Tennessee Floodplain Management

2018 Quick Guide

Department of Environment & Conservation

Office of Emergency Services

https://www.tn.gov/environment/nfip-national-flood-insurance-program

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Introduction

The Tennessee State National Flood Insurance Program (NFIP) Office is pleased to provide this **Quick Guide** to help our citizens understand what floodplain management is and why floodplain development is regulated.

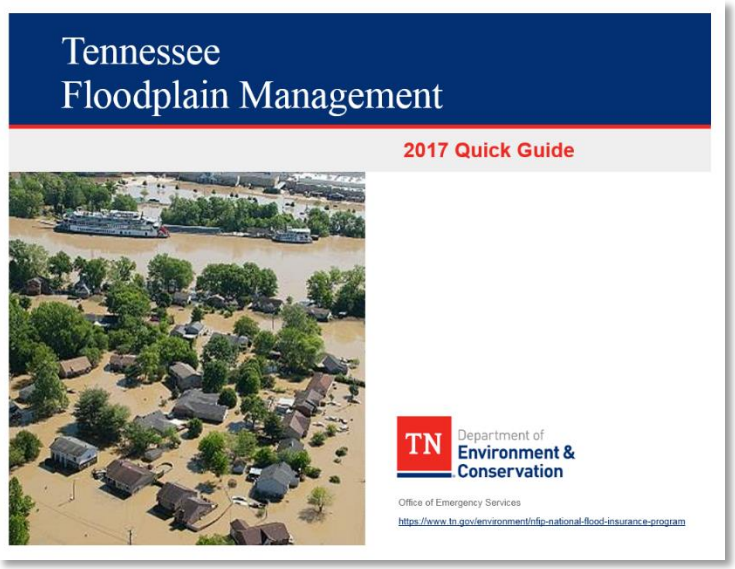
Counties and local communities regulate development in floodplains to:

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

Floods have been, and continue to be, a destructive natural hazard in terms of economic loss to the citizens of Tennessee. Since 1978, federal flood insurance policyholders in Tennessee have received over $343 million in claim payments. Though that figure represents many insurance payments, most of the state's flood-prone properties do not have flood insurance. As of November 2017, only about 29,000 buildings located in high-risk floodplain areas in Tennessee had a flood insurance policy.

About This Guide

The Tennessee State National Flood Insurance Program (NFIP) Office prepared this **Quick Guide** to help you understand more about why and how communities in the state of Tennessee manage floodplains to protect people and property.



Flood-prone communities adopt ordinances that detail the rules and requirements for floodplain development. In case of conflict, the applicable ordinance, and not this publication, must be followed. For questions, contact your local planning, permit, engineering, or floodplain management official.

The State NFIP Office coordinates the NFIP with Tennessee's local communities. For more information about the topics covered in this **Quick Guide** go to https://www.tn.gov/environment/nfip-national-flood-insurance-program

This publication is supported with funding from the Department of Homeland Security Federal Emergency Management Agency (FEMA). It does not necessarily reflect views of that agency.

Useful Resources and Common Acronyms

The American Red Cross addresses disaster safety, being prepared, and repairing homes (Disaster Services): www.redcross.org

FEMA has developed materials to help families and businesses prepare for floods and recover from disasters: www.fema.gov/resource-document-library

Association of State Floodplain Managers: www.floods.org

Tennessee Association of Floodplain Managers: http://web.tnafpm.com

Tennessee Society of Surveyors: https://www.taps-inc.com/

NFIP regulations: www.fema.gov/national-flood-insurance-program-laws-regulations

Community Rating System (CRS) Resource Center: www.fema.gov/national-flood-insurance-program-community-rating-system

Tennessee Emergency Preparedness: http://www.tnema.org/ReadyTN/

Tennessee Post Disaster Guide: http://silverjackets.nfrmp.us/State-Teams/Tennessee

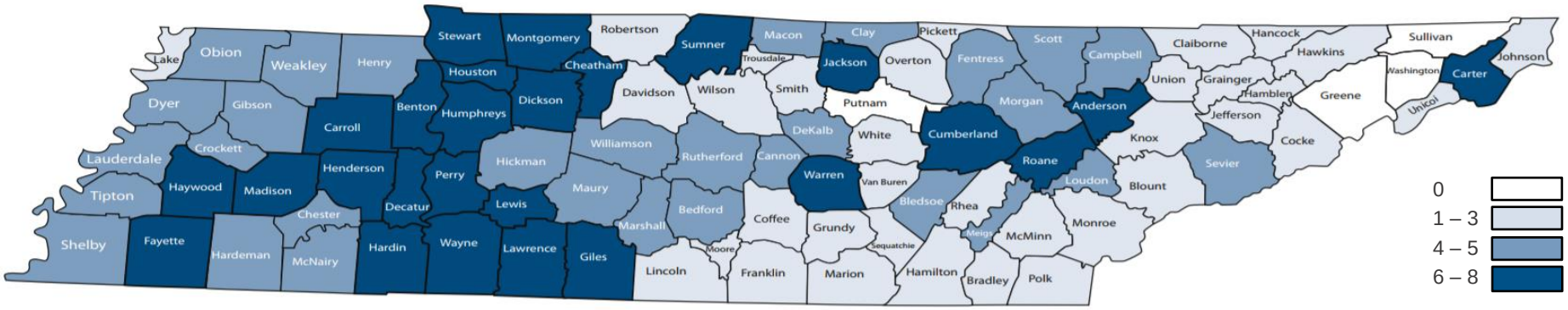
Common Acronyms

- BFE = Base Flood Elevation
- EC = Elevation Certificate
- FEMA = Federal Emergency Management Agency
- FIRM = Flood Insurance Rate Map
- ICC = Increase Cost of Compliance
- NFIP = National Flood Insurance Program
- SFHA = Special Flood Hazard Area (1% Annual-Chance Floodplain)

Tennessee's Disaster Declarations

Presidential Flood Disaster Declarations

Number of Declarations by County (1998-2017)



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

Overview: National Flood Insurance Program (NFIP)

The National Flood Insurance Program (NFIP) was created by Congress in 1968 to protect lives and property from flooding and to reduce the financial burden of providing disaster assistance. The NFIP is administered by FEMA. Nationwide, over 20,000 communities participate in the NFIP including 400 Tennessee communities. The State of Tennessee now requires all towns and cities including unincorporated areas of counties that have a FEMA identified Special Flood Hazard Area within their jurisdictional boundaries to participate in the NFIP prior to June 30, 2012.

The NFIP is based on an agreement between the federal government and participating communities. The partnership involves:

- **Flood Insurance** – Property owners in participating communities are eligible to purchase federal flood insurance for buildings and contents.
- **Flood Hazard Maps** – In partnership with FEMA, various partners produce flood maps in accordance with FEMA standards. The maps are used by communities, insurance agents and others.
- **Regulations** – Communities must adopt and enforce minimum floodplain management regulations so that development, including buildings, is undertaken in ways that reduce exposure to flooding.

