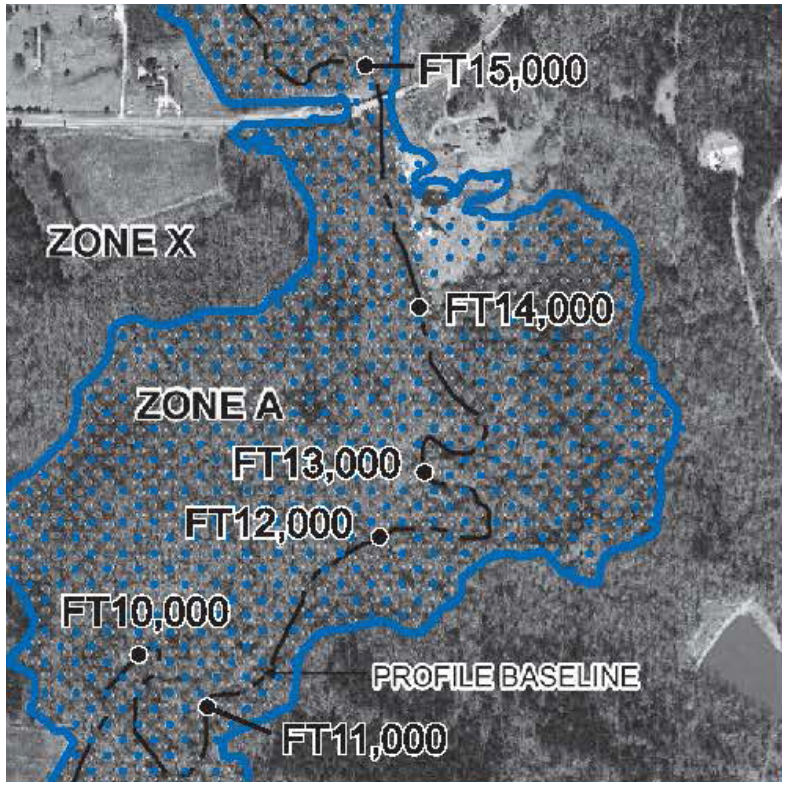


Figure 9. Limited Detailed Study on a FIRM

Floodways are not shown when the LDS method is used. When the FIRM shows BFEs but not floodways, the NFIP regulations require communities to ensure that no new construction, substantial improvement, or other development (including fill), is permitted "unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point."

Future Conditions Flood Mapping

Future development will cause more runoff which will increase flood frequency and flood levels. Communities in the Metro-North Georgia Water Planning District area are required to develop maps that show future-condition floodplains. If the flood map shows a shaded area that is labeled **Zone X (FUTURE)**, the area is the future conditions 1% annual chance (100-year) floodplain.

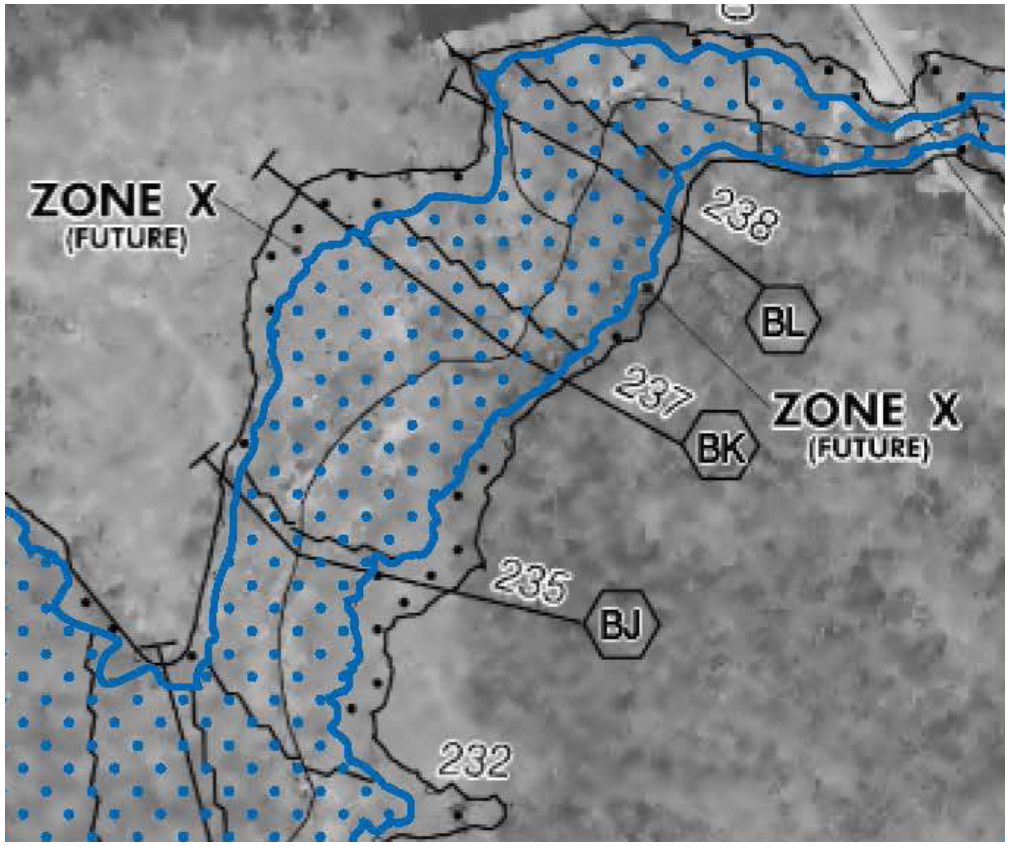


Figure 10. Future-condition floodplains on a FIRM

- Flood insurance is not required for buildings in mapped **Zone X (FUTURE)** areas—it is available at reduced rates.
- The future conditions flood elevation may be higher than the current condition BFE shown on the FIRM.
- Communities usually require new and substantially improved buildings in **Zone AE** and **Zone X (FUTURE)** areas to be elevated to or above the future conditions flood elevation. These buildings will continue to be protected as more development occurs and floods become more severe—and flood insurance will cost less (see page 80).

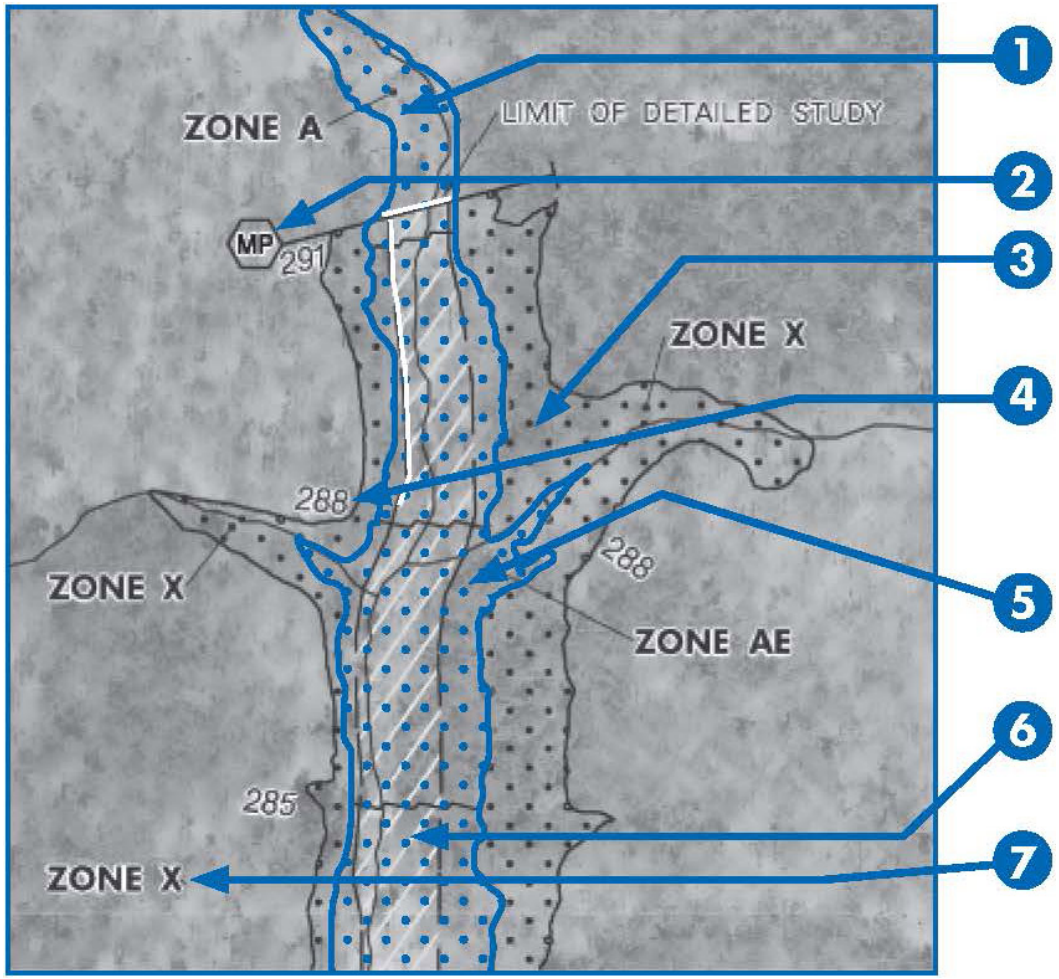


Figure 11. FIRM Symbology

1. **Zone A** (approximate) is the flood hazard area without BFEs.
2. **Cross Section** location (see page 28).
3. **Shaded Zone X** is the 0.2% annual chance (500-year) floodplain (formerly Zone B).
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. **Zone AE** is the 1% annual chance (100-year) floodplain with BFEs (formerly Zones A1-A30).
6. The **Floodway** is the cross-hatched area (see page 18).
7. **Unshaded Zone X** is all other areas considered low risk (formerly Zone C).

Use of the Riverine Flood Profile to Determine Riverine BFEs

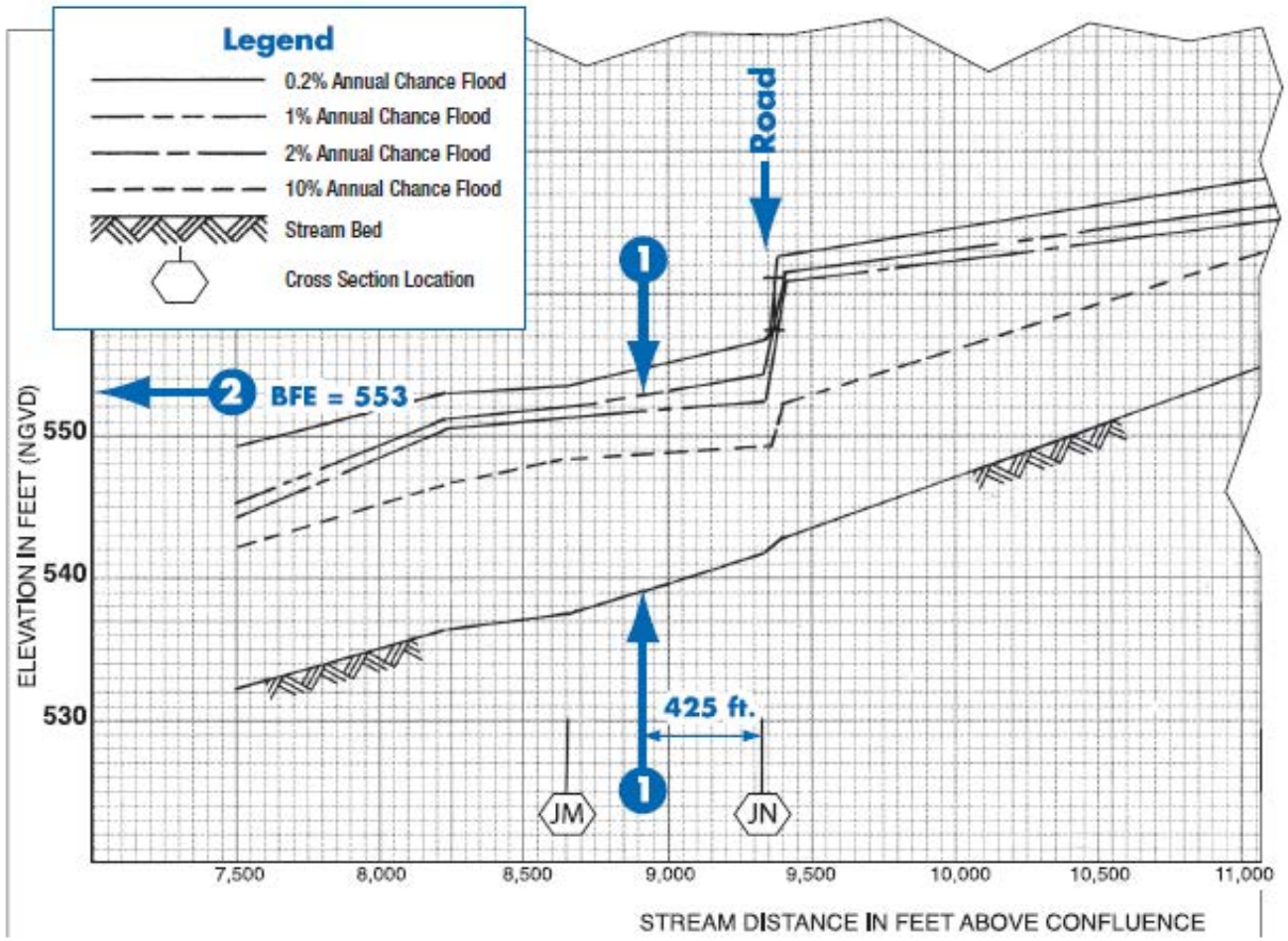


Figure 12. Flood Profile from an FIS Report

Flood Profiles from Flood Insurance Study (FIS) reports can be used to determine the BFE at a specific location. Profiles also show estimated water surface elevations for floods other than the 1% annual chance flood (100-year).

1 On the effective flood map, locate your site by measuring the distance, along the center- line of the stream channel, from a known point such as a road or cross section, for example, JM or JN

2 Scale that distance on the Flood Profile and read up to the profile of interest, then across to determine the BFE, to the nearest tenth of a foot.

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 lower risk, communities and levee owners must provide certification the levees meet certain design criteria. 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 shall address:

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

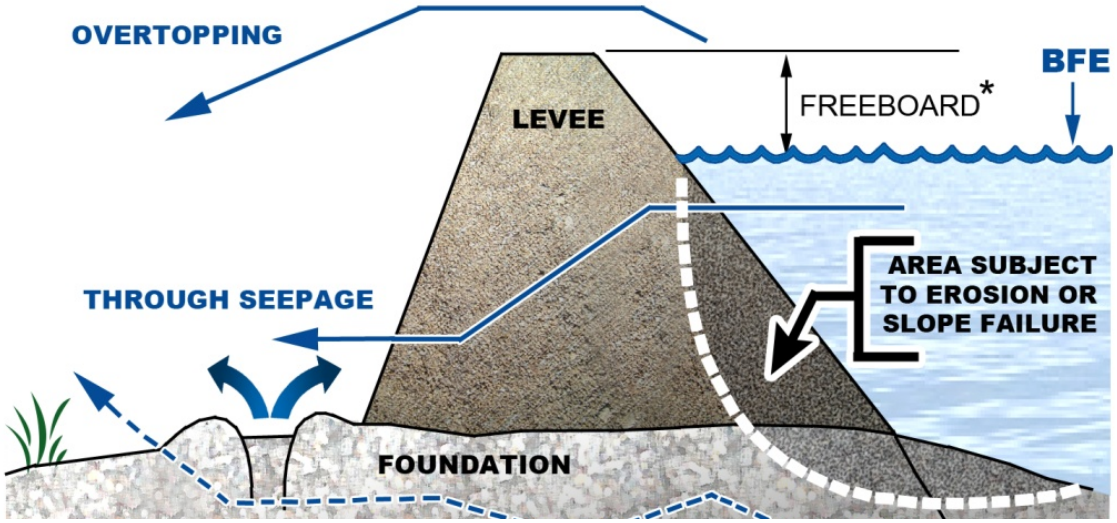


Figure 13. Levee Cross Section

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

In 2013, FEMA released a new approach to analyzing and mapping levees that recognizes that non-accredited levee systems (those that do not fully meet the requirements set forth in 44 CFR 65.10) may still provide a measure of flood risk reduction. Learn more about this approach and the collaborative process used to obtain local input into via the Final Levee Analysis and Mapping Procedures webpage on FEMA.gov.

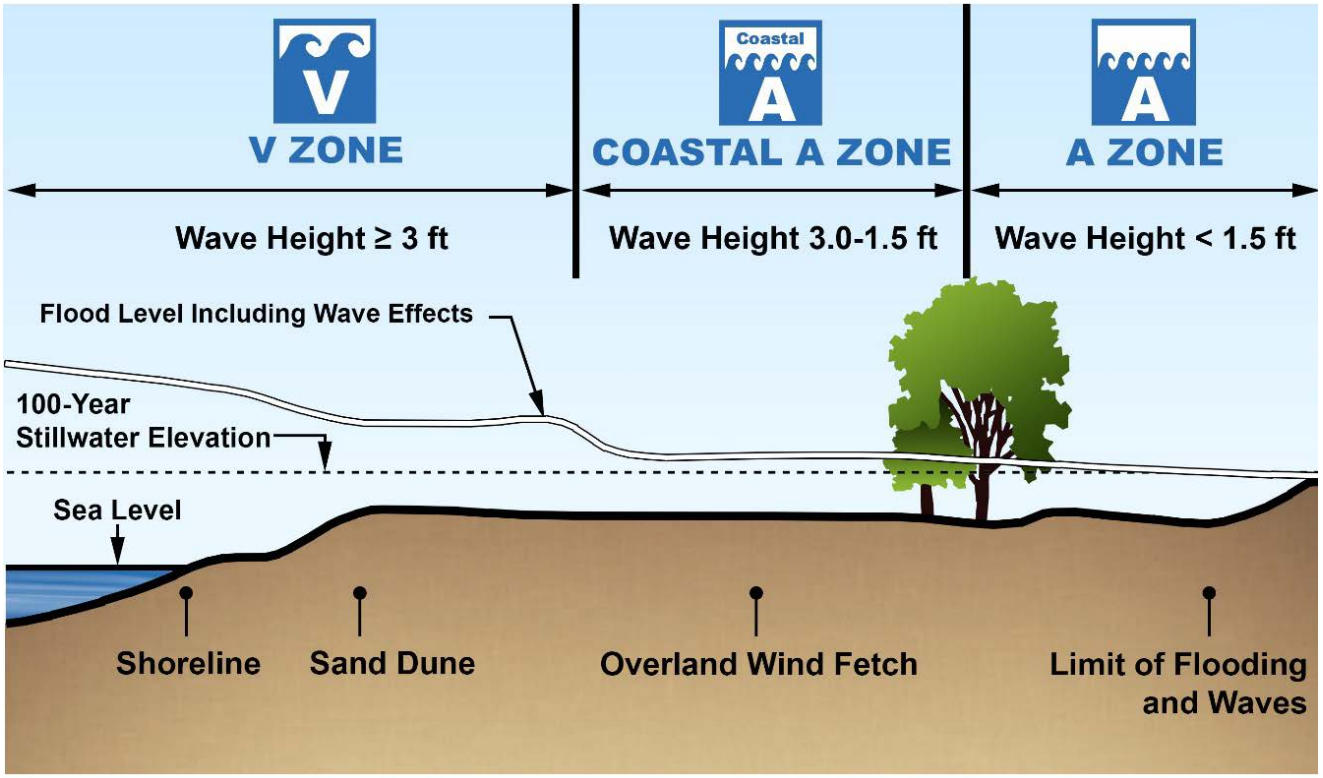


Figure 14. Coastal floodplain
(Graphic from FEMA's Coastal Construction Manual, FEMA 55-CD)

Areas subject to Coastal A Zone conditions (wave heights between 3 feet and 1.5 feet) may not be shown on FIRMs (see page 27). Some communities may treat the CAZ area as a V Zone and require development to comply with the V Zone requirements. See Article 4. Section F. Coastal High Hazard Areas (V-Zones and Coastal A [LiMWA]) of the Coastal Flood Damage Prevention Model Ordinance, which is available via the GADNR's Environmental Protection Division website, for Georgia-specific development criteria for coastal areas.

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.

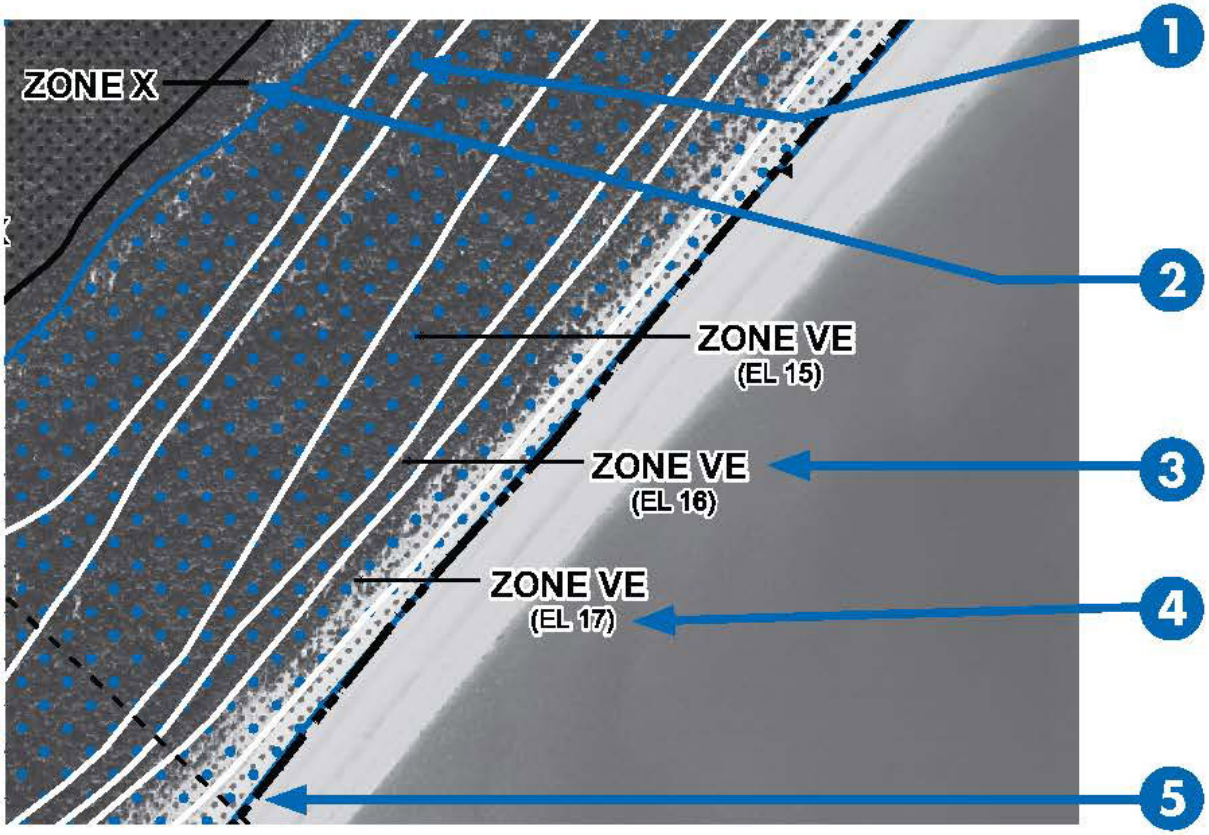


Figure 15. Coastal Flood Zones on a FIRM

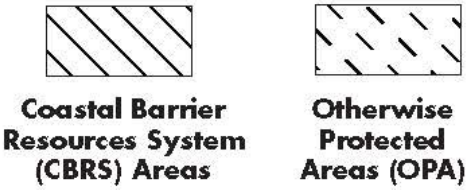
Zone AE is subject to flooding by the base or 1% annual chance (100-year) flood, and waves less than 3 feet high, (formerly called Zones A1-A30).

Unshaded Zone X is the area of minimal flood risk outside the 500-year floodplain, formerly called Zone C.

Zone VE is where wave heights are expected to be 3 feet or more.

Base Flood Elevation (BFE) is the water surface elevation (in feet above the vertical datum shown on the map).

Shoreline this is the baseline elevation used in conducting flood hazard modeling and mapping.



Coastal FIRMs may also include Coastal Barrier Resource System (CBRS) Areas, known as “CoBRA Zones,” and in Otherwise Protected Areas (OPAs). See page 27 for more information on CoBRA Zones and OPAs.

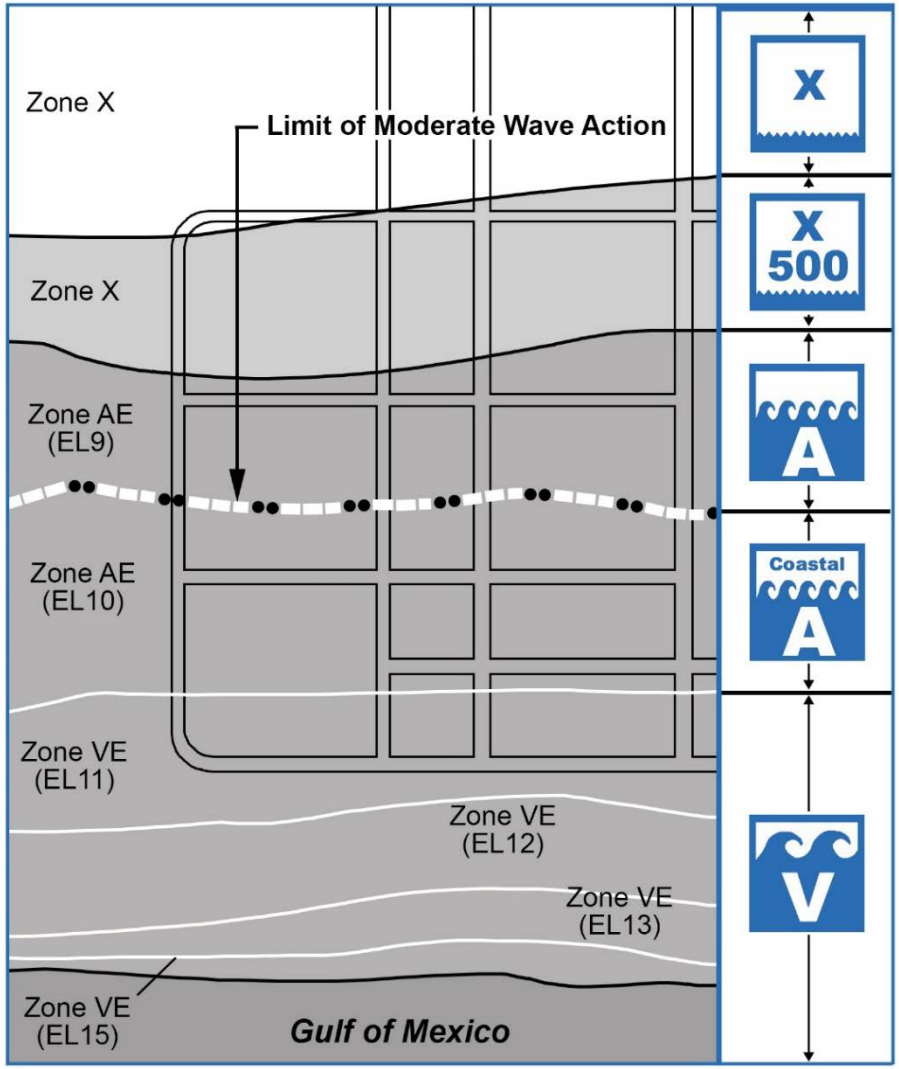


Figure 16. Example of a LiMWA on a FIRM

The approximate landward limit of areas subject to 1.5-foot breaking waves along coastlines during the base (one-percent-annual-chance) flood is called the Limit of Moderate Wave Action (LiMWA). The LiMWA is included on all new detailed coastal studies started in or after 2009. It is represented by a dashed black and white line on preliminary FIRMs and is provided for informational purposes only. The LiMWA is an important floodplain management tool.

- 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.
- Coastal A zone conditions are found inland of V Zones and along shorelines without V Zones.
- Coastal A zone conditions occur where stillwater depths are between 2 and 4 feet, which can support 1.5 to 3-foot waves (see page 25).
- 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 coastal A zones is rated using A Zone rates (lower than V Zone rates).

Coastal Barrier Resource System

In cooperation with the U.S. Department of the Interior, Fish and Wildlife Service, FEMA transfers the Coastal Barrier Resources System, or CBRS areas and Otherwise Protected Area (OPA) information directly from congressionally adopted source maps onto FEMA FIRM.

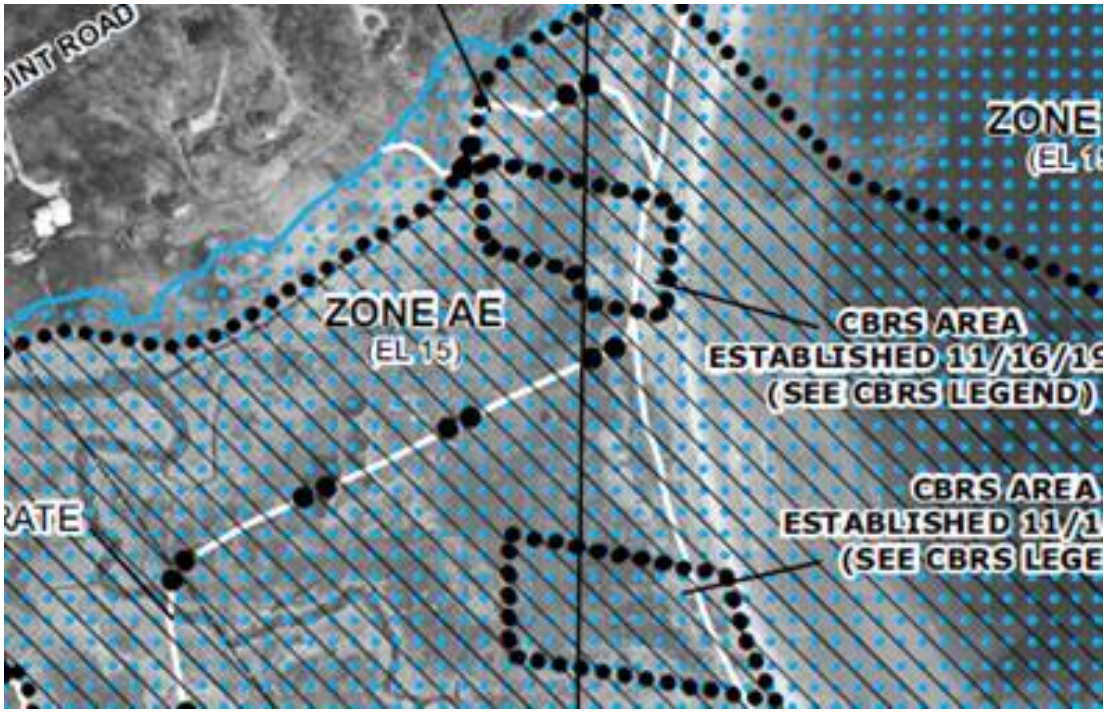
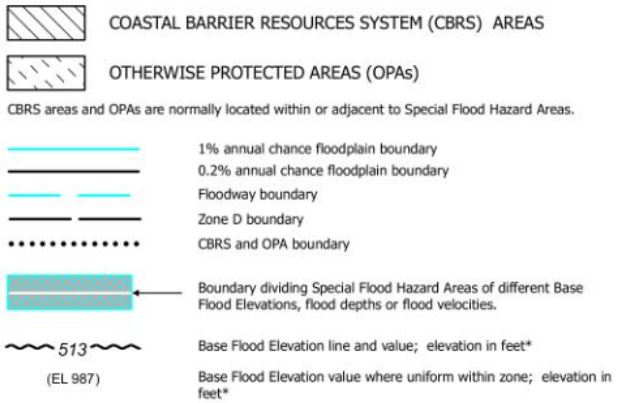


Figure 17. Coastal Barrier Resources System areas on a FIRM



CoBRA Zones and OPAs are important because no new flood insurance coverage is available for new and substantially improved structures built after October 1, 1983, or subsequently, the date the CBRS area and OPAs were designated.

Looking for FEMA Flood Map Information?

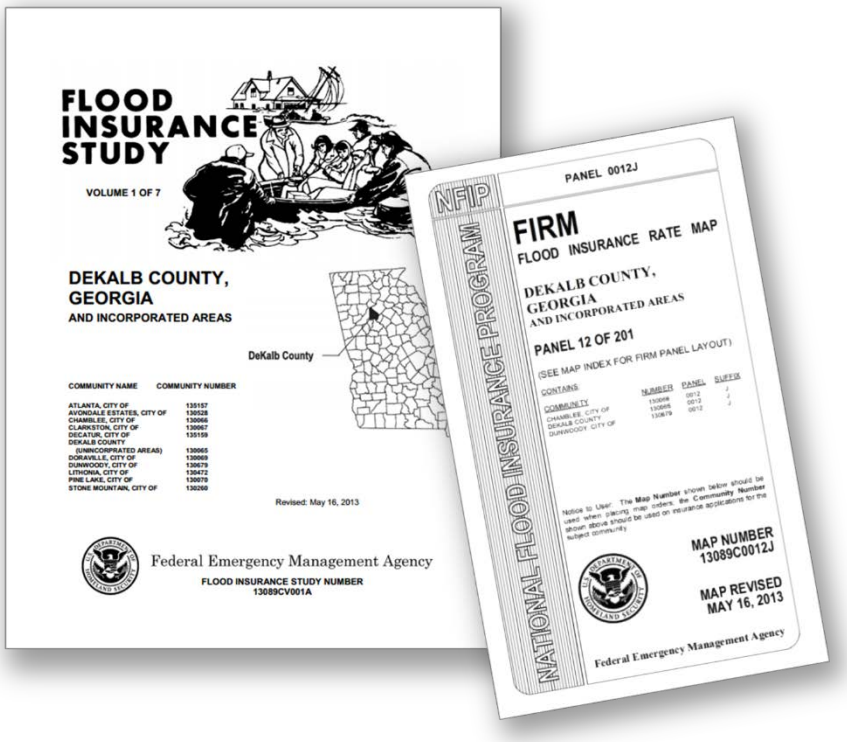


Figure 18. FIS report and FIRM panel for DeKalb County

- Visit the Georgia Department of Natural Resources Flood Map Viewer (see page 31).
- Visit the FEMA Flood Map Service Center at www.msc.fema.gov. You can view current and historic flood maps online or download digital scans of maps. Preliminary flood maps out for public review are also available.
- Order a CD-ROM or DVD online at www.msc.fema.gov or by calling (877) 366-2627.
- Check your city or county webpage. Many communities make available digital maps, including parcel data and flood hazard maps.
- Visit your community's Map Repository where paper flood maps are available for viewing by the public.

Want help interpreting the FIRM? Visit your community's planning, engineering, or permit office where flood maps are available for viewing by the public, contact Tom Shillock of the GADNR at Tom.Shillock@dnr.state.ga.us, or the FEMA Map Information Exchange toll free number at 877-336-2627.

FEMA's National Flood Hazard Layer (NFHL)

The NFHL is FEMA's nationwide geospatial database of all digital **effective** FIRM data. It

- Provides seamless nationwide coverage
- Integrates FIRM data including LOMCs
- Is viewable online through FEMA's GeoPlatform interactive map or using Google Earth
- Is available for download in GIS format by county or state (www.msc.fema.gov) or as web services
- Requires specialized GIS software to take advantage of it to its full capability

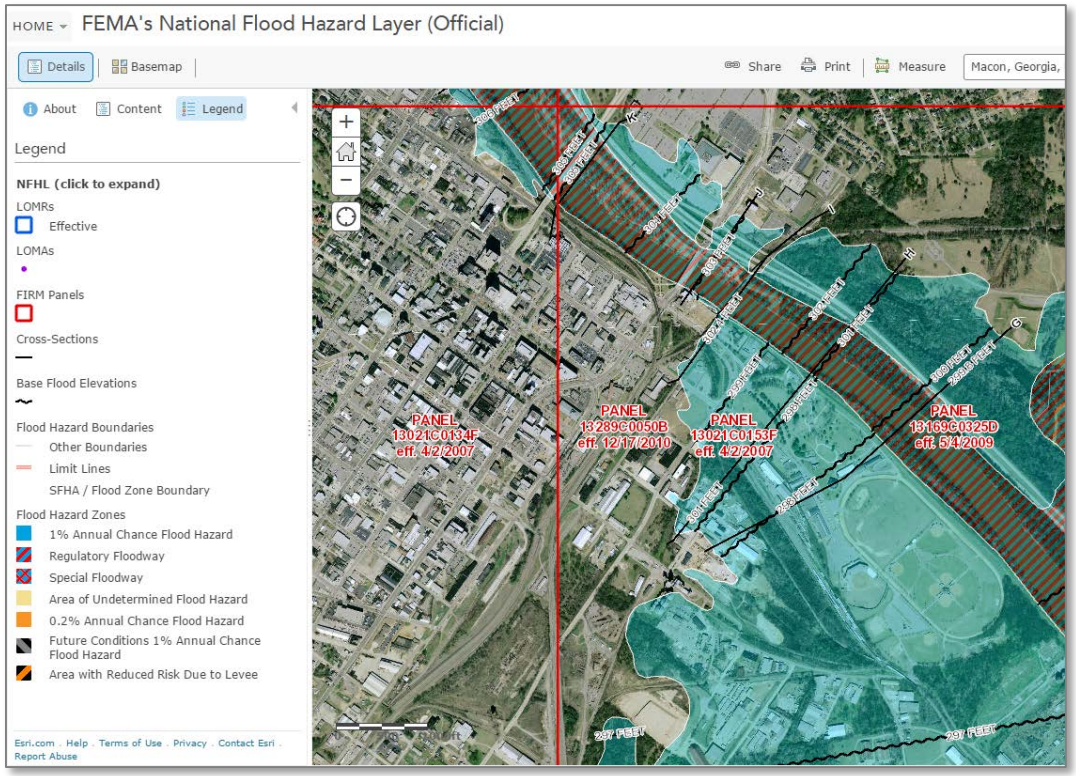


Figure 19. FEMA's National Flood Hazard Layer

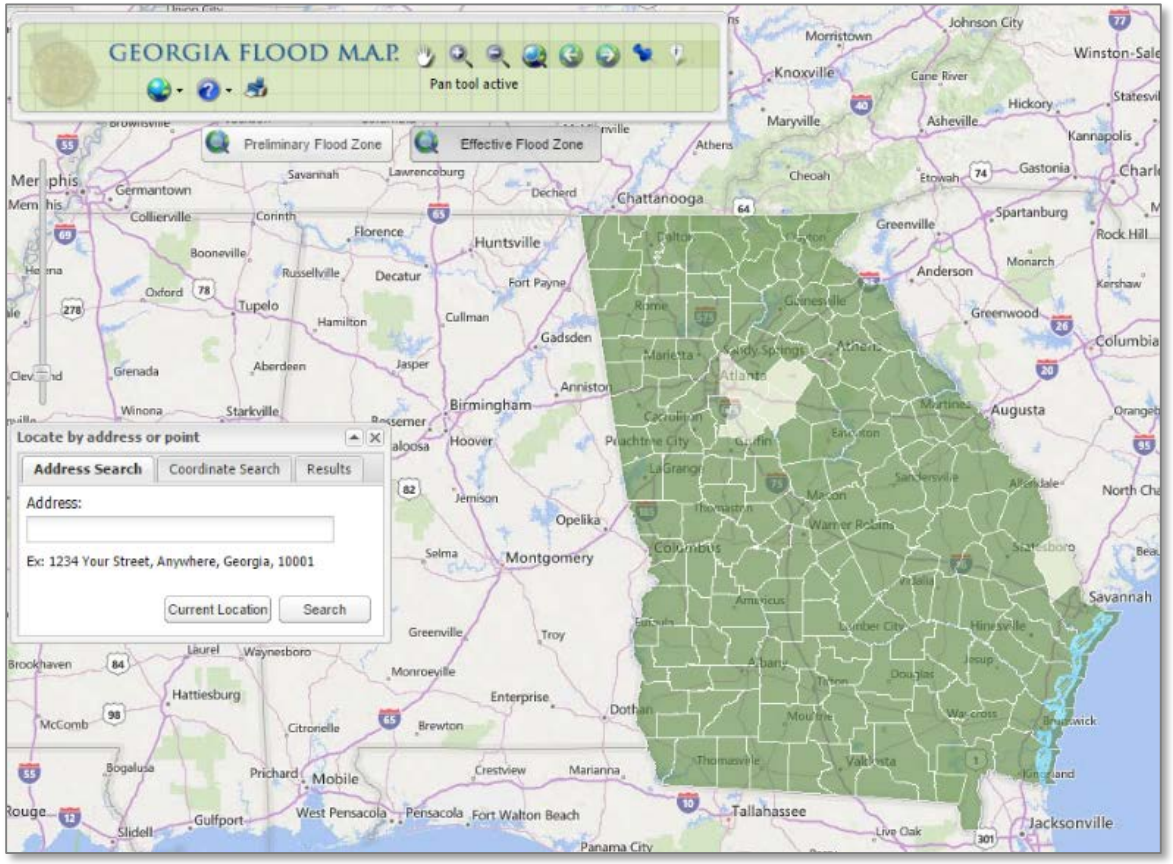


Figure 20. Flood Map Viewer
www.GeorgiaDFIRM.com

The GADNR GeorgiaDFIRM.com website connects community officials and property owners to flood map data, many helpful documents, and information about the Georgia Floodplain Mapping Program. Users can:

- View preliminary and effective FIRM information online
- Look up flood risk by property address, FIRM panel, or community
- Create a flood risk snapshot with flood zone information and probability of flooding
- Find resources, tutorials, and easy-to-use tools to help you read and interpret the FIRMs
- Check on ongoing updates to the flood maps in the state

Visit the Georgia Department of Natural Resources Flood Map Viewer at http://map.georgiadfirm.com

Flood Map Revisions Processed by FEMA

No map is perfect and no flood situation is static. From time to time, FEMA, communities, or individuals may find it necessary for a FIRM to be updated, amended, or changed. Common reasons why a map may need to be changed include:

- Including better ground elevation data
- Reflecting changes in ground elevation in the floodplain
- Reflecting new flood data
- Incorporating a new flood control project
- Correcting errors in non-flood-related features

FEMA uses two methods to make flood map changes. The first method is to redraw the map and publish a new FIRM. The second is through the **Letter of Map Change** (LOMC) process. There are six types of LOMCs:

- Letter of Map Amendment (LOMA) and electronic LOMA (eLOMA)
- Conditional Letter of Map Amendment (CLOMA)
- Letter of Map Revision Based on Fill (LOMR-F)
- Conditional Letter of Map Revision Based on Fill (CLOMR-F)
- Letter of Map Revision (LOMR)
- Conditional Letter of Map Revision (CLOMR)

- **Conditional Letter of Map Revision (CLOMR)** is a letter from FEMA 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 a final Letter of Map Revision (LOMR) based on as-built documentation and certification.