To learn more about the NFIP, floodplain management and flood insurance go to:
https://www.tn.gov/environment/nfip-national-flood-insurance-program.
To learn more about the effects of not participating in the NFIP see the next page.

NATIONAL FLOOD INSURANCE PROGRAM

Why Communities Regulate the Floodplain

- **Protect people and property.** Knowing where high-risk flood areas are in your community enables residents and businesses to make reasonable decisions regarding the purchase of flood insurance and protecting flood-prone property, creating a more sustainable and resilient community.

- **To ensure federal flood insurance and disaster assistance are available.** A community must participate in the National Flood Insurance Program (NFIP) for residents and businesses to be eligible to purchase federal flood insurance through the NFIP. If your community does not participate, flood insurance through the NFIP is not available and eligibility for federal disaster assistance is limited. In addition, homeowners may find it hard to secure, renew, or extend a mortgage loan. Please visit the NFIP Community Status Book site (https://www.fema.gov/cis/TN.html) to find out if your community participates in the NFIP.

- **To save tax dollars.** Every flood disaster affects your community's budget. By building resiliently, we'll have fewer problems the next time it floods. Remember, federal disaster assistance isn't available for all floods. Even when the President declares a disaster, and federal grant funding is made available, you and your community may still be required to pay a portion of the costs associated with disaster response including repairing, rebuilding, and cleanup.

- **To reduce future flood losses to Tennessee communities.** Sustainable development that complies with or exceeds the minimum floodplain management requirements is better protected against flood-related damage.

Effects of Non-Participation in the NFIP

Communities with Special Flood Hazard Areas (SFHAs) that choose not to participate, that withdraw, or that have been suspended from the NFIP, may cause undue difficulties for their citizens, especially in the aftermath of a damaging flood event. The following apply to non-participating communities:

- **Federal flood insurance is not available.** This also applies to communities without SFHAs that don't participate.
- **Federal grants or loans** are not available for any reconstruction, repair, construction, rehabilitation or additions of structures in SFHAs. This includes grants and loans from the Federal Housing Administration, Farmer's Home Administration, Housing and Urban Development, Environmental Protection Agency, Small Business Administration, Veterans Administration and Health and Human Services. Federally backed mortgages are not available for buildings in SFHAs.
- **Federal disaster assistance is not provided for permanent restorative construction of insurable buildings in SFHAs.** This means that homes and public buildings damaged by flood are not eligible for federal disaster assistance. Eligible applicants may receive those forms of disaster assistance that are not related to permanent repair and reconstruction of buildings.
- **Lenders must notify borrowers.** Lenders may make conventional loans but they must notify the buyer or lessee that their property is in a SFHA, that NFIP flood insurance is not available and that the property in a SFHA is not eligible for Federal disaster relief in a flood-related declared disaster.
- **Discounted flood insurance for older buildings is no longer available.** The Flood Insurance Rate Map and appropriate actuarial rates go into effect regardless of whether the community participates. Buildings in SFHAs will be actuarially rated if the community later decides to join the NFIP. This could lead to extremely expensive insurance.

The local government may be held liable for not participating in the NFIP because that action denies citizens the opportunity to purchase flood insurance and because it does not take positive steps to reduce the exposure of life and property to danger in the face of authoritative scientific and technical data.

Community Responsibilities

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

- **Adopt** and enforce a flood damage prevention ordinance
- **Require** permits for all development in the floodplain
- **Ensure** that all development is reasonably safe from flooding
- **Estimate** Base Flood Elevations (BFEs) where not determined by FEMA
- **Require** new or substantially improved homes and manufactured homes to be elevated above the BFE
- **Require** other structures be flood proofed or elevated above the BFE
- **Determine** if flooded buildings are substantially damaged
- **Conduct** field inspections; cite and remedy building or code violations
- **Require** elevation certificate surveys to document NFIP compliance
- **Review** requests for variances
- **Resolve** non-compliance issues and violations
- **Advise** FEMA and the state when updates to flood maps are needed
- **Maintain** records of all development within the Special Flood Hazard Area

For more information about the NFIP as it relates to local communities, visit FEMA's website at

www.fema.gov/information-state-local-officials.

Community Rating System (CRS)

The goals of the NFIP and the **Community Rating System (CRS)** are to provide flood insurance to property owners, to encourage flood loss reduction activities by communities, and to save taxpayers' money. As a part of NFIP, the CRS provides both incentives and tools to further these goals. 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
- **Undertake** engineering studies and prepare flood maps
- **Obtain** grants to mitigate flooding to flood-prone structures through buyouts, structural elevation, and other flood damage reduction activities
- **Maintain** drainage systems
- **Implement** measures that protect life and property through flood warning and response programs
- **Educate** the public about flood hazards, flood insurance, and how to reduce flood damage

Community officials can request assistance from CRS specialists to help with eligibility requirements and the application process. Visit the online CRS Resource Center: www.fema.gov/national-flood-insurance-program-community-rating-system

Property owners in 14 Tennessee local jurisdictions that qualify for the CRS receive flood premium discounts ranging from 5% to 10%.

Be Prepared for Flood Emergencies

When disaster strikes, you may not have much time to act. Prepare now for a sudden emergency to protect yourself and your family from the next flood or other disaster.

Develop an **Emergency Preparedness Checklist** to help you get started.

- **Learn** your flood risk by contacting your community's engineering or planning office
- **Ask** how you would be warned of a flood emergency or other natural disaster
- **Learn** your community's evacuation routes and shelter locations if evacuated
- **Learn** about workplace and school emergency plans and create a family emergency plan
- **Put together** a disaster kit with supplies to last three days. Don't forget to include a copy of critical family records stored in a waterproof container

Additional Resources:

- To learn more about preparing for disasters, visit the Tennessee emergency preparedness website at http://www.tnema.org/ReadyTN/preparedness.html
- Flood hazard risk information can be found for individual buildings at https://msc.fema.gov/
- Other natural hazard information (for hazards such as earthquakes, wildfires, severe weather, winter weather, etc.) can be found at https://www.ready.gov/

Turn Around Don't Drown™

Learn about flood risks and follow these safety rules:

- When flooding is expected, stay away from creeks, streams, and rivers
- NEVER drive through flooded roads—they may be washed out
- It takes less than 12 inches of flowing water to wash away a passenger car
- Be especially cautious at night when it is harder to determine flood depth and recognize dangers
- More than half of the deaths from flooding each year occur in vehicles