- **Letter of Map Revision (LOMR)** is an official revision to an effective FIRM that is 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 clearly outside of the SFHA.

Figure 21. FEMA Forms for Letters of Map Change

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".

- A **CLOMR** is required for proposed projects located (a) within the floodway that cause **ANY** BFE increases or (b) in a Zone AE area without a floodway determined that cumulatively increases the BFE by 1 foot or greater at any point.
- The CLOMR requestor must submit hydrologic and/or hydraulic analyses, a certified topographic work map, and annotated portions of the FIRM and/or FIS report to reflect flood hazard impacts of the proposed project (use FEMA MT-2 application package).
- The requestor must provide individual legal notice to all impacted property owners.

Insurable Structure "No Impact" Certification (example)

This is to certify that I am a duly qualified engineer licensed to practice in the State of Georgia.

This further certifies that no insurable structures* are located in areas that would be affected by BFE increases for *(stream name)* associated with the proposed construction of *(project identifier)*.

Signature _____ Seal _____

**"Insurable structure" as defined by the FEMA MT-2 Instructions*

Figure 22. Example of an insurable structure "no impact" certification form

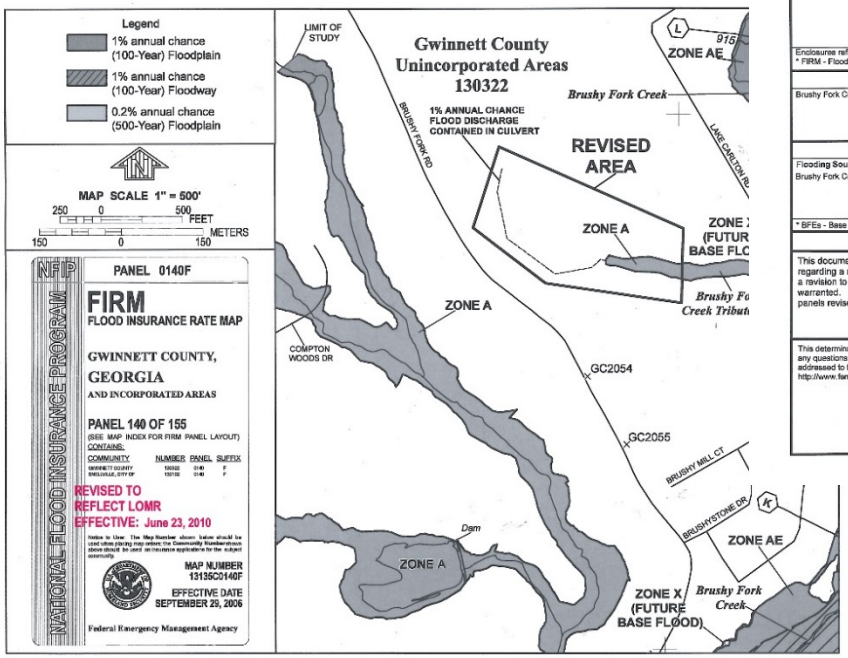
- The requestor must also submit an evaluation of project alternatives and a certified statement that no insurable structures will be impacted by the proposed project (see example in box above).

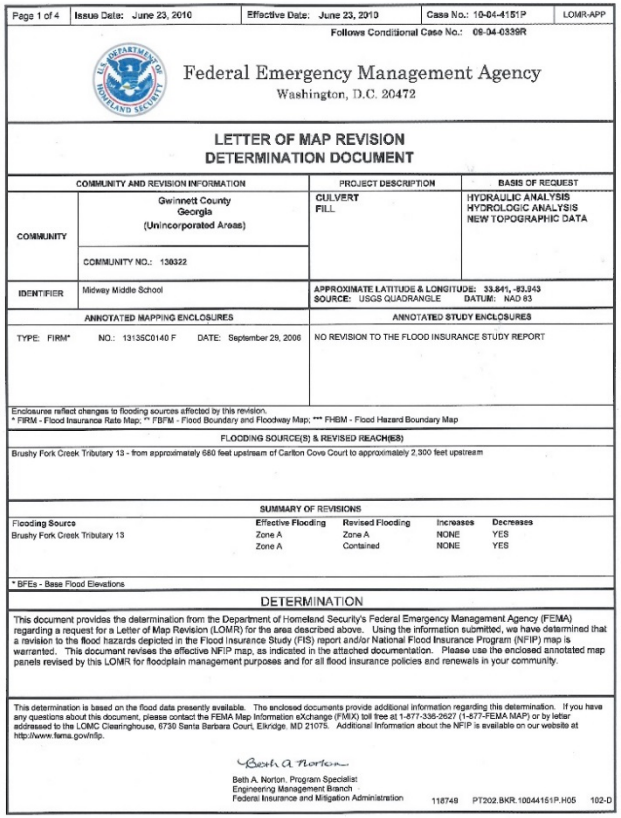
FEMA must be the supplier of the technical data to be used as the basis of the engineering analysis. Save time and money—don't build in the floodway!

See page 50 for more information on "no rise" certification with supporting documentation.

LOMRs physically update or refine the flood hazard information used to create the FIRM.

- Result in adjustment to the height of the BFE or boundaries of the SFHA
- Ensure that the FIRM is the most accurate reflection of the flood risk
- Requires engineering analyses and scientific data




Page 1 of 4 | Issue Date: June 23, 2010 | Effective Date: June 23, 2010 | Case No.: 10-04-4151P | LOMR-APP

Follows Conditional Case No.: 09-04-0339R

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	Gwinnett County Georgia (Unincorporated Areas)	CULVERT FILL	HYDRAULIC ANALYSIS HYDROLOGIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 130322		
IDENTIFIER	Midway Middle School	APPROXIMATE LATITUDE & LONGITUDE: 33.841, -83.943 SOURCE: USGS QUADRANGLE DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURES	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 13135C0140 F DATE: September 29, 2006	NO REVISION TO THE FLOOD INSURANCE STUDY REPORT

Enclosures reflect changes to flooding sources affected by this revision.
* FIRM - Flood Insurance Rate Map; ** FBFM - Flood Boundary and Floodway Map; *** FHBM - Flood Hazard Boundary Map

FLOODING SOURCE(S) & REVISED REACH(ES)

Brushy Fork Creek Tributary 13 - from approximately 680 feet upstream of Carlton Cove Court to approximately 2,300 feet upstream

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Brushy Fork Creek Tributary 13	Zone A	Zone A	NONE	YES
	Zone A	Contained	NONE	YES

* BFEs - Base Flood Elevations

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Beth A. Norton

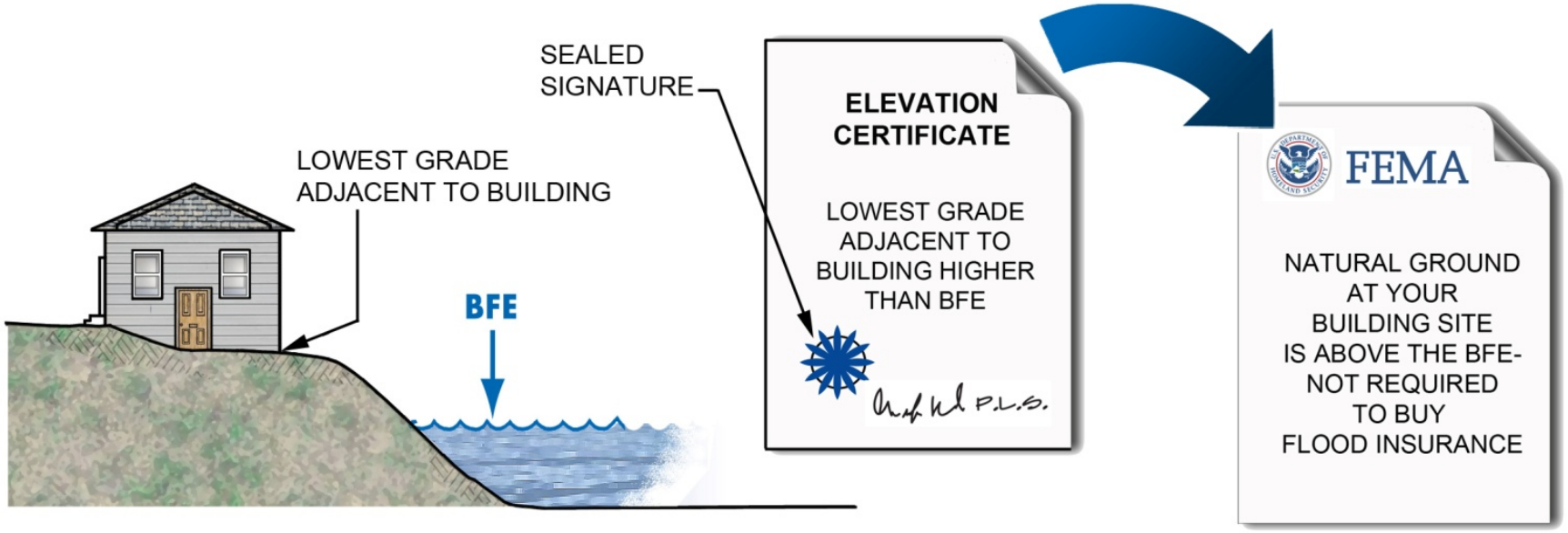
Beth A. Norton, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

118749 PT202.BKR.10044151P.H05 102-D

Figure 23. Example of a LOMR Determination Document

If floodplain modifications are made and a LOMR is not issued to update the flood hazard information, flood insurance rates and flood insurance requirements will continue to be determined based on the outdated, effective information.

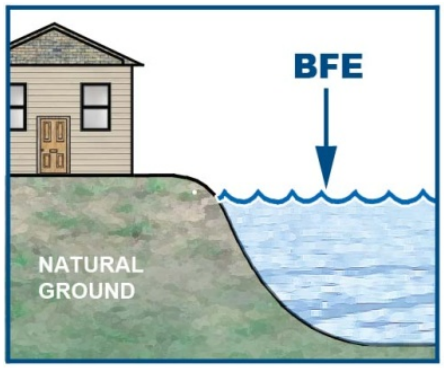
Is Your Building Site Higher Than the BFE?



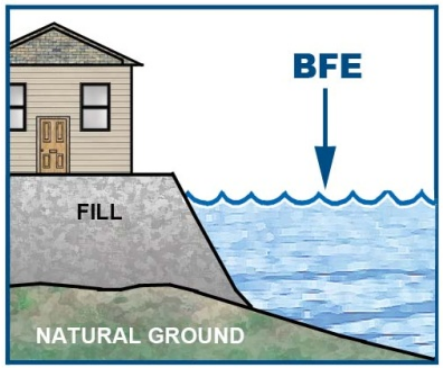
If your land is shown on the FIRM panel as being “in” the SFHA, but your building site is higher than the Base Flood Elevation (BFE), get a professional land surveyor or civil engineer to complete a FEMA Elevation Certificate (EC). Submit a request for a Letter of Map Amendment to FEMA along with the EC to verify that your structure is above the BFE (see page 39). If FEMA approves your request, it will remove the structure or property from SFHA; however, lenders may still continue to require flood insurance coverage. Keep the certificate and the LOMA with your deed; they will help future buyers.

Flood Zone Determinations Processed by FEMA

The most accurate information available is used to make flood maps, including topographic base maps and detailed engineering methods or methods of approximation. However, the flood maps are not property-specific. Upon request FEMA can make an official determination regarding whether a property or structure is in the SFHA, provided technical data are submitted to support such a request. The following property-specific determinations are processed by FEMA:



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 for a property or structure. This may include ground elevations relative to the BFE. Lenders may waive the flood insurance requirement if the LOMA determines a property or structure is above the BFE and is no longer located in the SFHA.



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. Lenders may waive the insurance requirement if the LOMR-F determines a property or structure is above the BFE and is no longer located in the SFHA.

Check online at http://www.fema.gov/letter-map-amendment-letter-map-revision-based-fill-process for more about map amendments and revisions for different user groups (homeowners, floodplain managers, surveyors, engineers, and insurance professionals). Also learn about eLOMA, a web-based application for surveyors and engineers allowing them to electronically submit simple LOMAs to FEMA.

Activities in SFHAs that Require Reviews and Permit Approvals

- Construction of new buildings
- Additions to existing buildings
- Substantial improvements of existing buildings
- Renovation of existing 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 roads, bridges and culverts
- Placement of fill, grading, excavation and dredging
- Alteration of stream channels

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

Site Planning: Build it out, Build it Higher, Build it Safer

The NFIP's minimum standards are just that—minimums!

Long before a flood occurs, there are opportunities for communities to keep homes and businesses out of harm's way. This means guiding new and improved development away from flood-prone areas, and ensuring that new homes and businesses in these areas are built to standards that minimize risk.

The following floodplain management best practices should be considered as floodplain development plans are developed and permits approved.

- Build it Out – if the lot permits, locate the building footprint outside the SFHA
- Build it Up – incorporate freeboard into the building design
- Build it Safer – incorporate safer building design such as V zone building standards in coastal A zones

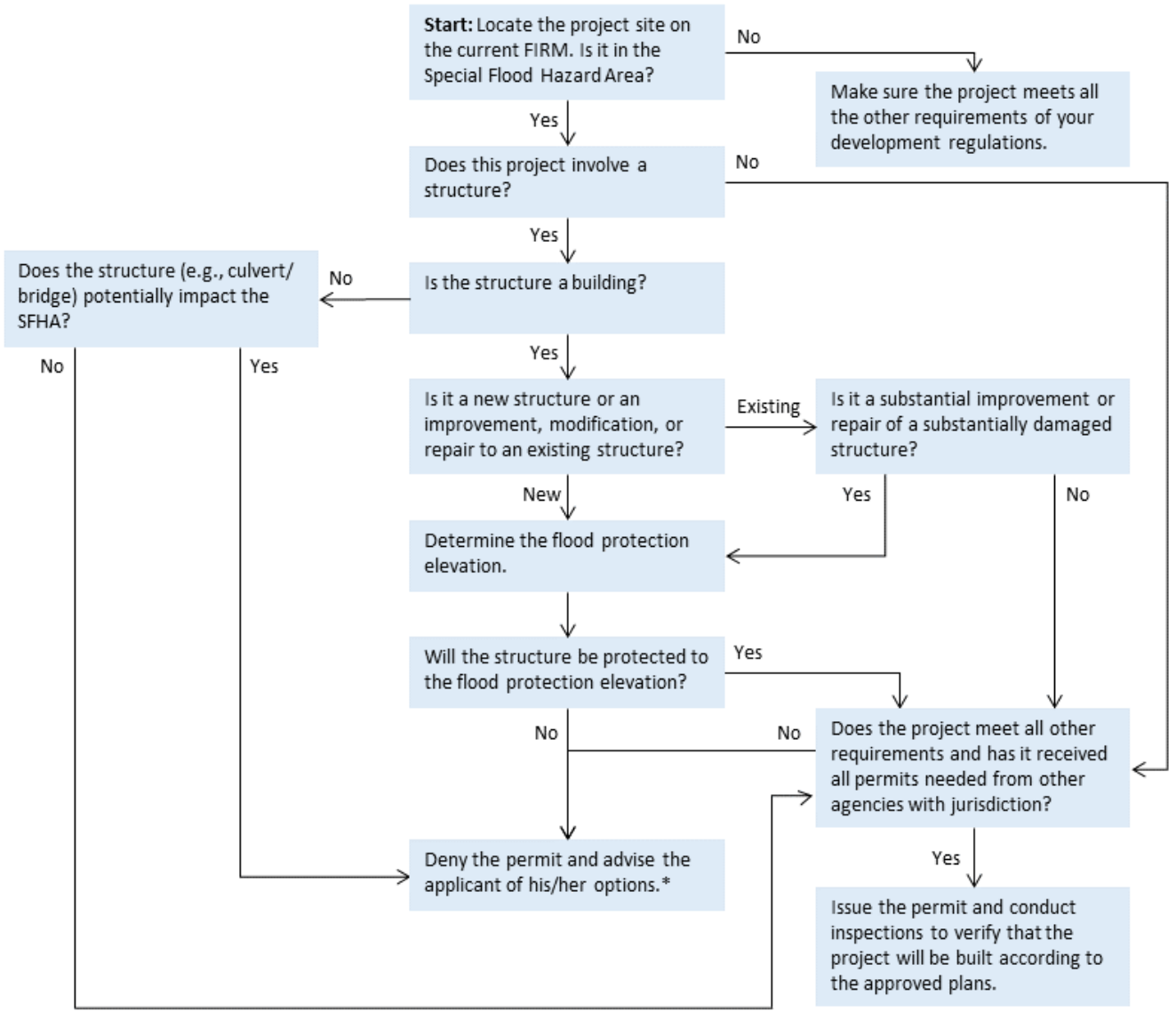
Economic development and responsible floodplain development can co-exist. Learn about community-led techniques used to provide a higher level of flood protection to their citizens and to reduce flood losses over time in the Association of State Floodplain Managers' publication titled No Adverse Impact: A toolkit for Common Sense Floodplain Management.

Key Floodplain Development Permit Review Steps

The permit reviewer will use a checklist to guide the review and identify key issues. Some of the key questions are:

- Is the site near a watercourse?
- Is the site in the mapped FEMA floodplain or floodway?
- Have other federal permits been obtained?
- Is the site reasonably safe from flooding?
- Does the site have a low, medium, or high risk of flooding?
- Does the site plan show the flood zone, Base Flood Elevation, and building location?
- Is substantial improvement of an older building proposed?
- Is an addition proposed?
- Will new buildings and utilities be elevated properly?
- Do the plans show an appropriate and safe foundation?
- Will the owner/builder have to submit an as-built Elevation Certificate?

Typical Floodplain Development Permit Process



*If a structure (bridge, culvert, or channel modification), “no rise” certification may be required (see page 50)

Figure 24. Sample Floodplain Development Permit Process

Owner's Name:
David & Sally Jones

Site Address, Tax #, Parcel #:
781 Reed Street, 025-1-182-00-0

Part of a Sample Application
(may vary by community)

A. Description of Work

1. Proposed Development Description:

- [x] New Construction
- [ ] Alteration or Repair
- [x] Filling
- [ ] Grading
- [ ] Dredging
- [ ] Manufactured/Modular
- [ ] Logging
- [ ] Other

2. Size and Location of Development

Single family (2,000 CY fill); floodway fringe of Oak Creek

3. Type of Construction

- [x] New Residential
- [ ] New Non-Residential
- [ ] Addition
- [ ] Improvement
- [ ] Renovation
- [x] Accessory structure
- [ ] Temporary

Community, Map, and Elevation Data:

1. Community No: 130092
2. Panel No: 13127C0075F
3. Zone AE
4. Base Flood Elevation 59.2
5. Required Lowest Floor Elevation (including basement) 60.2
6. If floodproofed, required floodproofing elevation N/A
7. Elevation to which all attendant utilities, including all heating, duct work, and electrical equipment will be installed or floodproofed: 60.2

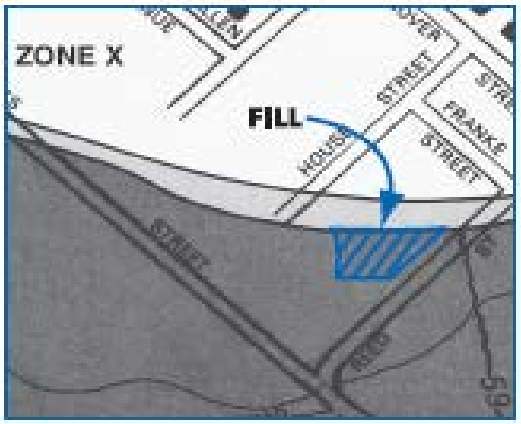
Applicant's Signature: David M. Jones

Figure 25. Sample floodplain development permit application

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 the floodplain.



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 community official may complete the EC for sites in Approximate A Zones and AO Zones.
- The EC can be used to support the request for a LOMA and LOMR-F.
- The EC is used to verify that buildings are elevated properly (see page 52).
- Insurance agents use the EC to write and rate flood insurance policies.
- See page 85 for online EC training resources.

Figure 26. FEMA EC Form

Important Information

The EC is an essential floodplain management tool to document the building standards of the NFIP and the community's local ordinance have been met.

By itself, the EC cannot be used to waive the requirement to obtain flood insurance. See page 39 to learn about FEMA's Letter of Map Amendment process.

SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: ☐ Construction Drawings* ☐ Building Under Construction* ☒ 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 PA0025 Vertical Datum NAVD 1988

Conversion/Comments

a)	Top of bottom floor (including basement, crawl space, or enclosure floor)	627.0	☒ feet
b)	Top of the next higher floor	N/A	☐ feet
c)	Bottom of the lowest horizontal structural member (V Zones only)	N/A	☐ feet
d)	Attached garage (top of slab)	622.5	☒ feet
e)	Lowest elevation of machinery or equipment servicing the building (Describe type of equipment in Comments)	627.0	☒ feet
f)	Lowest adjacent (finished) grade (LAG)	622.5	☒ feet
g)	Highest adjacent (finished) grade (HAG)	626.8	☒ feet

PLACE SEAL HERE

ELEVATION CERTIFICATE (partial)

In this example, the BFE is 625.0 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.

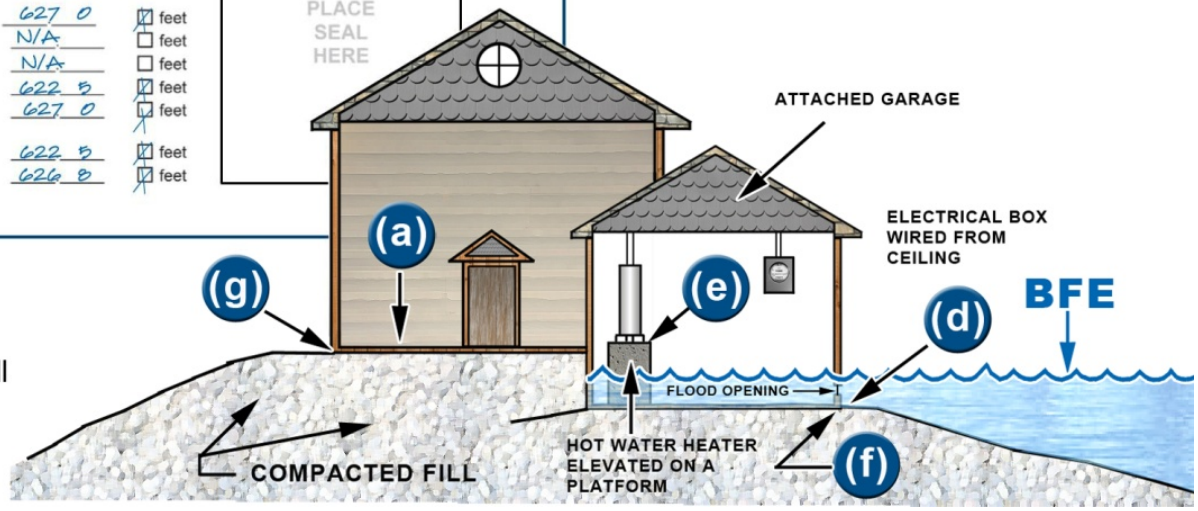


Figure 27. Building Elevation Information section of FEMA EC

Think Carefully Before You Request a Floodplain Variance

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

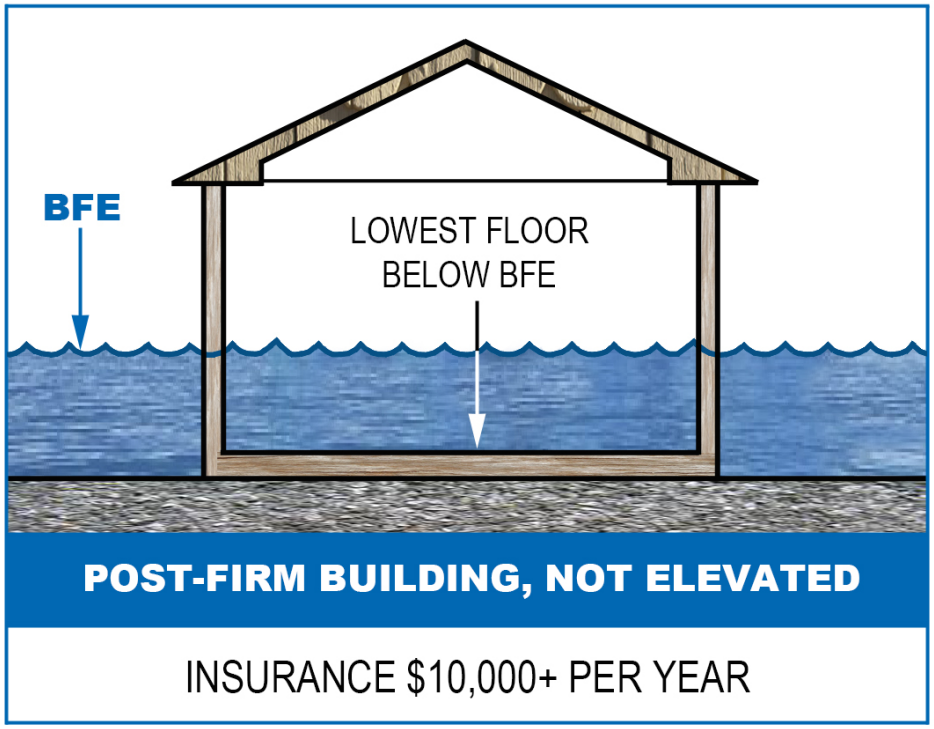


Figure 28. Flood insurance on a post-FIRM building with its lowest floor below the BFE

- 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 per year (see page 80).

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, sanctions could be imposed—costing you even more!

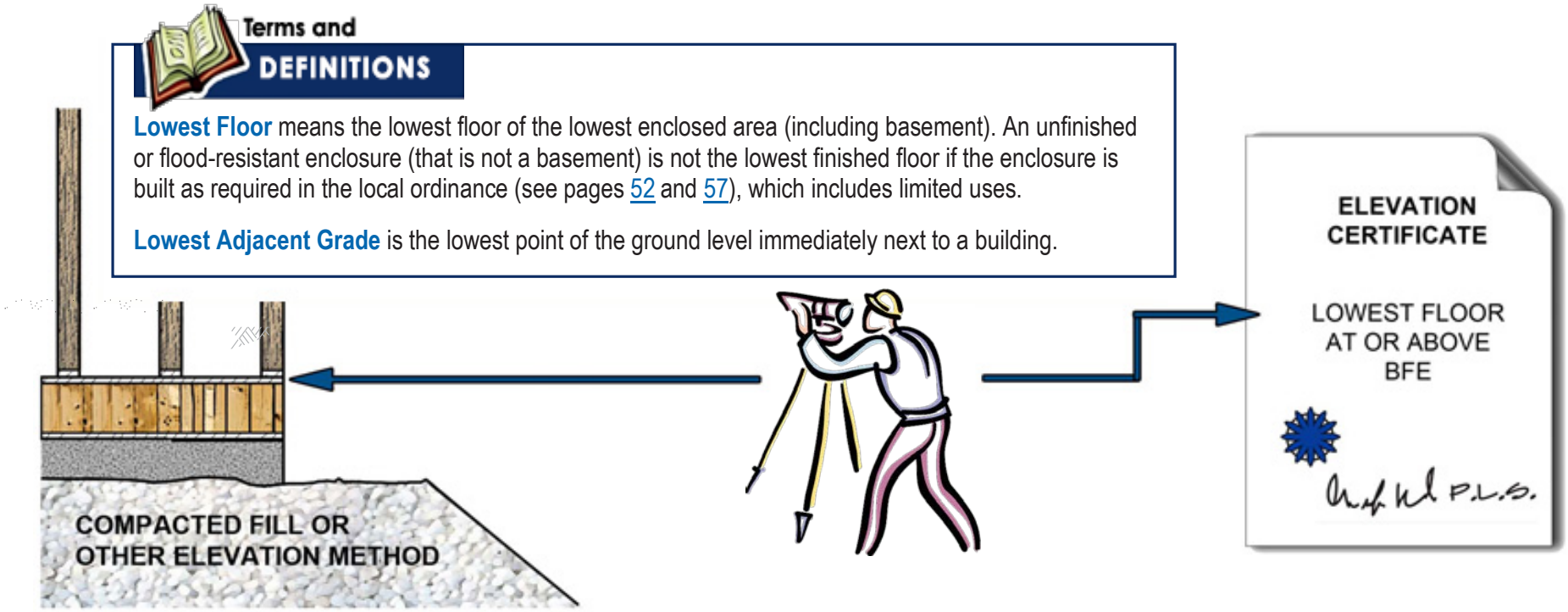


Figure 29. Survey Point of Lowest Floor

If you get a permit to build in the floodplain, 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 documents that you built correctly. It can be used to obtain the correct insurance rating.

Floodplain Fill Can Make Things Worse

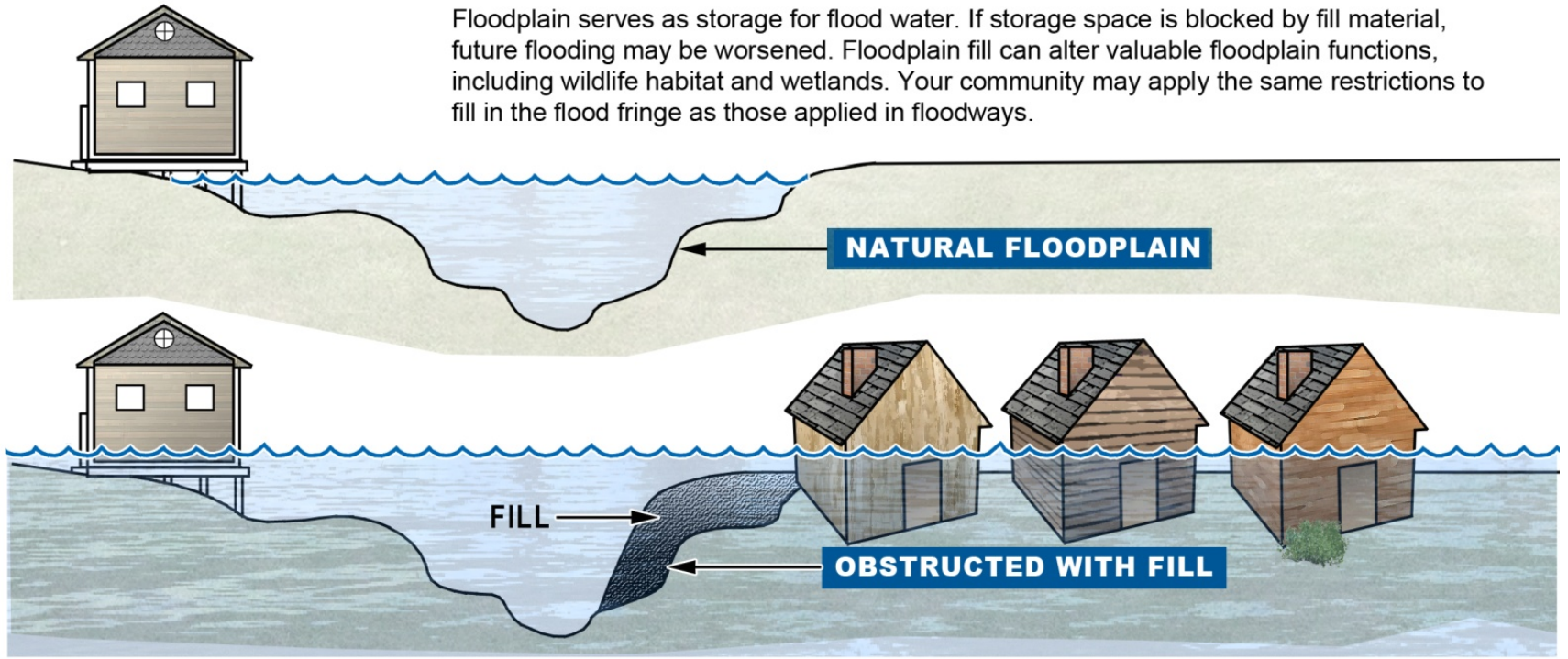


Figure 30. Obstructions Caused by Floodplain Fill

Make sure your floodplain fill project won't harm your neighbors. Before deciding that your project requires the placement of fill, check with your local community or GADNR. You may be required to submit a Conditional Letter of Map Revision (CLOMR) application and supporting data (see page 35).

Required "No Rise" Certification

- Floodways can be dangerous because of high flow velocities.
- "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.

Engineering "No Rise" Certification (example)

This is to certify that I am a duly qualified engineer licensed to practice in the State of Georgia. 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 _____

Figure 31. Example of an engineering "no rise" certification

- If the FIRM for your site shows Approximate A Zones, check with your community and the local Flood Damage Prevention Ordinance before you do any work in the area.

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!

Compaction of Floodplain Fill

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. For safety 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)

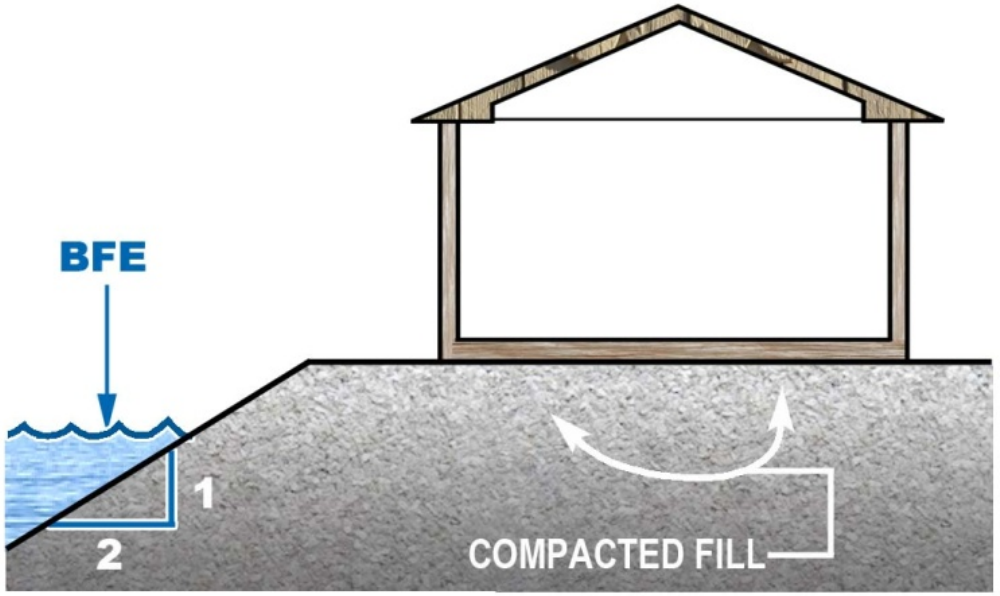


Figure 32.Fill Compaction and Slope Criteria

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."

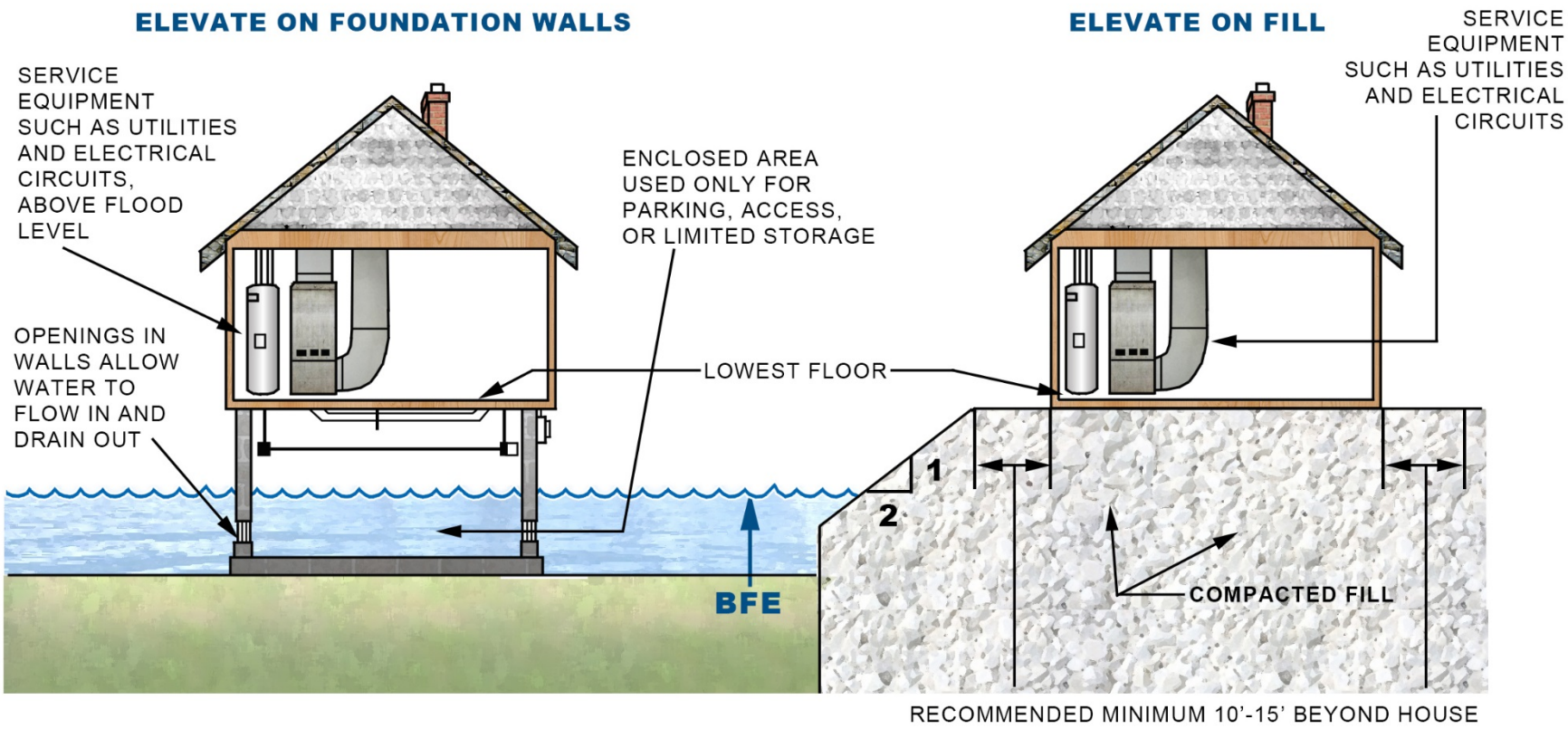


Figure 33.Elevation of Utilities

CAUTION! Enclosures (including crawlspaces and basements) have some special requirements (see pages 53 and 59). 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 pages 49-50).