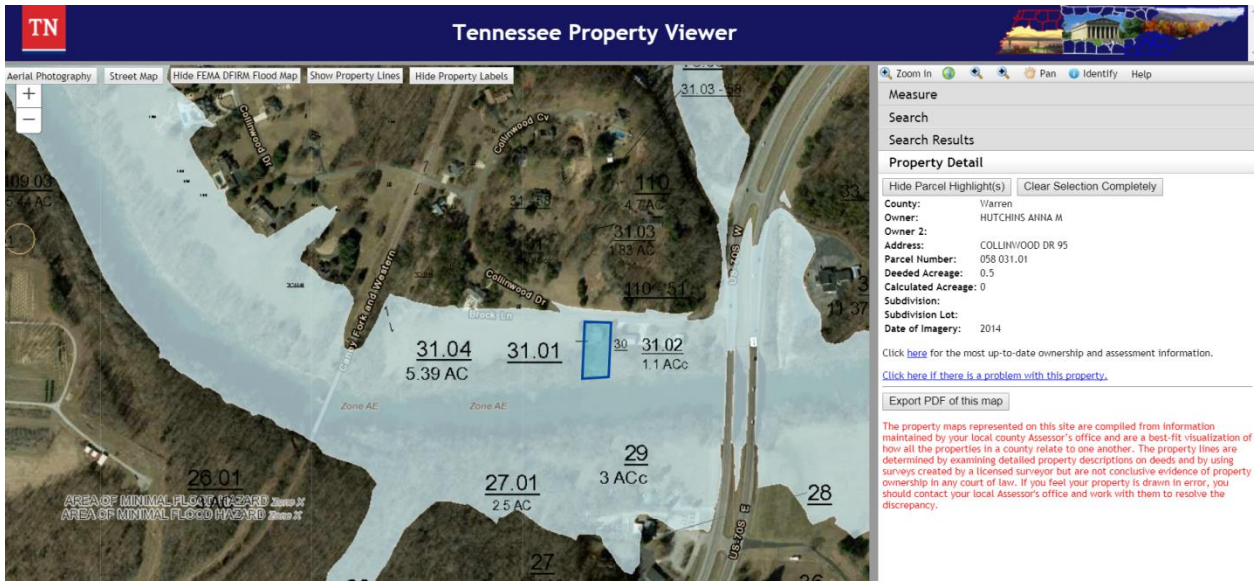
Visit tadd.weather.gov for more advice.

Flood Map Information

There are two locations where the general public can view flood maps and obtain flood map information:

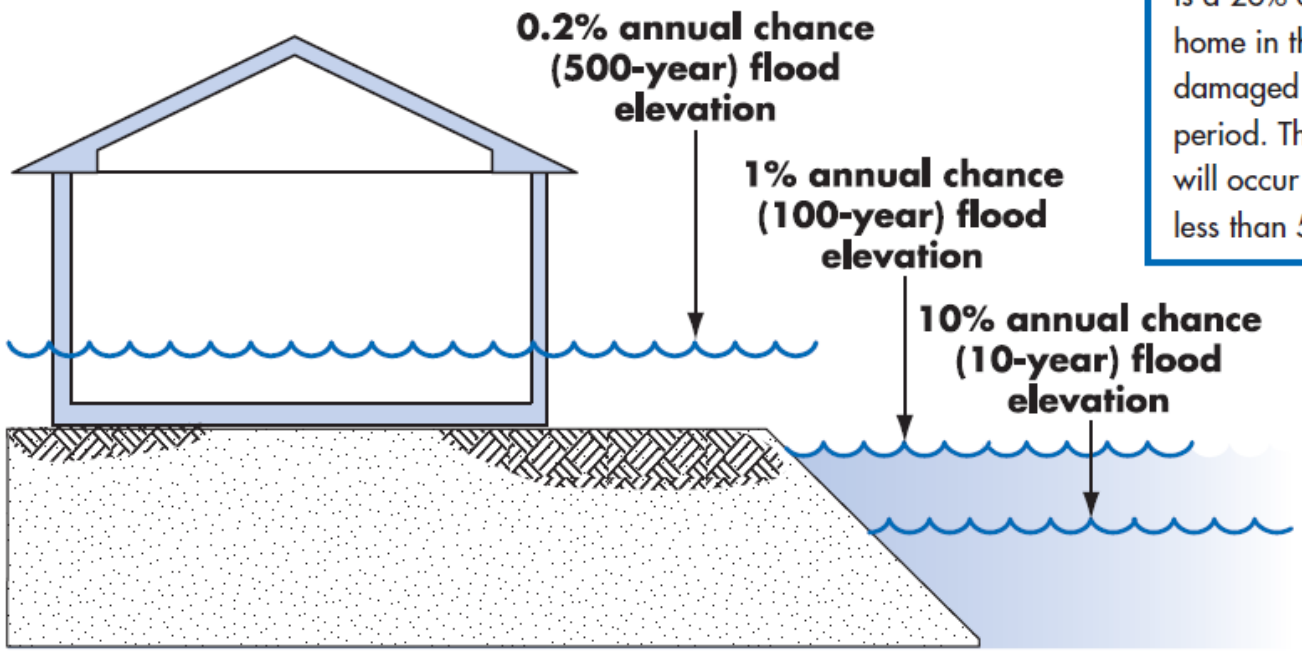
- **FEMA's Flood Map Service Center (MSC)** at http://msc.fema.gov/. The MSC can also be reached at (877) 336-2627. Downloads of official flood maps and flood insurance studies, both effective and historic, are available. Historical flood map information is useful for various reasons, including determining the 100-year flood elevation used for permitting purposes by the local community on previous FEMA studies.

- **Tennessee's Property Viewer** at http://tnmap.tn.gov/assessment/. This site contains digitally accessible flood hazard data, maps, and property data reports that are database driven. The website also provides geospatial base map data and imagery available for download. The State of Tennessee provides this website as a public service to the citizens of Tennessee.



Nature Doesn't Read Flood Maps

Everyone lives in a flood zone, and everyone needs flood insurance. For persons living in a high-risk flood area, there is at least a one in four chances of flooding during a 30-year mortgage. Floods are the most common natural disaster in the United States, yet most homeowners' insurance does not cover flood damage. If you wait until a flood is on its way, it will be too late because there is generally a 30-day waiting period before a flood policy takes effect. Consider safety—protect your home or business by building higher.



Important Information

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

FEMA's Map Service Center – msc.fema.gov

Base Flood Elevation (BFE)
is the water surface elevation of the base flood at approximate locations (in feet above the vertical datum shown on the map).

Shaded Zone X
is the 0.2%-annual-chance (500-year) floodplain (formerly Zone B).