Enclosures Below the Lowest Floor (A Zone)

NOTE:

- Total net area of all total openings is 1 square inch per square foot of enclosed area
- A 30’ x 40’ building needs 1,200 square 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 square 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.

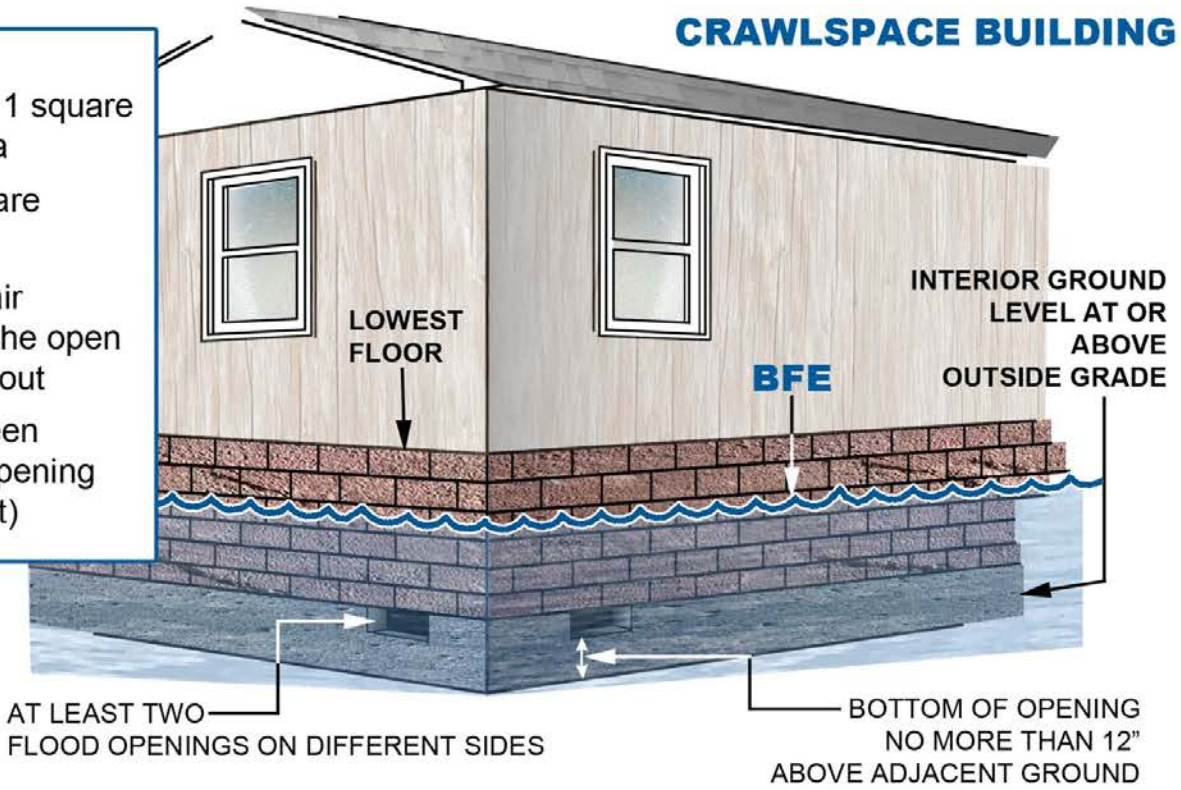


Figure 34. Flood Openings

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 vents/openings, elevated utilities, flood-resistant materials, and limitations on use.

Crawlspace Details (A Zones)

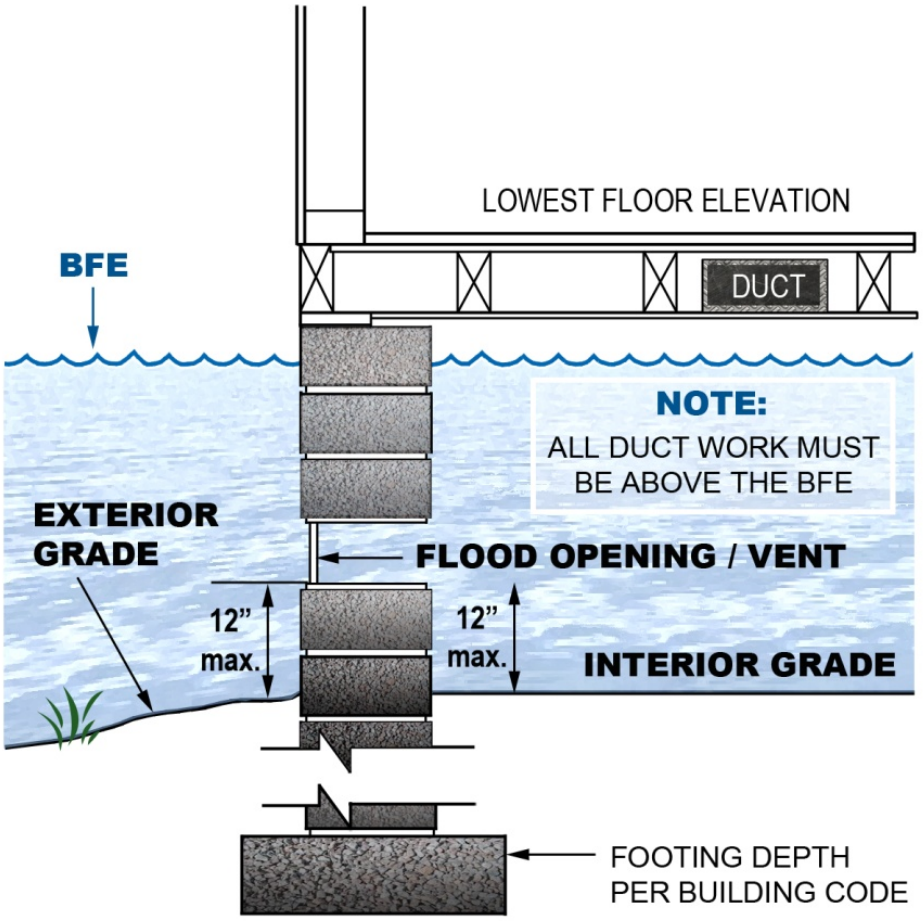


Figure 35. Crawlspace Details

- 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/vents must be no more than 12 inches above grade (interior or exterior).
- 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.
- More information on venting requirements can be found in FEMA Technical Bulletin 1 titled "Openings in Foundation Walls and Walls of Enclosures."

Calculate Net Flood Opening

A building that measures 30' x 40' has 1,200 square feet of enclosed crawlspace. Flood vents must provide 1,200 sq. in. of net open area (or be 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 used certified engineered openings.

Basements Are Especially Flood-Prone

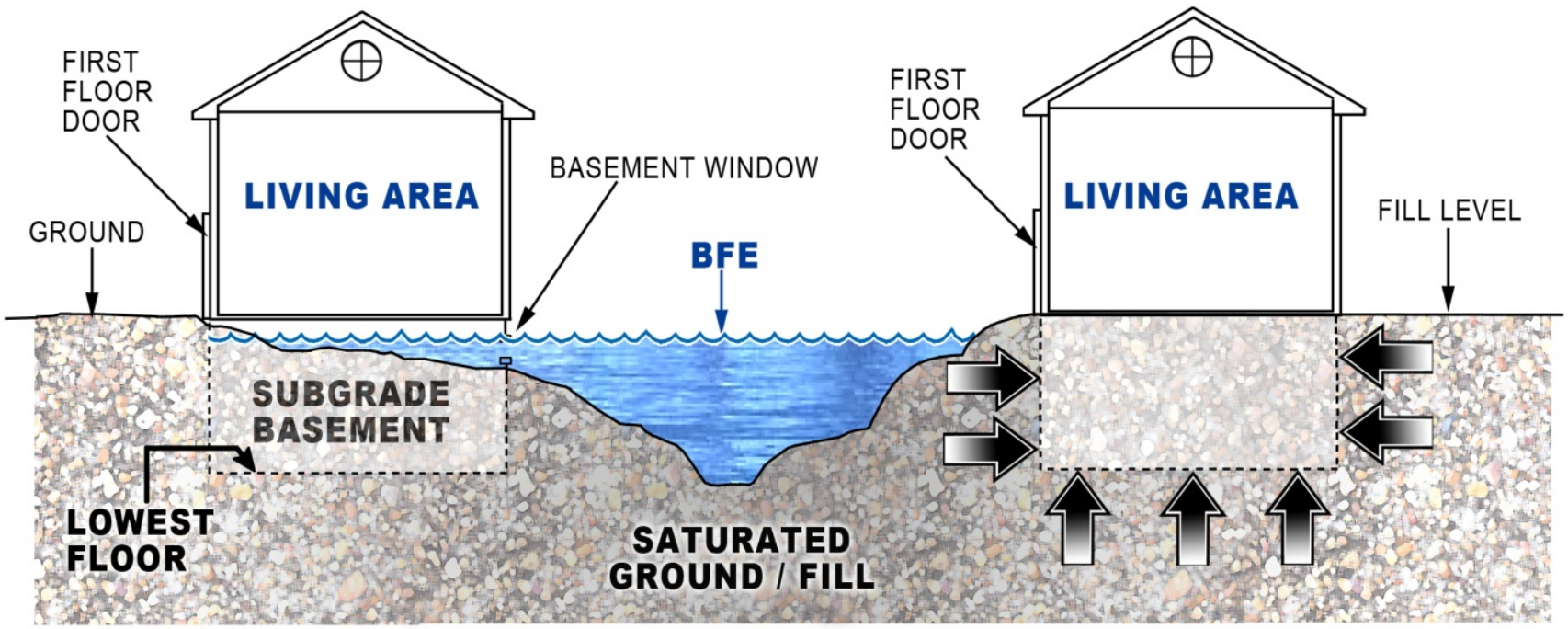


Figure 36.Basements are not allowed in new buildings in the SFHA

Basements below the BFE **are not allowed in new buildings** and 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 make it safe because saturated groundwater can damage the walls. For more information on basements, see FEMA Technical Bulletin 10-01 titled "Ensuring That Structures Built on Fill In or Near Special Flood Hazard Areas Are Reasonably Safe from Flooding."

Terms and DEFINITIONS

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

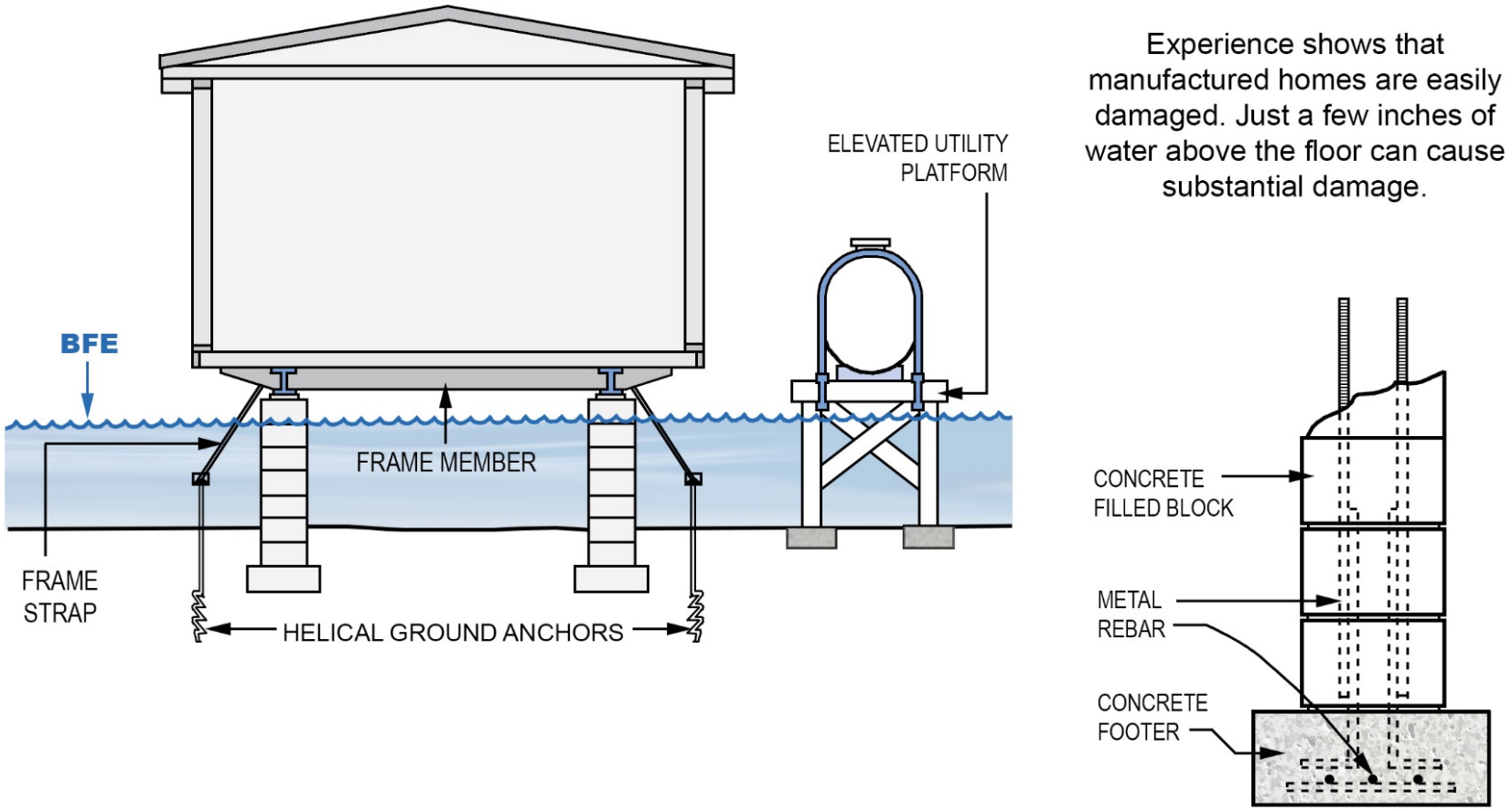


Figure 37. Anchored manufactured home

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

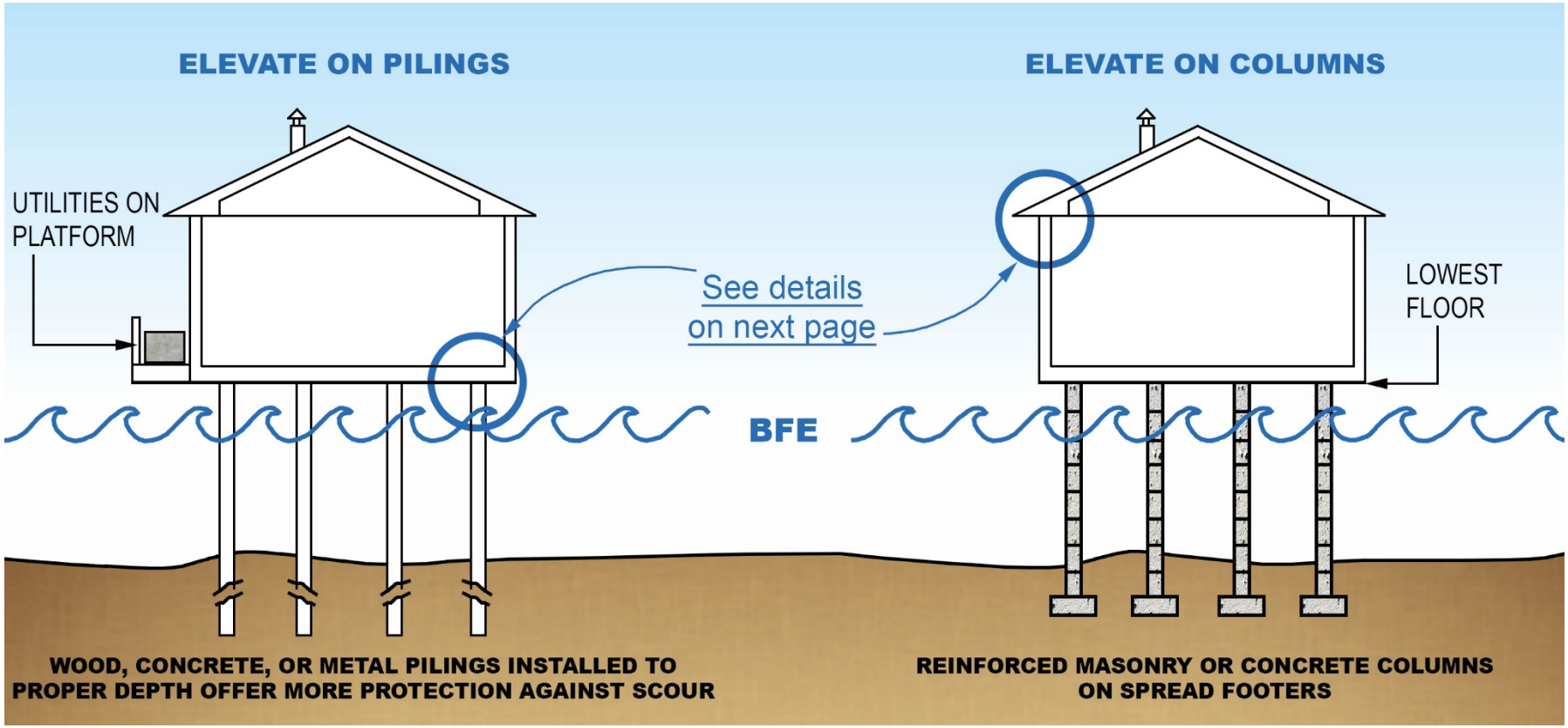


Figure 38. Coastal Construction Methods

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 60). For development criteria for coastal areas, see Georgia's Coastal Flood Damage Prevention Model Ordinance at https://epd.georgia.gov/floodplain-management.

Coastal Homes Must Resist Wind and Water Forces

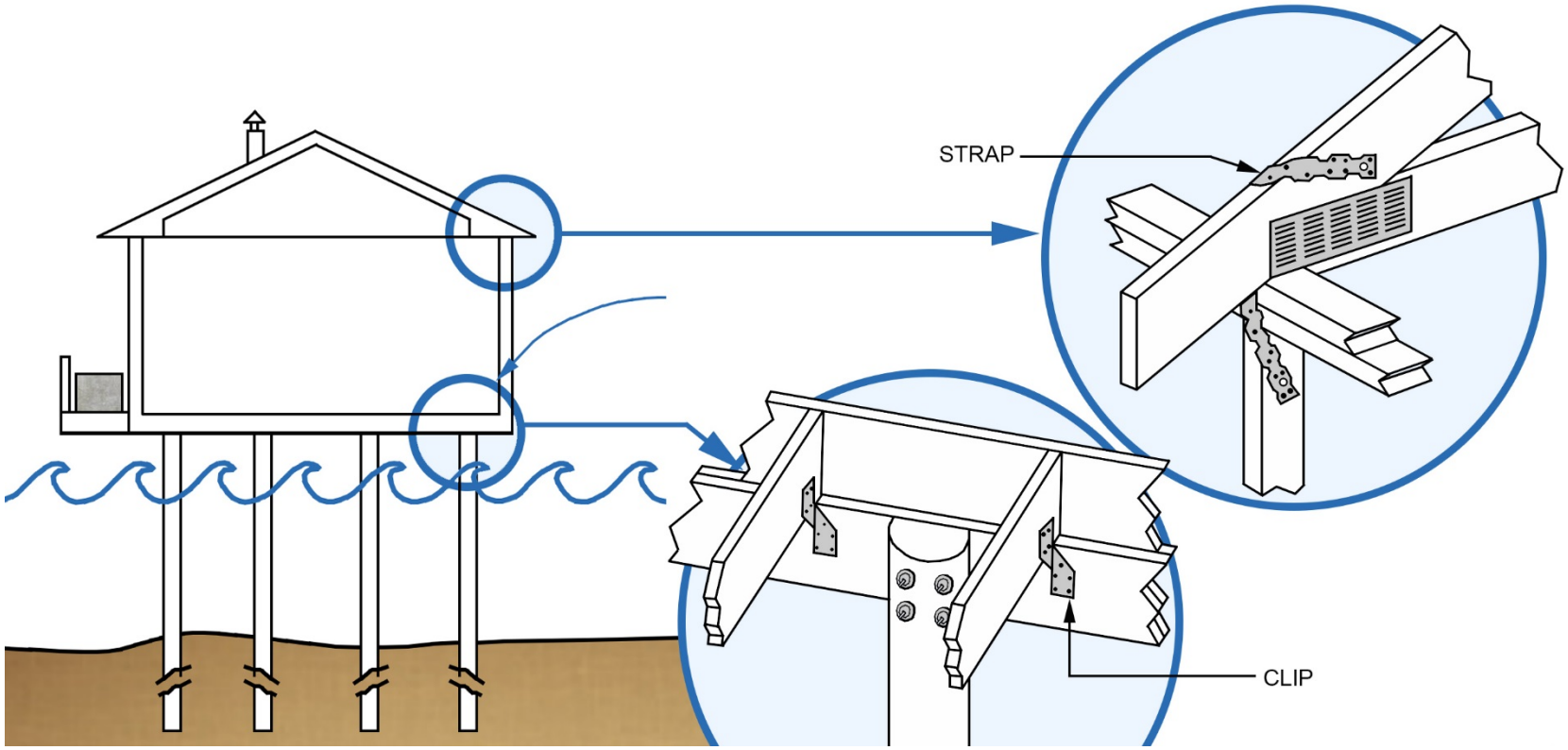


Figure 39. Wind Resistant Coastal Construction

Coastal buildings may be exposed to both high winds, waves, and floodwater, 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

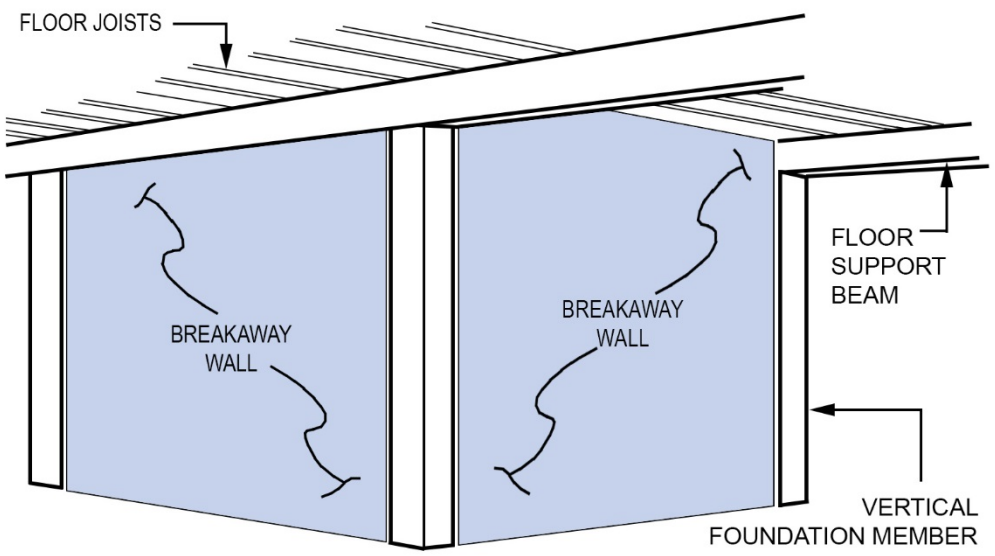


Figure 40. V Zone Construction Requirements

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 *(sample)*

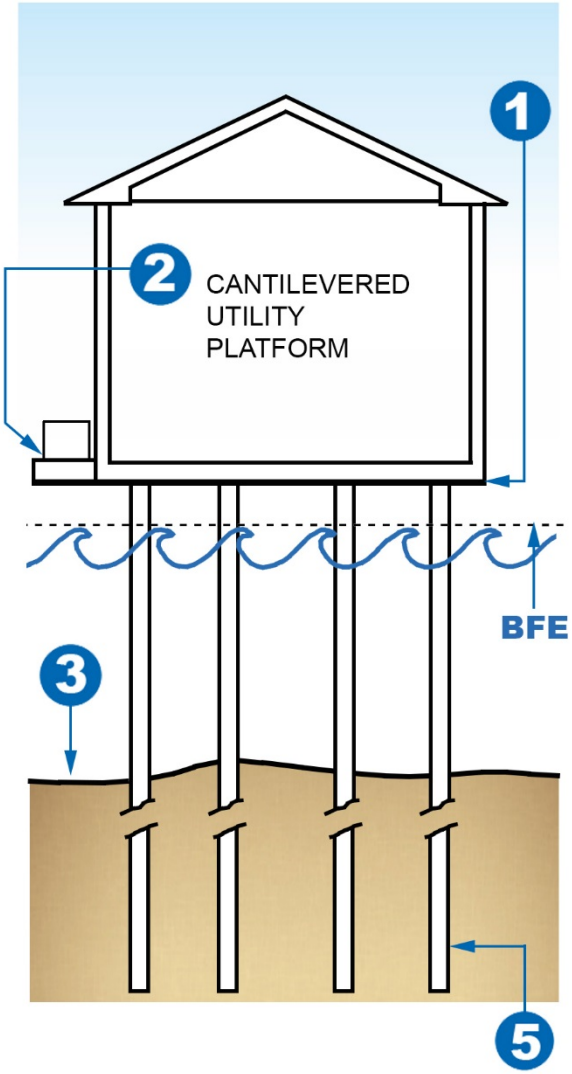
Note: This form is not a substitute for an Elevation Certificate. Elevations should be rounded to nearest one tenth (1/10) of a foot.

Map & Panel Number (10 digits)	Suffix	FIRM Index Date	FIRM Panel Date	FIRM Zone	BFE(s)
3720346700	J	FEB 6, 2007	APR 3, 2006	VE	14.0

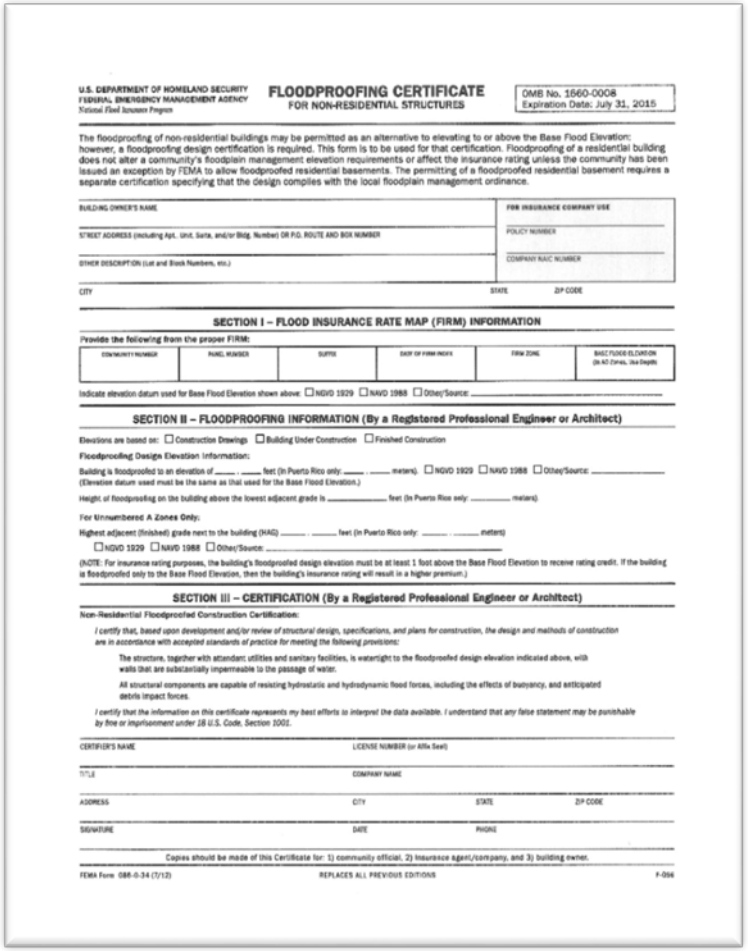
SECTION II: ELEVATION INFORMATION

1. Elevation of the Bottom of Lowest Horizontal Structure Member of the Lowest Floor — 16.0 feet
2. Lowest Elevation of machinery and/or equipment servicing the structure.
   Describe: ON PLATFORM — 17.5 feet
3. Elevation of Lowest Adjacent Grade [at structure including attached deck and/or garage location] — 7.3 feet
4. Approximate Depth of Anticipated Scour/Erosion Used for Foundation Design — 3.5 feet / feet
5. Embedment Depth of Pilings or Foundation Below Lowest Adjacent Grade — 16.0 feet

Figure 41. Sample V-Zone Certification



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.



U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
National Flood Insurance Program

FLOODPROOFING CERTIFICATE
FOR NON-RESIDENTIAL STRUCTURES

OMB No. 1660-0008
Expiration Date: July 31, 2015

The floodproofing of non-residential buildings may be permitted as an alternative to elevating to or above the Base Flood Elevation; however, a floodproofing design certification is required. This form is to be used for that certification. Floodproofing of a residential building does not alter a community's floodplain management elevation requirements or affect the insurance rating unless the community has been issued an exception by FEMA to allow floodproofed residential basements. The permitting of a floodproofed residential basement requires a separate certification specifying that the design complies with the local floodplain management ordinance.

BUILDING OWNER'S NAME

FOR INSURANCE COMPANY USE

STREET ADDRESS (including Apt. Unit, Suite, and/or Bldg. Number) OR P.O. ROUTE AND BOX NUMBER

POLICY NUMBER

OTHER DESCRIPTION (Lot and Block Numbers, etc.)

COMPANY NAIC NUMBER

CITY STATE ZIP CODE

SECTION I – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

Provide the following from the proper FIRM:

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM INDEX	FIRM ZONE	BASE FLOOD ELEVATION (In AO Zones, Use Depth)

Indicate elevation datum used for Base Flood Elevation shown above: ☐ NGVD 1929 ☐ NAVD 1988 ☐ Other/Source:

SECTION II – FLOODPROOFING INFORMATION (By a Registered Professional Engineer or Architect)

Elevations are based on: ☐ Construction Drawings ☐ Building Under Construction ☐ Finished Construction

Floodproofing Design Elevation Information:

Building is floodproofed to an elevation of ____ . ____ feet (in Puerto Rico only: ____ . ____ meters). ☐ NGVD 1929 ☐ NAVD 1988 ☐ Other/Source: _____
(Elevation datum used must be the same as that used for the Base Flood Elevation.)

Height of floodproofing on the building above the lowest adjacent grade is _____ feet (in Puerto Rico only: _____ meters)

For Unnumbered A Zones Only:

Highest adjacent (finished) grade next to the building (HAG) ____ . ____ feet (in Puerto Rico only: ____ . ____ meters)
☐ NGVD 1929 ☐ NAVD 1988 ☐ Other/Source: _____

(NOTE: For insurance rating purposes, the building's floodproofed design elevation must be at least 1 foot above the Base Flood Elevation to receive rating credit. If the building is floodproofed only to the Base Flood Elevation, then the building's insurance rating will result in a higher premium.)

SECTION III – CERTIFICATION (By a Registered Professional Engineer or Architect)

Non-Residential Floodproofed Construction Certification:

I certify that, based upon development and/or review of structural design, specifications, and plans for construction, the design and methods of construction are in accordance with accepted standards of practice for meeting the following provisions:

The structure, together with attendant utilities and sanitary facilities, is watertight to the floodproofed design elevation indicated above, with walls that are substantially impermeable to the passage of water.

All structural components are capable of resisting hydrostatic and hydrodynamic flood forces, including the effects of buoyancy, and anticipated debris impact forces.

I certify that the information on this certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

CERTIFIER'S NAME LICENSE NUMBER (or Affix Seal)

TITLE COMPANY NAME

ADDRESS CITY STATE ZIP CODE

SIGNATURE DATE PHONE

Copies should be made of this Certificate for: 1) community official, 2) insurance agent/company, and 3) building owner.

FEMA Form 086-0-34 (7/12) REPLACES ALL PREVIOUS EDITIONS F-094

Figure 42. Floodproofing Certificate

Elevation is the preferred method of flood protection for all structures located within the SFHA; however, **floodproofing** is allowed for non-residential (commercial) buildings.

Within SFHAs, the lowest floor (including basement) of any new construction or substantial improvement to non-residential structures shall be at least to the BFE **OR** be designed and constructed to be floodproofed up to that elevation.

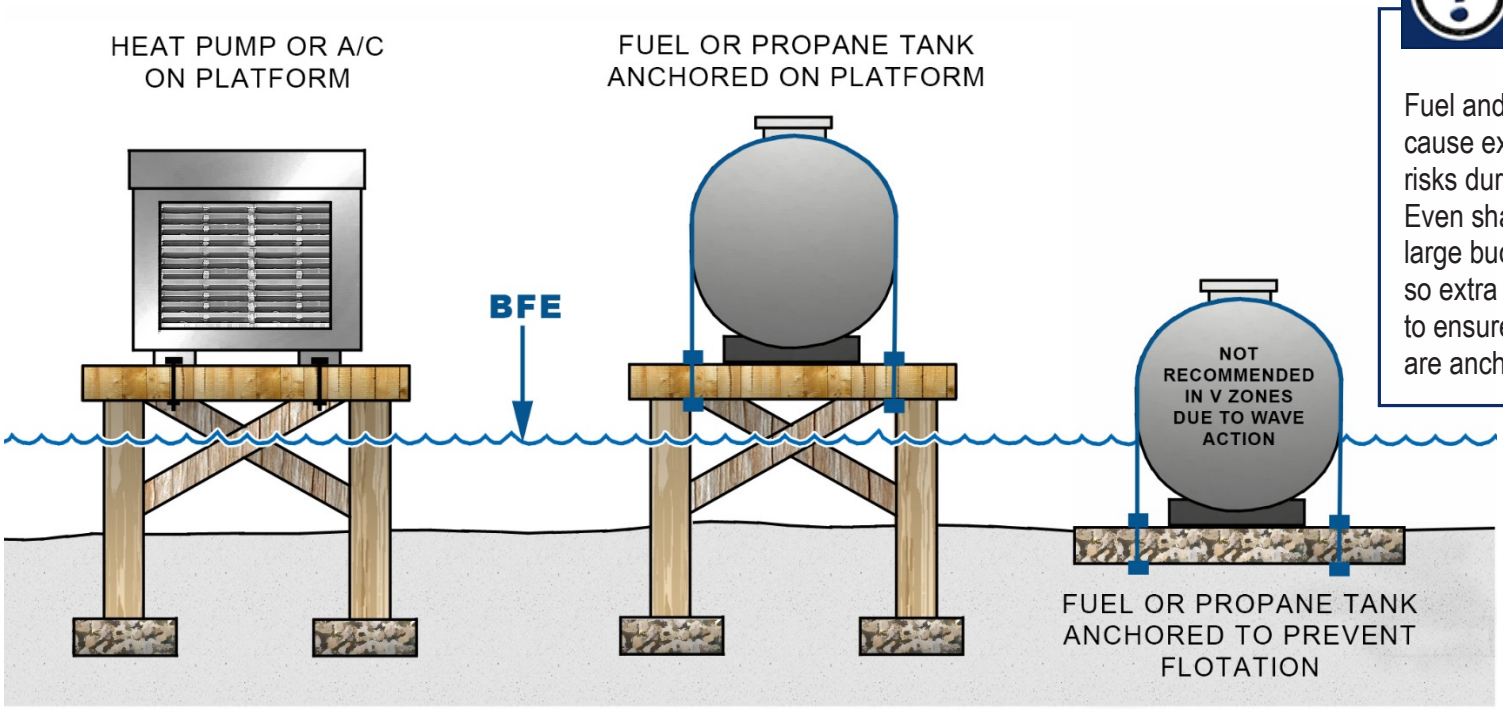
Structures shall be designed and constructed in accordance with FEMA Technical Bulletin 3-93 titled "Non-Residential Floodproofing – Requirements and Certification" to ensure that below the BFE:

- Walls are watertight (impermeable to the passage of water)
- Structural components can resist hydrostatic and hydrodynamic loads and effects of buoyancy
- Utilities are protected from flood damage

A Floodproofing Certificate sealed by a design professional is required for all floodproofed buildings.

Because of the additional risk associated with any floodproofed building, 1 foot is subtracted from the elevation to which a building has been floodproofed, for insurance rating (if the building is floodproofed at least to the BFE). Therefore, to receive an insurance rating based on 100-year flood protection, the building must be floodproofed to an elevation at least 1 foot above the BFE. Insurance premiums will be lower if floodproofing exceeds this requirement.

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.

Figure 43. Anchoring of Service Utilities

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.

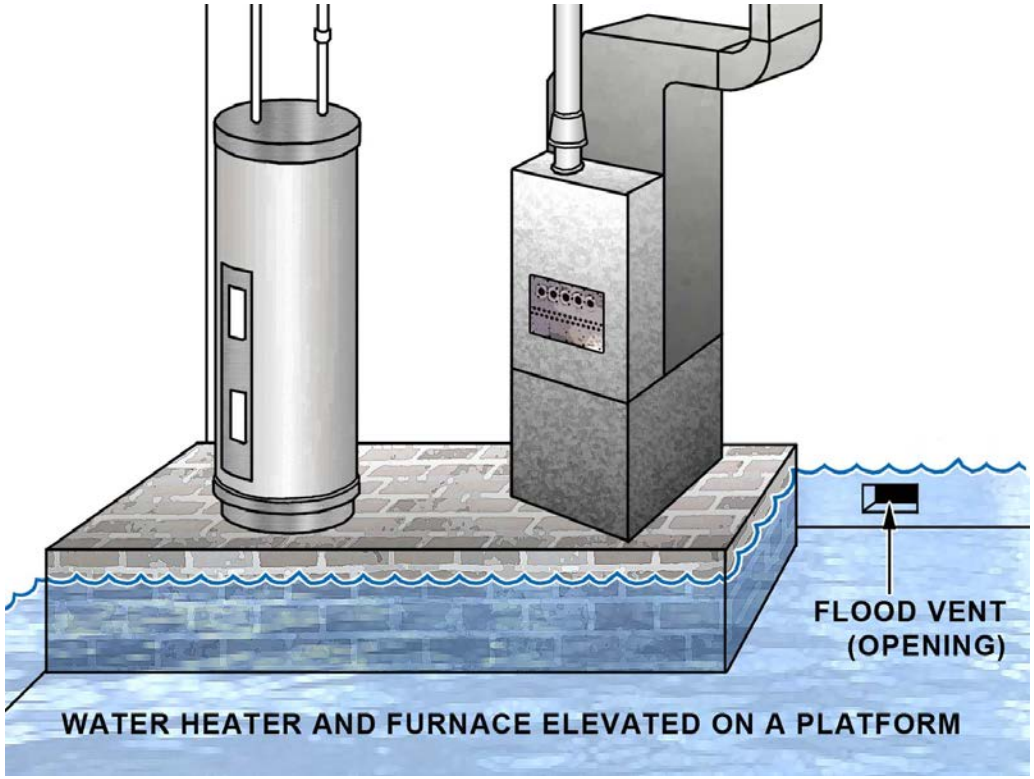
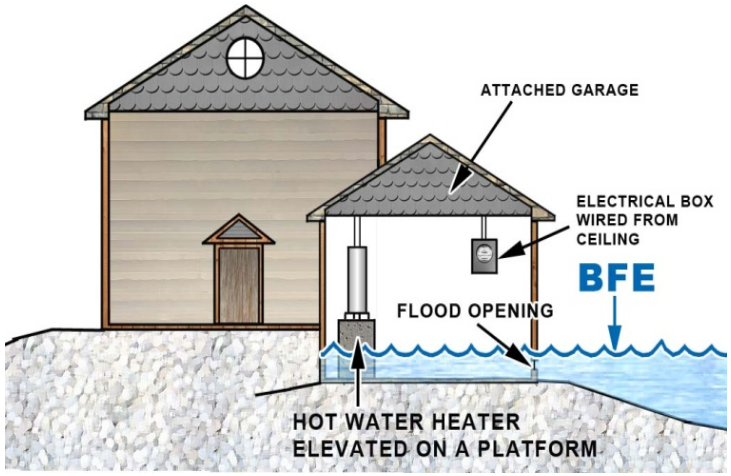


Figure 44. Utilities elevated on a platform



All utilities, appliances, and equipment must be elevated above the BFE or protected. Utilities include plumbing, electrical components, gas lines, and heating and air conditioning equipment.