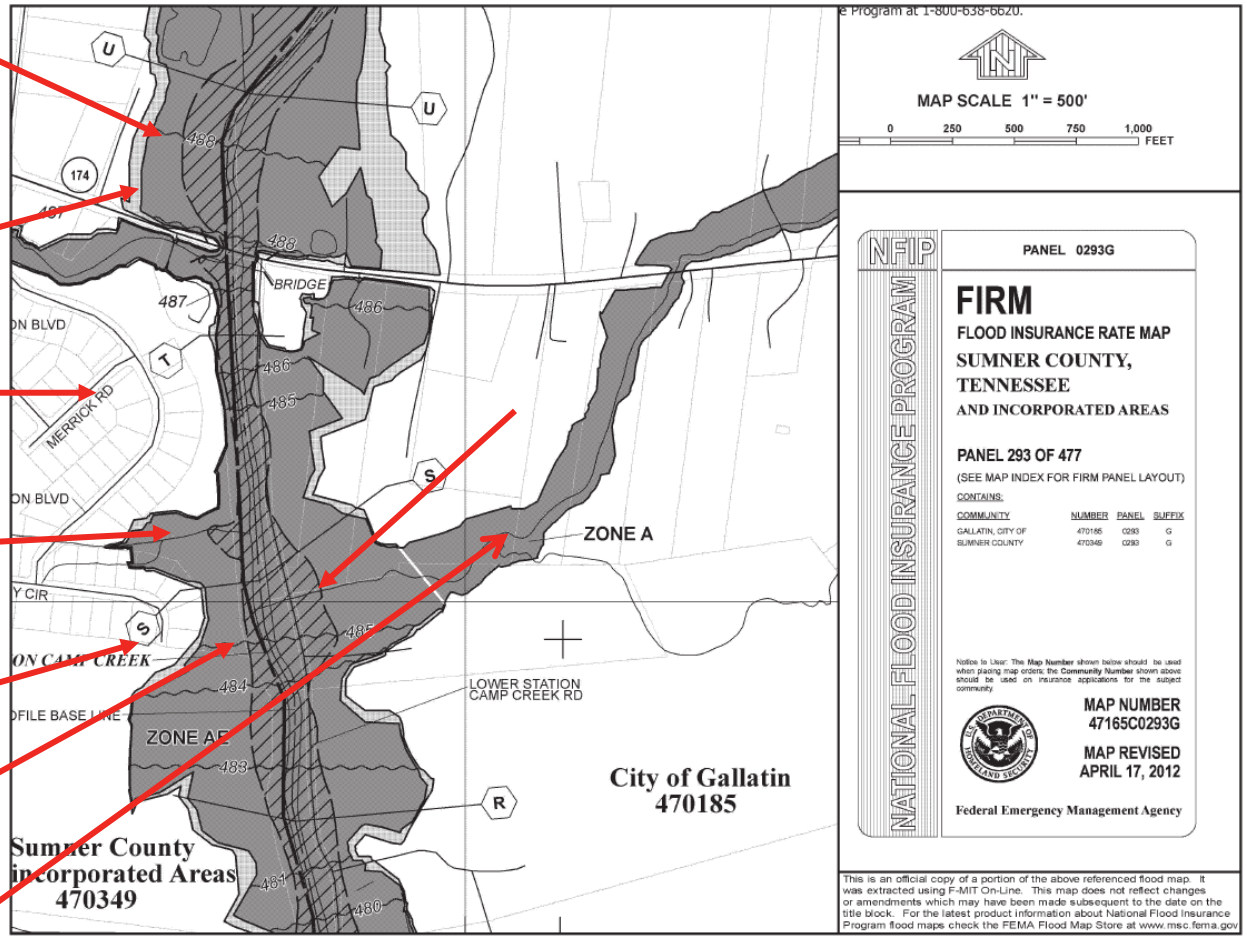
Unshaded Zone X
is all other areas considered low risk (formerly Zone C).

Zone AE
is the 1%-annual-chance (100-year) floodplain with BFEs (formerly Zones A1–A30).

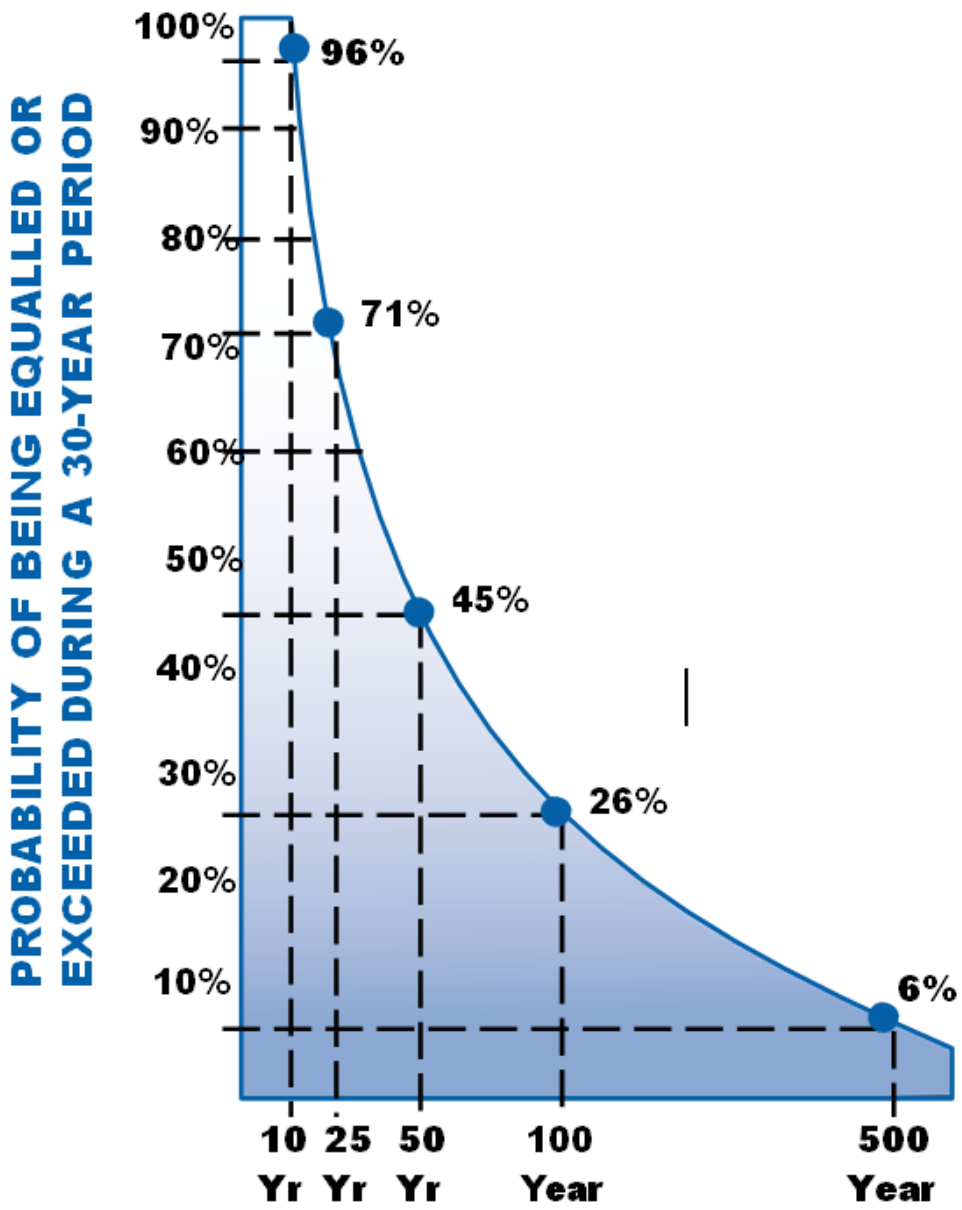
Cross Section location.