Accessory (Appurtenant) Structures

In Special Flood Hazard Areas, accessory and appurtenant structures must:

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

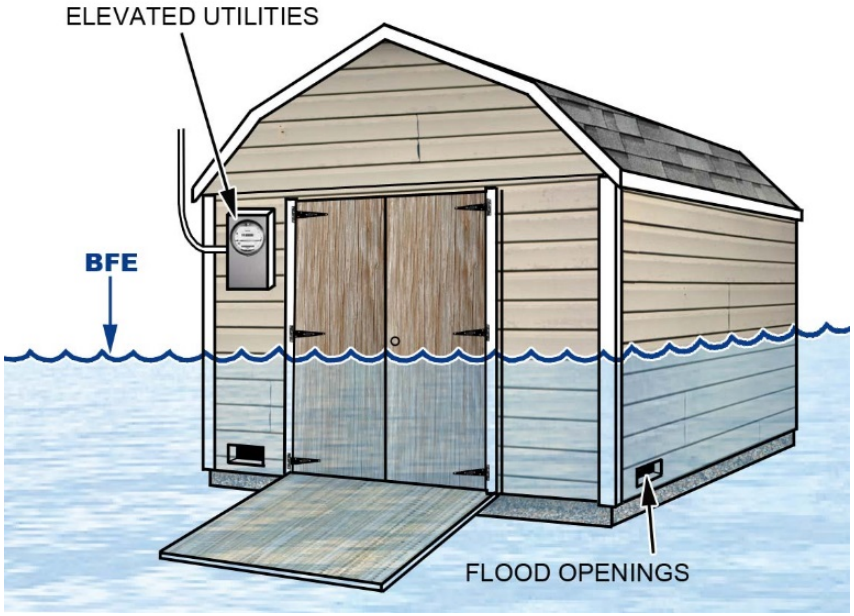


Figure 45. Accessory structure with flood openings and utilities elevated above the BFE

- Have documented floor elevation to demonstrate compliance with the community's Flood Damage Prevention Ordinance

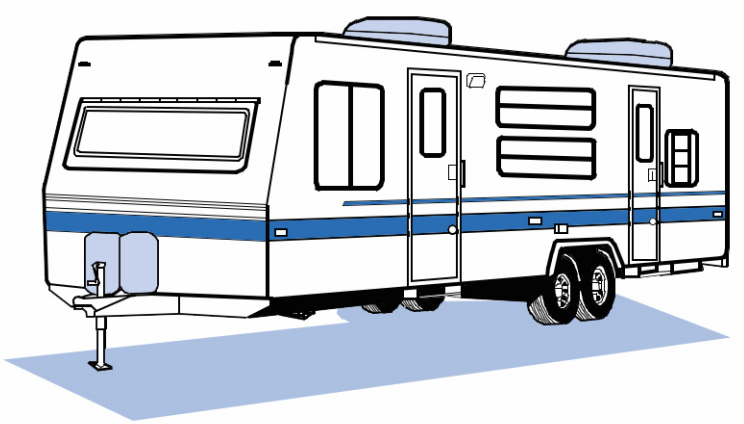
Even small buildings are defined as "development" and permits or variances with noted conditions are required. They must be elevated or anchored and built to withstand flood damage. **Caution!** Remember, everything inside is likely to get wet when flooding occurs.

Terms and DEFINITIONS

Accessory (Appurtenant) 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

RVs that do not meet these conditions must be installed and elevated like manufactured homes, including permanent foundations and tie-downs (see page 55).

Important Information

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

Planning to Improve Your Floodplain Building?

To obtain a permit to improve an existing building:

- 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 pages 67 and 80).

Terms and DEFINITIONS

Substantial improvement means any reconstruction, rehabilitation, addition, or other improvement of a structure, taking place during a 5-year period, of which the cumulative cost 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 71).

Important Information

Improvements include:

- Renovation/ rehabilitation of the interior of the existing building (see page 68)
- Lateral addition, without renovation or structural alteration of the existing building (see page 69)
- Lateral addition, with renovation or structural alteration of the existing building (see page 70)
- 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 for your property 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 above the BFE.
- Move ductwork above BFE and out of crawlspaces.
- Retrofit crawlspaces with flood openings.
- Fill in below-grade crawlspaces/utility spaces.

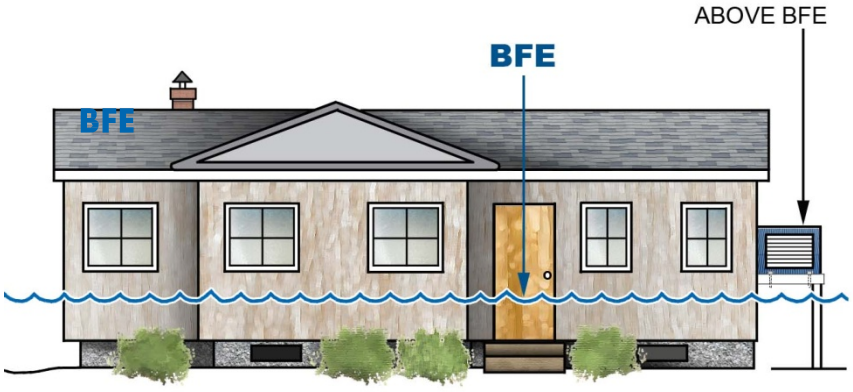


Figure 46. Example of a Low Cost Flood Protection Measure

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 need to make another evaluation for Substantial Improvement.

Substantial Improvement: Renovation Only

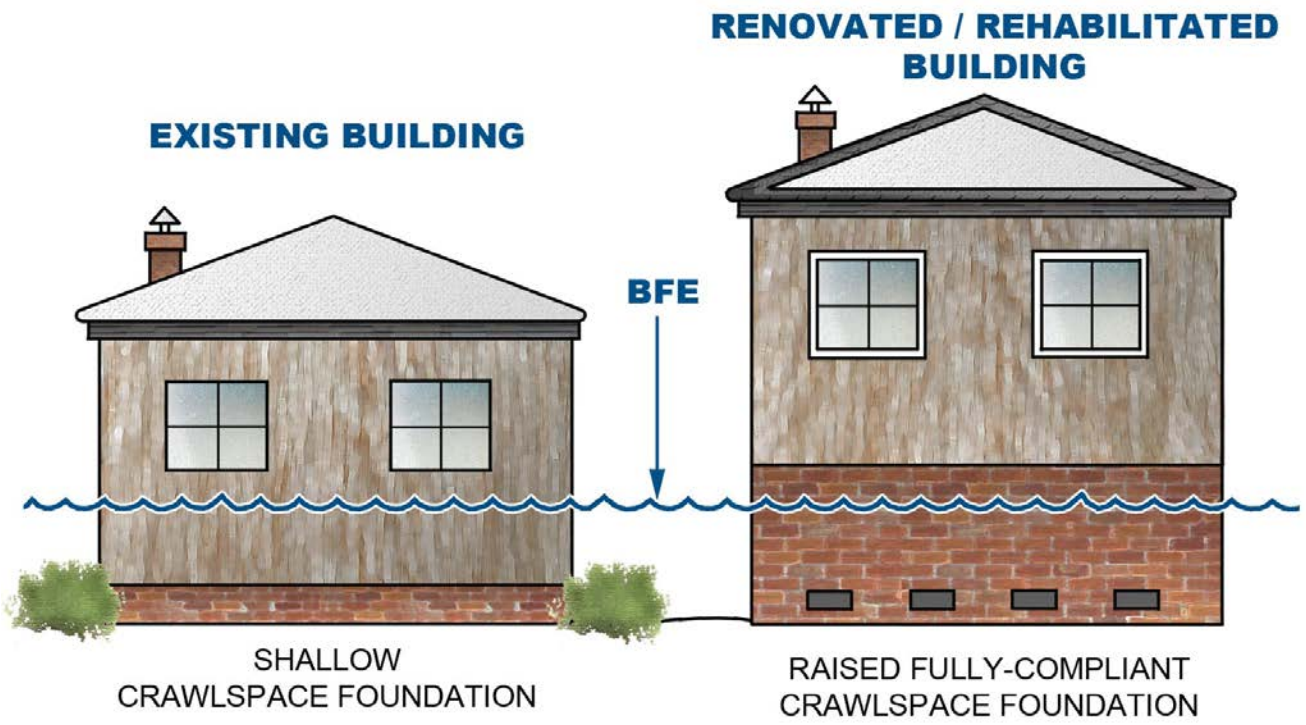


Figure 47.Substantially Improvement- Reconstruction on Existing Foundation

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 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 an historic structure.

Substantial Improvement: Lateral Addition Only

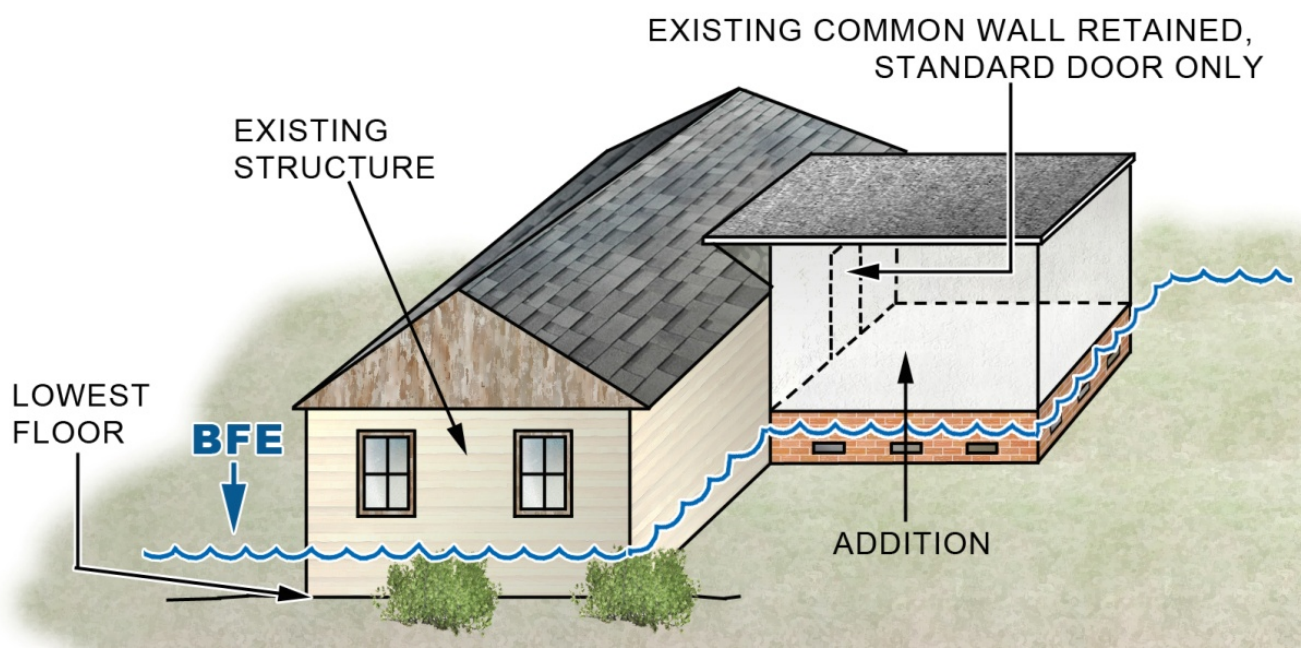


Figure 48.Substantial Improvement – Lateral Addition

Important Information

See page 70 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 the community to build an addition to your existing floodplain building. Only the addition must be built with the lowest floor 1.5 feet 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

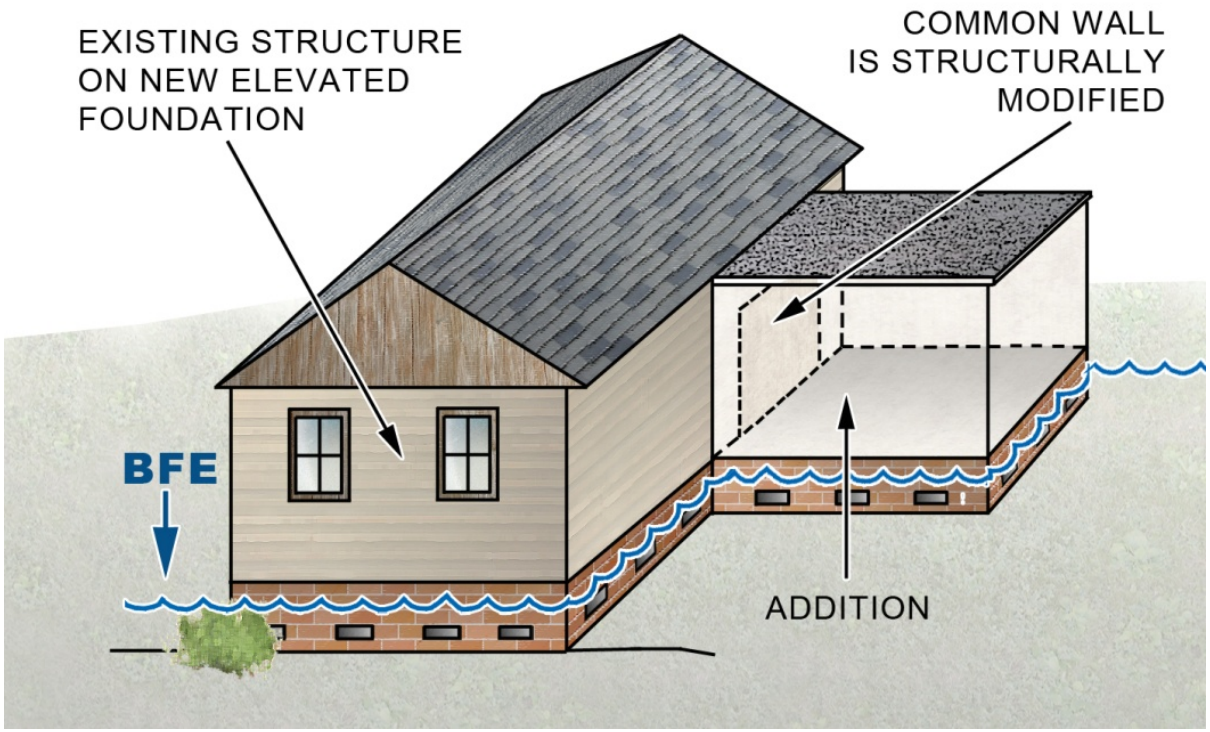


Figure 49.Substantial Improvement – Addition plus Other Work

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 building is located in the SFHA;
- The work involves adding a new top floor, modifying the interior of the existing building, or structurally modifying 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 Damages?

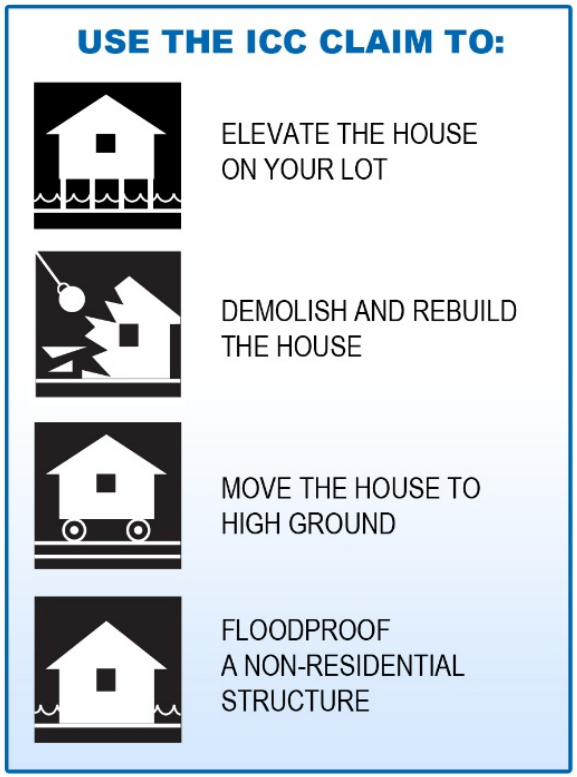
Figure 50 Calculating Repairs.

A permit is required to repair a damaged floodplain structure, regardless of cause—fire, flood, wind, or even a truck running into a building. 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 74 for more information about elevating an existing building above a crawlspace.

Increased Cost of Compliance (ICC)

You may be eligible for up to $30,000 to help pay to bring your structure into compliance with your community's requirements—if all of the following apply:



- You have NFIP flood insurance—it includes 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 buildings into compliance" with floodplain requirements. More information is available in FEMA's Increased Cost of Compliance fact sheet.

…But Give You More Protection

Figure 51. Relocation may be the Best Option in Highly Flood-Prone Areas

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. In other situations homes are elevated on a higher foundation or are physically out of the SFHA.

Elevating an Existing Building

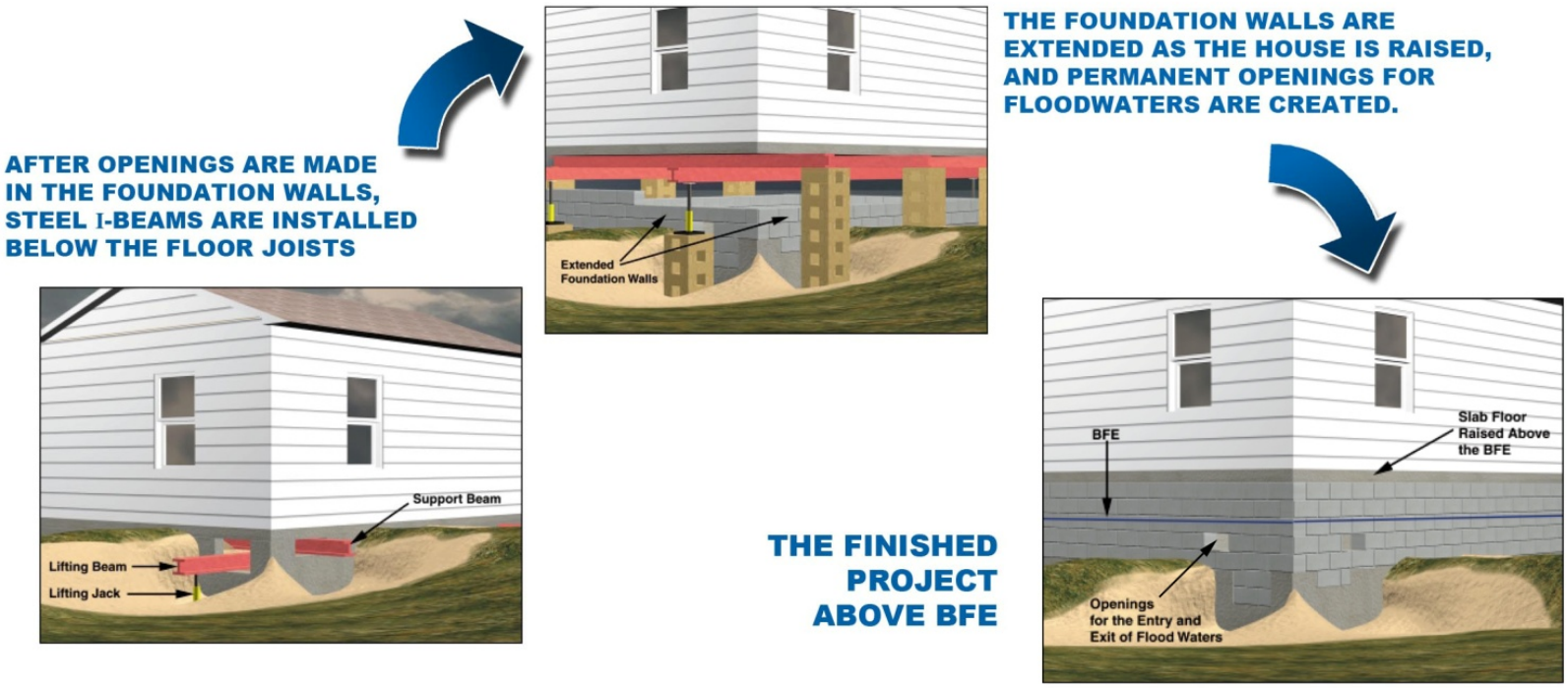


Figure 52. Elevating and Existing Building

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** (ICC) payment. See page 72.

The State and FEMA can help with more information and options.

Some Flood Protection for Older Homes Is Easy and Low Cost

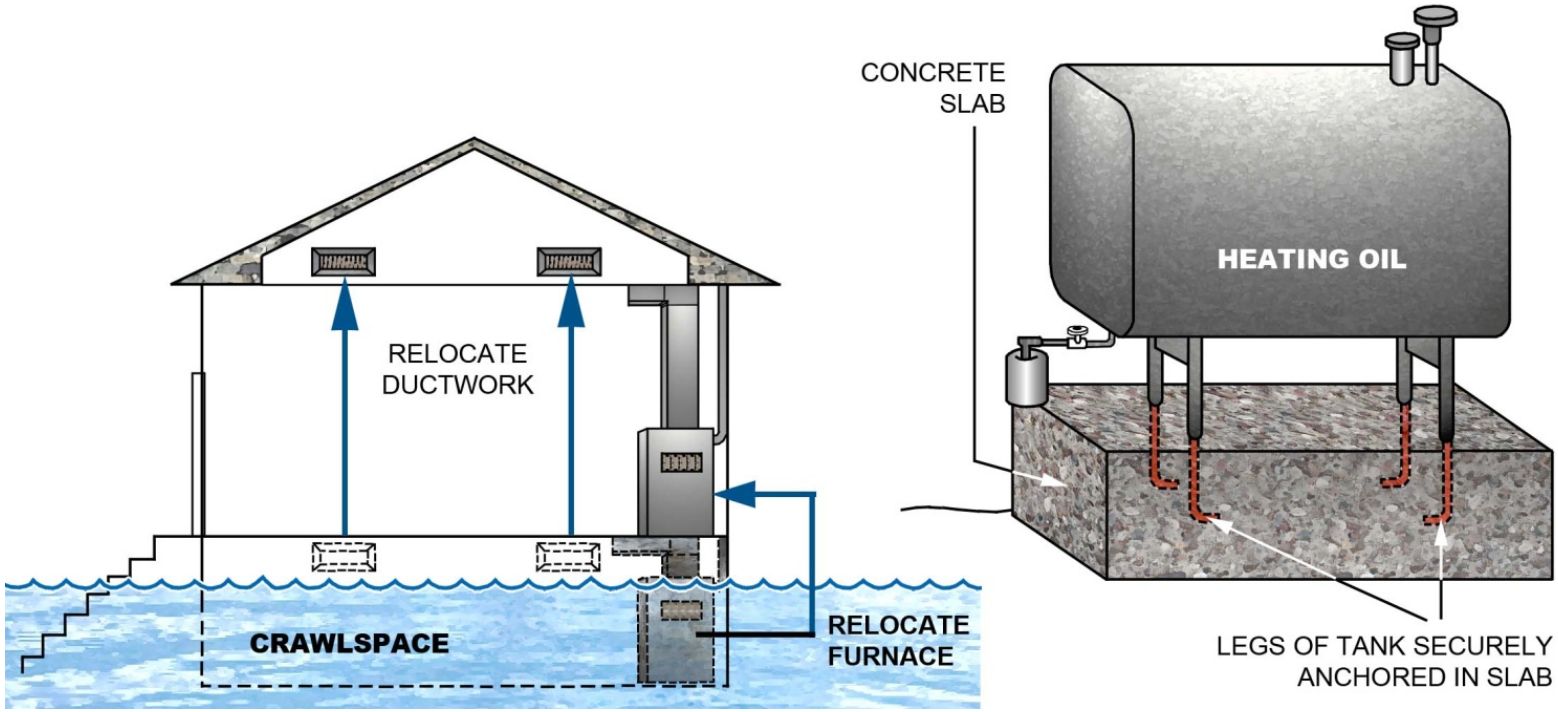


Figure 53. Low Cost Flood Protection Measures for Older Homes

Move water heaters, furnaces, and ductwork out of crawlspaces and basements. Anchor heating oil and propane gas tanks to prevent flotation. **Do not** store valuables or hazardous materials in a flood-prone crawlspace or basement. Use water-resistant materials when you repair.

Higher Floodplain Development Standards

FEMA has established minimum floodplain management requirements for communities participating in the NFIP. In Georgia, communities must also enforce more restrictive requirements due to State laws. For example, the State requires 1 foot of freeboard as a building requirements in SFHAs. Georgia communities should also consider enacting regulations that exceed the minimum State and Federal criteria.

When formulating community development goals and in adopting floodplain management regulations, communities should consider the following flood damage reduction practices:

- Location restrictions including preservation of flood-prone areas for open space purposes including park land or agriculture
- Setbacks for new construction - Setback standards establish minimum distances that structures must be positioned—set back—from river channels or the shoreline.
- Low density zoning to reduce the number of new structures at risk
- Building requirements including freeboard and foundation standards
- Relocation of occupants away from flood-prone areas
- Acquisition of land or land development rights for public purposes
- Floodproofing to reduce flood damage
- Flood warning and emergency preparedness plans
- Provision for alternative vehicle access and escape routes

Natural and Beneficial Functions of Floodplains

When portions of floodplains are preserved or restored to their natural state, they provide many benefits to both human and natural systems. Open space resource areas adjacent to floodplain areas:

- Increase aesthetics and recreational opportunities
- Reduce the number and severity of floods
- Increase storage and conveyance capacity to help handle stormwater run-off
- Minimize non-point sources of water pollution

These natural resources and functions can increase a community's overall quality of life, a role that is often undervalued. By transforming stream and river floodplains from problem areas into value-added assets, the community can improve its quality of life.

Parks, bike paths, open spaces, wildlife conservation areas and aesthetic features are important to citizens. Assets like these make the community more appealing to potential employers, investors, residents, property owners and tourists.

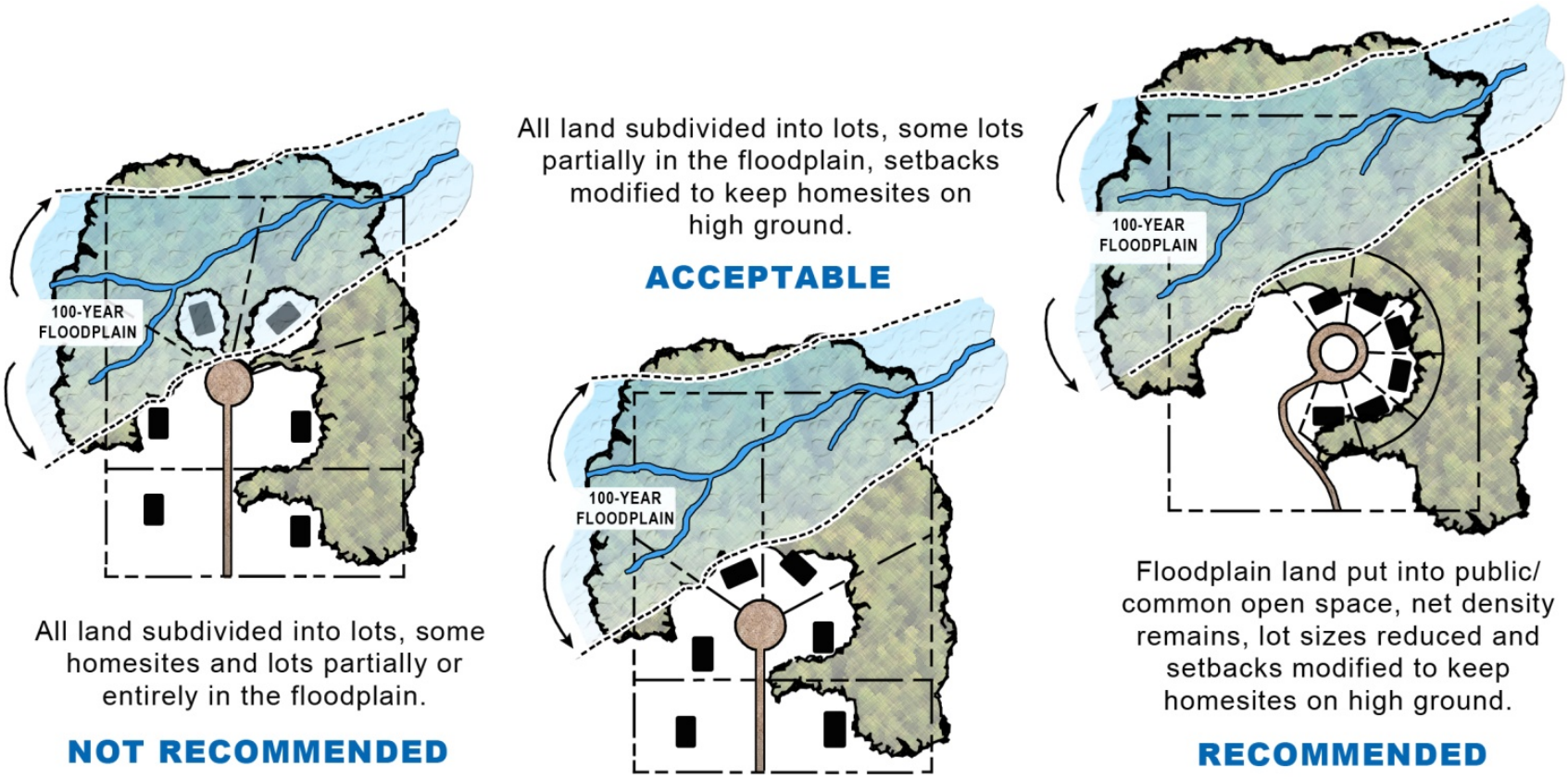


Figure 54. Land Development Criteria

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

Nature Doesn't Read Flood Maps

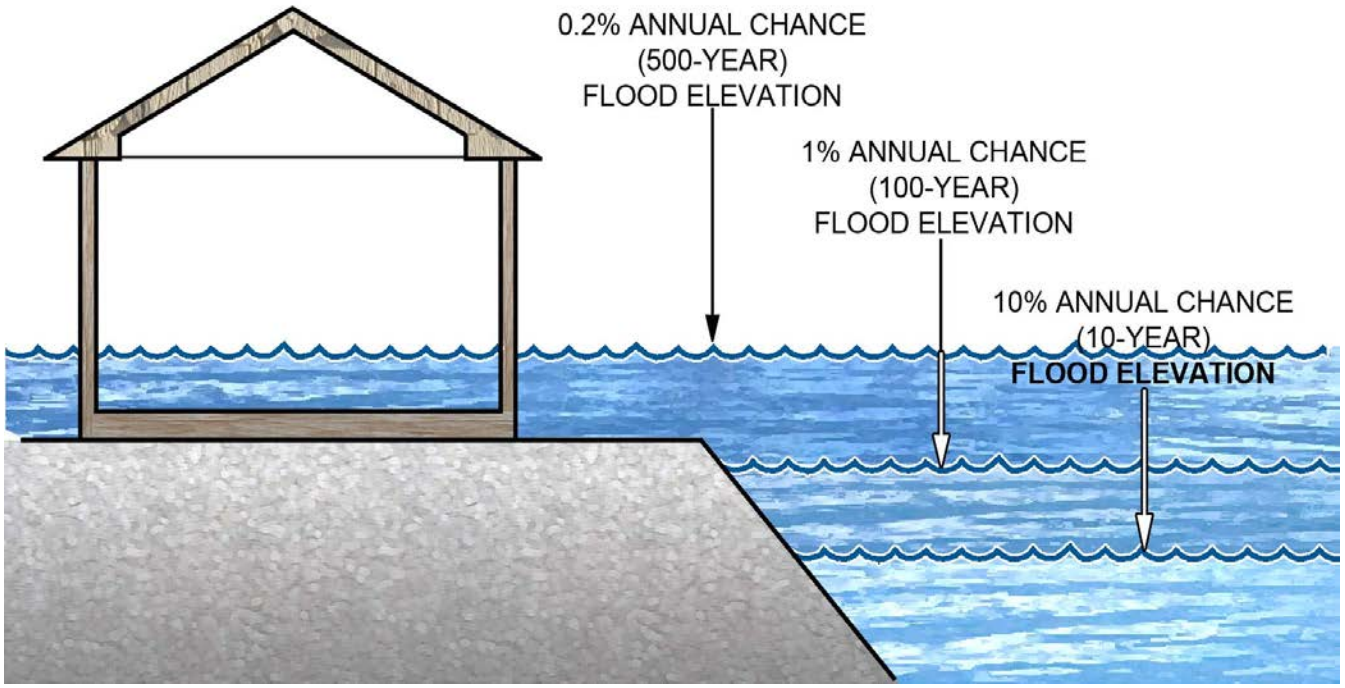


Figure 55. Flooding Can Occur Anywhere – Add freeboard

Important Information

Many people don't understand just how risky the floodplain can be. There is a greater than 26% chance of a flood occurring in the SFHA over the life of a 30-year mortgage. 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 adding freeboard and building higher. See page 80 to see how this will save you money on flood insurance.

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 one to two feet or more above the BFE.

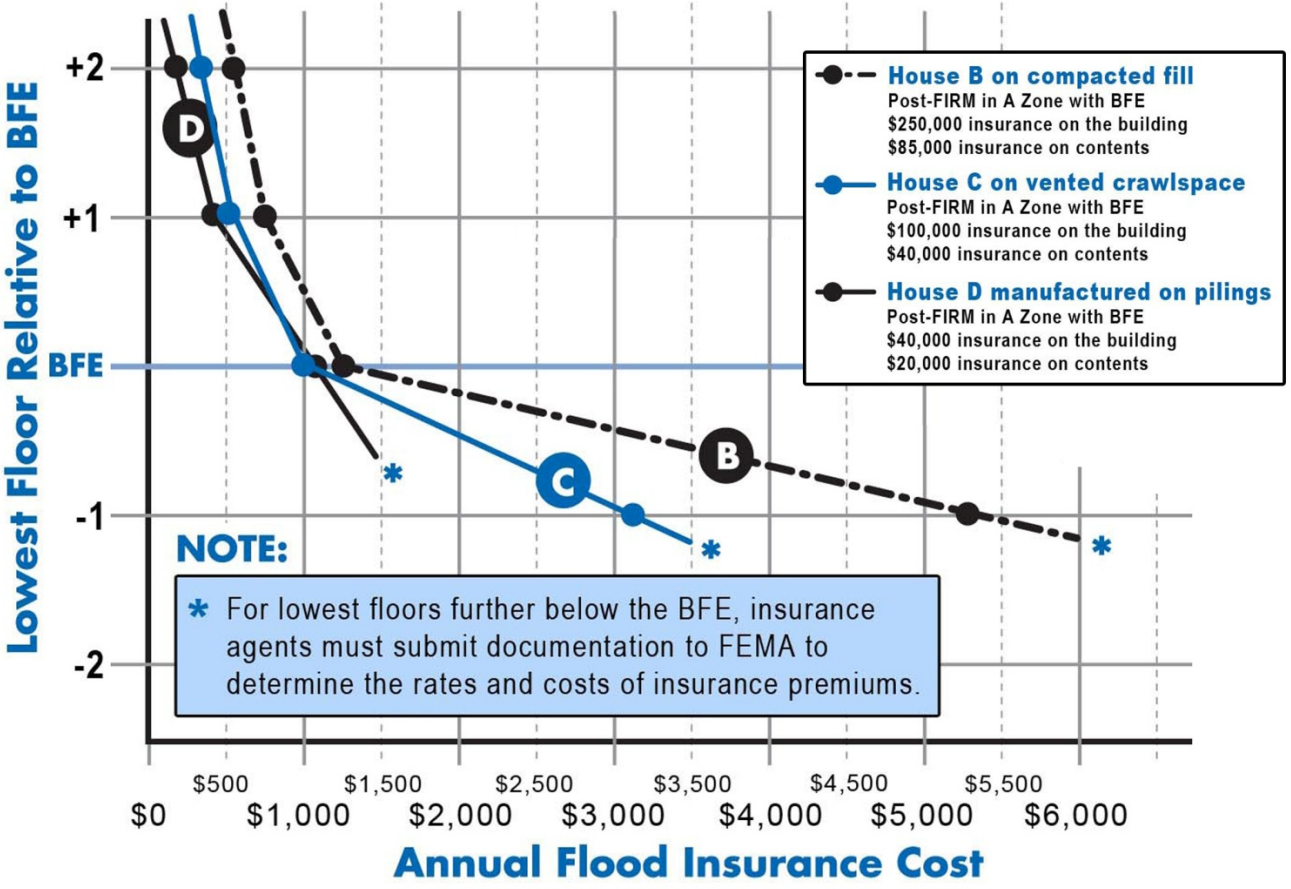


Figure 56. Save money on flood insurance by adding freeboard

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 still be required to buy insurance. Imagine trying to sell a house if the bank requires insurance that costs more than $5,000 a year!

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, 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.
- Find out about your community's flood warning system and Emergency alert system.
- Make family and workplace emergency plans.
- Know where to go if you are told to evacuate.
- Make sure you have a plan for your pets or other animals you care for. Many shelters will not accept animals.
- Put together a disaster kit with supplies to last at least three days.

To learn more about preparing for disasters, check out the ***Georgia Flood Response Toolkit*** or visit the Georgia Emergency Management Agency's Ready Georgia preparedness website.

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.

Post Disaster Roles and Responsibilities

- Work closely with local, State, and Federal agencies involved in post-disaster recovery efforts
- Review FIRM and other information to identify at-risk areas and structures
- Visit every area with structures affected by flooding
- Document damage to structures (address, GPS coordinates, water level, photographs, etc.)
- Determine if damaged structures are in SFHA
- Conduct assessment of each damaged structure in SFHA to determine if damage is "substantial"
- Document substantial damage determinations*
- Notify owners of damaged structures of the requirements to obtain building permits from their local permits department to repair, rehabilitate, or reconstruct building in compliance with floodplain management regulations
- Coordinate technical issues with FEMA during post-disaster permit process
- Provide technical support on floodplain management, mapping, regulations, and hazard mitigation issues at the Joint Field Office (multiagency center activated by FEMA after Presidential disaster declaration)

***Documentation is critical to:**

a) Demonstrate that floodplain management regulations have been enforced;
b) Demonstrate compliance with flood hazard rules and construction codes;
c) Defend against administrative or judicial appeals;
d) Develop mitigation plans and FEMA grant applications; and
e) Adjust a flood insurance claim under the NFIP's Increased Cost of Compliance (ICC) coverage.

Detailed information for communities about post-disaster activities is available in the ***Georgia Flood Response Toolkit***.

Useful Resources

- Georgia Department of Natural Resources www.gadnr.org
- Georgia Flood Mapping Program GeorgiaDFIRM.com
- Georgia Department of Natural Resources Flood Map Viewer http://map.georgiadfirm.com
- The Georgia Emergency Management Agency (GEMA) www.gema.ga.gov provides information on emergency preparedness. From that website link on the Ready Georgia website for guidance on how to be ready for floods and other disasters.
- 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
- The American Red Cross addresses disaster safety, being prepared, and repairing homes (Disaster Services): www.redcross.org
- Association of State Floodplain Managers: www.floods.org
- Georgia Association of Floodplain Management: www.gafloods.org

Want to Learn More About Floodplain Management?

- Access Georgia's model Flood Damage Prevention Ordinances at https://epd.georgia.gov/floodplain-management.
- For floodplain mapping questions, contact the FEMA Map Information Exchange toll free at 877-336-2627.
- View digital flood data through the Georgia Department of Natural Resources Flood Map Viewer at http://map.georgiadfirm.com.
- To order flood maps, call FEMA's Map Service Center—(877) 336-2627 or enter the FEMA Map Service Center website to order online at www.msc.fema.gov.
- FEMA's online publications can be found at www.fema.gov/library. Search by keyword, title, or publication number. Call (800) 480-2520 to order free printed copies.
- Find online Elevation Certificate training for surveyors by going to www.fema.gov and search on "Elevation Certificate."
- The NFIP's Community Rating System Resource Center is online at www.fema.gov/business/nfip/crs.
- Read about the FEMA's Floodplain Management Program at www.fema.gov/floodplain-management.

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 "Policyholder Resources" 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 "Flooding and Flood Risks" to find out about flood map updates and view flood risk scenarios and videos.
- Also at www.FloodSmart.gov, click on "Frequently Asked Questions" to learn more flood insurance and access articles and brochures.
- 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 at (888) 379-9531.
- 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 the NFIP BureauNet website.

GEORGIA

DEPARTMENT OF NATURAL RESOURCES

www.gadnr.org

Prepared by:

RCQUINN CONSULTING, INC.

www.rcquinnconsulting.com

In association with:

Updated by Dewberry