The **Floodway** is the hatched area.

Zone A
is (unnumbered) is the flood hazard area without Base Flood Elevations (BFEs).



Annual Chance Floods



The 1%-annual chance flood, also called the Base Flood and commonly called the 100-year flood, (that does not mean the 100-year flood occurs only once every 100 years) has been selected by the NFIP as the basis for delineation of Special Flood Hazard Areas on Digital Flood Insurance Rate Maps (DFIRMs). The Special Flood Hazard Area is the basis for floodplain regulations administered by Tennessee communities.

The boundary of the floodplain delineated for the 0.2%-annual chance flood (also called the 500-year flood) is shown on the NFIP flood maps.

Terms and Definitions

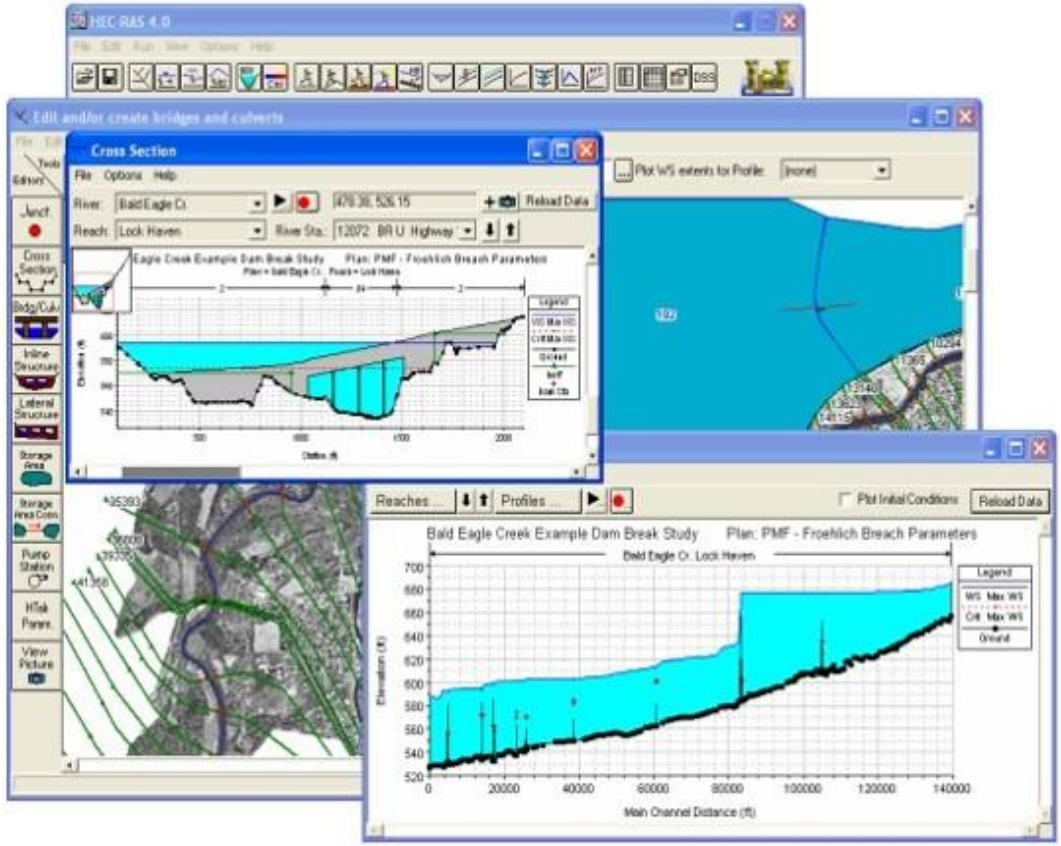
The **Base Flood** is the 1%-annual chance flood (commonly called the 100-year flood). The 1%-annual chance flood has a 26% chance of occurring during a 30-year period.

The 0.2%-annual chance flood (or 500-year flood) has a 6% chance of occurring during a 30-year period.

Riverine Floodplains

How riverine models are created:

- Hydrology (flows) are derived using historic records, detailed studies, or regression calculations
- Riverine cross-sections are created using field survey and LiDAR topographic data
- Obstructions, ground cover, bridges, culverts, dams, encroachments, and other hydraulic features are entered into the model
- Flood levels are calculated based on the flows and the hydraulic modeling
- The flood levels are intersected with the ground topography to determine the limits of flooding



Understanding the Riverine Floodplain

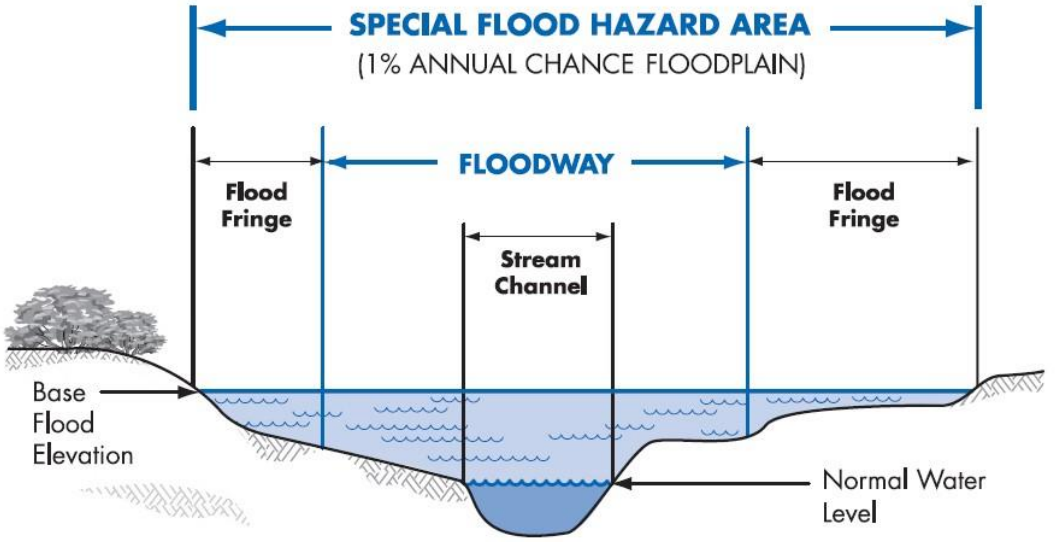
Terms and Definitions

Special Flood Hazard Area (SFHA) is that portion of the floodplain subject to inundation by the base flood and/or flood-related erosion hazards. SFHAs are shown on Flood Insurance Rate Maps (FIRMs) as Zones A, AE, A1-A30, AH, AO, and AR for riverine floodplain areas. Coastal flood zones are V, VE, and V1-V30.

The **floodway** is the area of the floodplain where floodwaters usually flow faster and deeper.

The **base flood** means the flood having a 1% chance of being equaled or exceeded in any given year (also called the "100-year floodplain").

For floodplains with Base Flood Elevation (BFE) information, check the Flood Insurance Study to find the Flood Profile which shows water surface elevations for different frequency floods. For **Zone AE, the Flood Insurance Study (FIS) profile must be used on the Elevation Certificate** to determine the BFE.

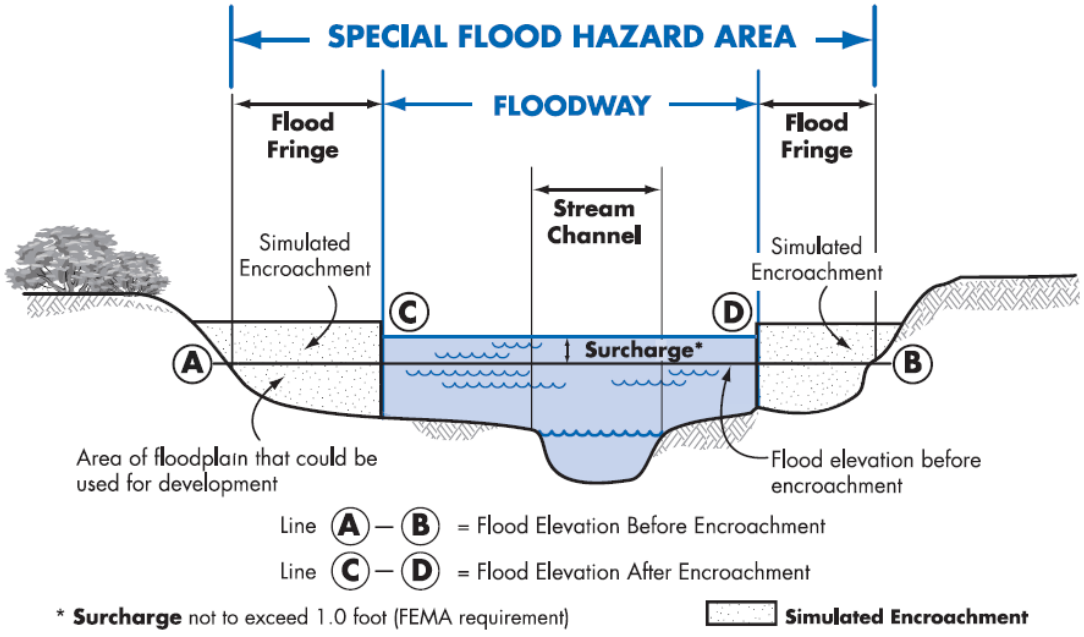


Understanding the Floodway

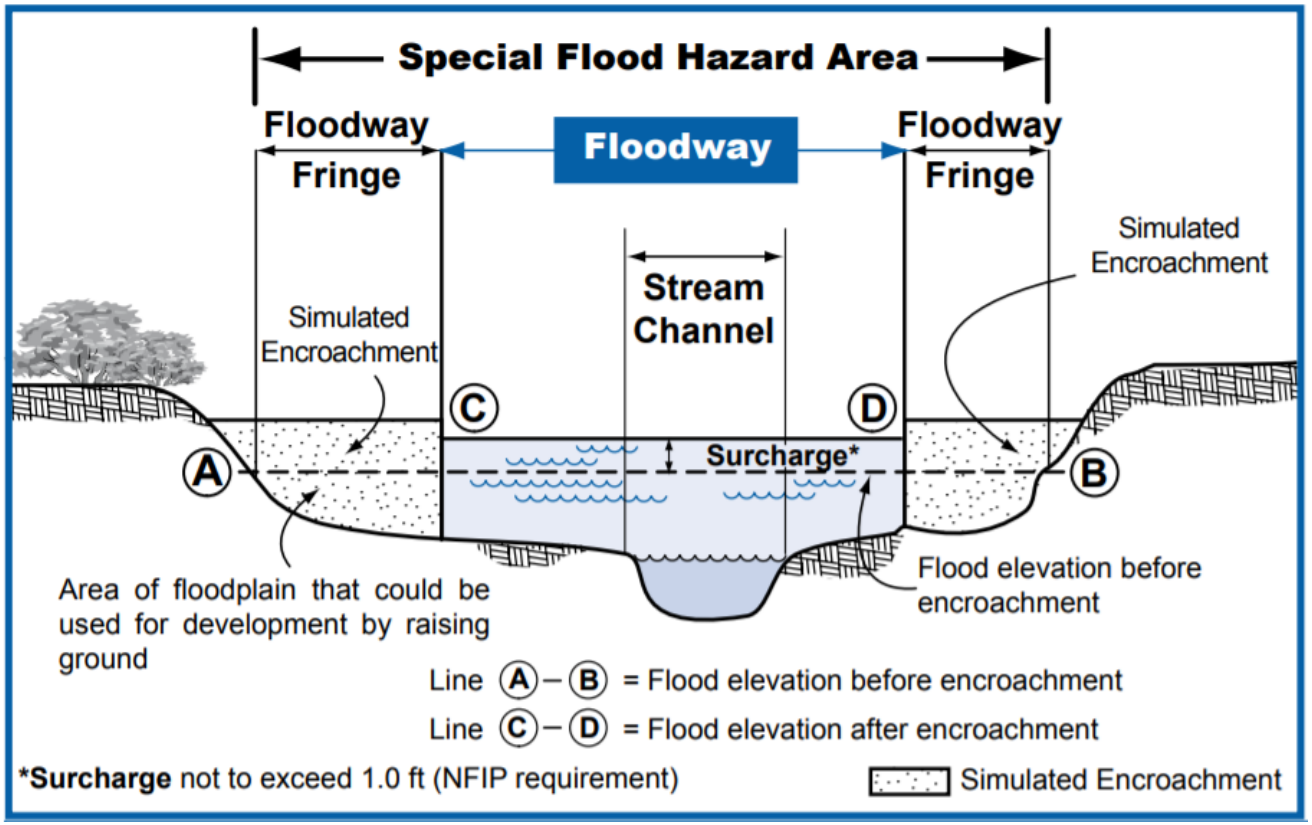
The **Floodway** includes the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to pass the base flood discharge without increasing flood depths. Computer models of the floodplain are used to simulate “encroachment” or development in the flood fringe to predict where and how much the Base Flood Elevation would increase if the floodplain is allowed to be developed.

Any project in a floodway must be reviewed by the local community’s engineering or planning office to determine if the project will increase flood heights. An engineering analysis must be conducted before a permit can be issued. The community's permit file must have a record of the results of this analysis which can be in the form of a **No-Impact Certification**. The No-Impact Certification must be supported by technical data and signed by a registered professional engineer. The supporting technical data should be based on the standard step-backwater computer model used to develop the floodway shown on the Flood Insurance Rate Map (FIRM).

A Floodway or Non-Encroachment Area can exist above overtopped bridges or culverts.



Understanding the Floodway, Continued



Terms and Definitions

The **Floodway** is the channel of a river or other water course and the adjacent land areas that must be reserved in order to pass the base flood discharge without cumulatively increasing flood levels by more than one foot.

Computer models of the floodplain are used to simulate "encroachment" or fill in the floodway fringe in order to predict where and how much the Base Flood Elevation (BFE) would increase if the floodplain is allowed to be filled.

Before a local permit can be issued for proposed development in the floodway, a "No Rise/No Impact" certification must be submitted prior to any work initiated (see page 50). You will need a Professional Surveyor to provide an Elevation Certificate together with a Professional Engineer's signed and sealed Hydraulic and Hydrologic (H&H) Study to make sure your proposed project won't increase flood levels. Both must be licensed in the State of Tennessee.

Flood Hazard Designations

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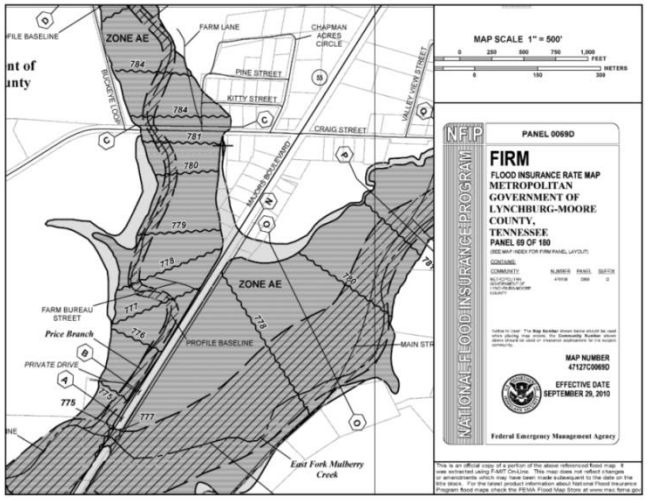
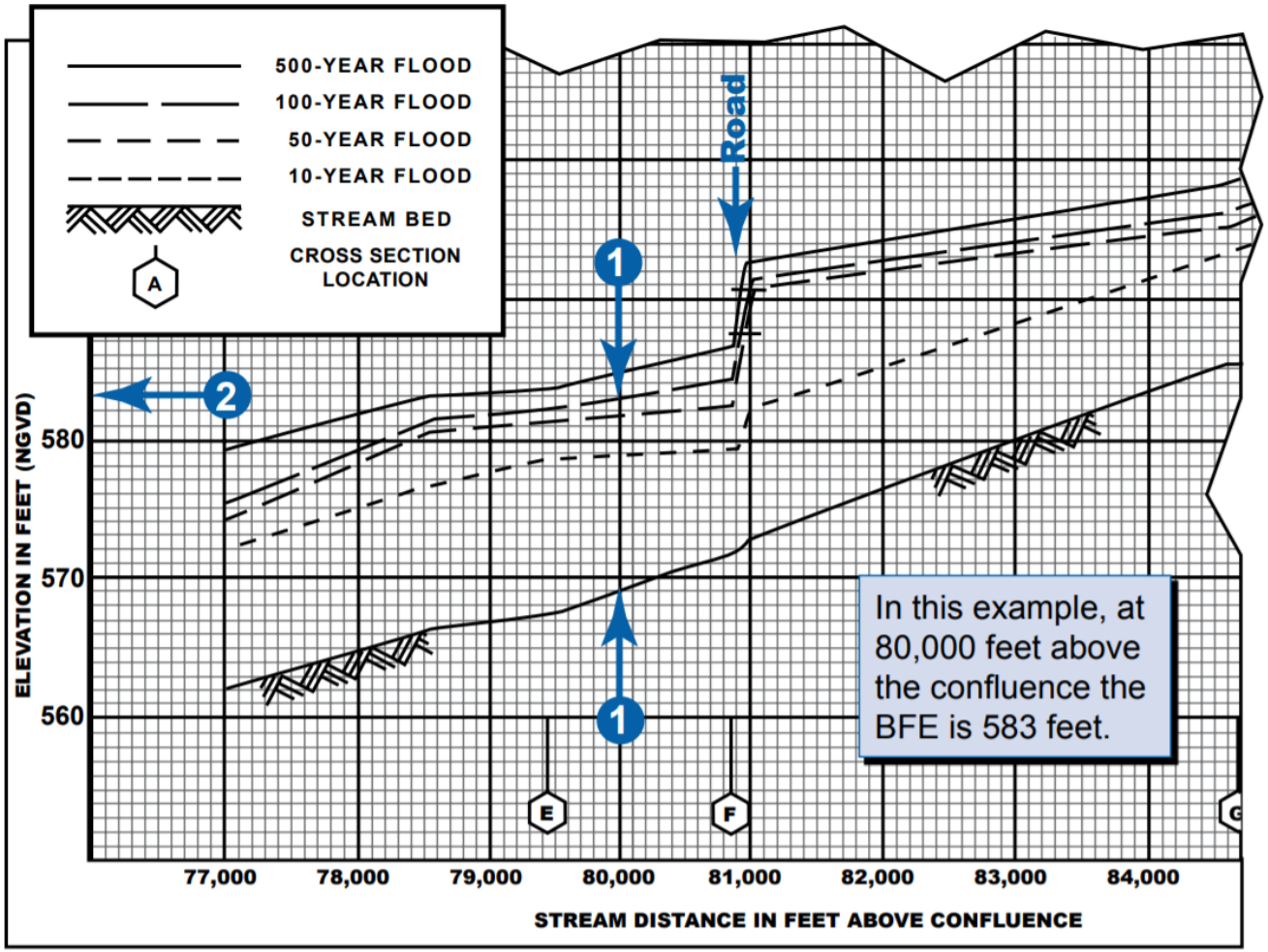


Flood hazard areas identified on the Flood Insurance Rate Map are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone AE, Zone AH, Zone AO, Coastal Zones V, Zone VE, and Zones V1-V30 are not in Tennessee. Moderate flood hazard areas, labeled Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone X (unshaded).

A	Areas of 1% annual chance flood determined by approximate methods; base flood elevations not determined
AE	SFHAs inundated by 1% annual chance flood; base flood elevations are shown
AH	Areas of 1% annual chance shallow flooding (usually ponding) where average depths are between 1 and 3 feet; whole-foot base flood elevations are shown
AO	Areas of 1% annual chance shallow flooding where average depths are between 1 and 3 feet (usually sheet flow on sloping terrain); average whole-foot depths are shown
X (unshaded)	Areas determined to be outside the 0.2% annual chance floodplain
X (shaded)	Areas of 0.2% annual chance flood; areas subject to 1% annual chance flood with average depths less than 1 foot or with contributing drainage area less than 1 square mile; and areas protected by levees from base flood

Use the Stream Flood Profile to Determine BFEs



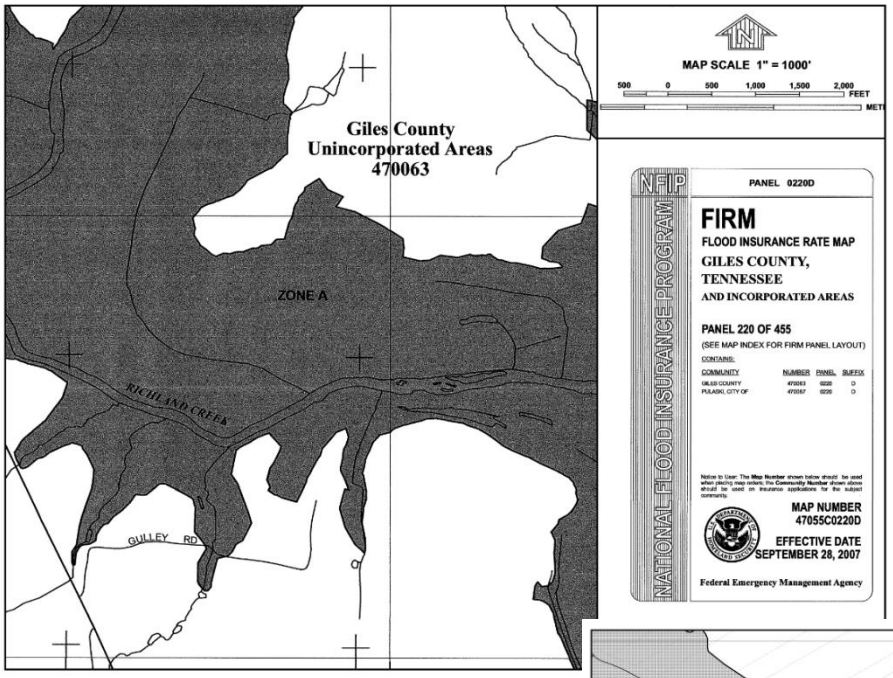
The FEMA Flood Insurance Study (FIS) is a report that contains detailed flood elevation data in flood profiles and data tables. FIS flood profiles provide detailed information about BFEs, stream bed locations, and cross section locations. Flood profiles are available on the FEMA Map Service Center website, where users can look up site-specific flood hazard information.

Flood profiles can be used to determine the BFE at a specific site. Profiles also show estimated water surface elevations for floods other than the 1%-percent annual change flood.

1. On the FIRM, locate your site by measuring the distance along the centerline of the stream channel from a cross section or bridge, for example (E) or (F).

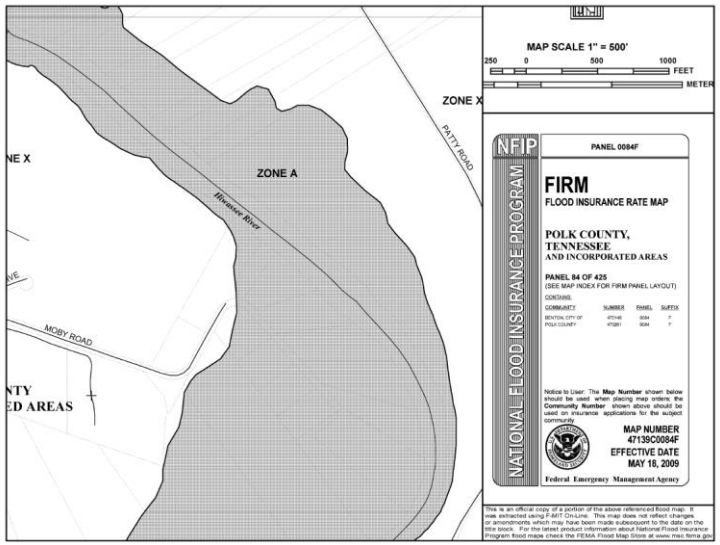
2. Scale that distance on the flood profile and read up to the profile of interest, then across to determine the base flood elevation.

Approximate Zone A



Approximate A zones are drawn based on existing information, not engineering studies. FEMA checked with the U. S. Army Corps of Engineers, the U. S. Geological Survey, the State, local offices, and historic records. When existing information was lacking, an approximate delineation was performed.

Tennessee local floodplain ordinances identify Approximate A zones as those A zone areas on the FIRM included in the FIS for which no BFEs are provided. See next page for information on determining if structures sited within Approximate A Zones will be reasonably safe from flooding.

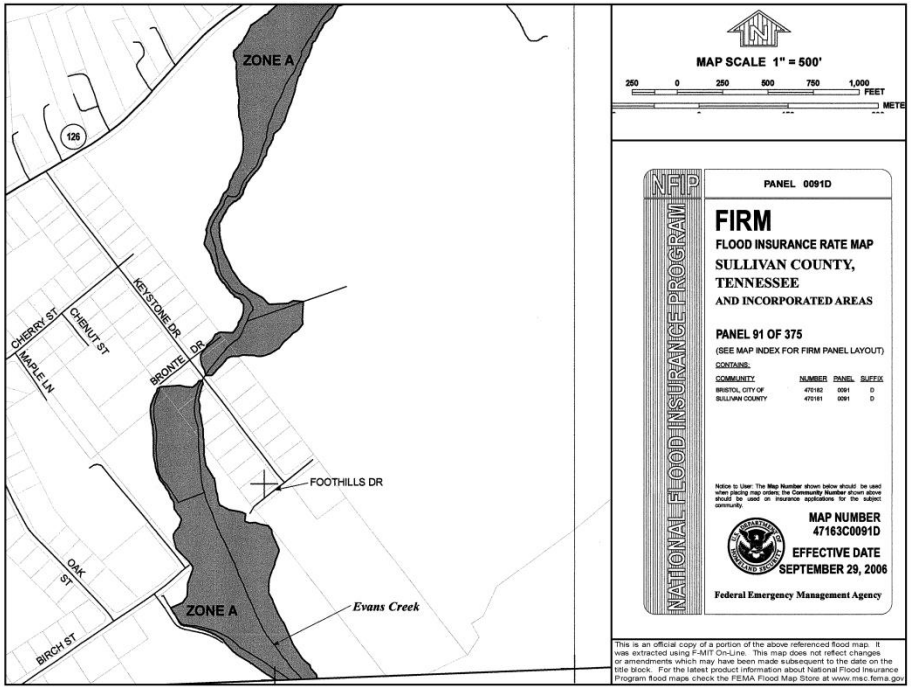


Approximate Flood Zones and Unnumbered A Zones

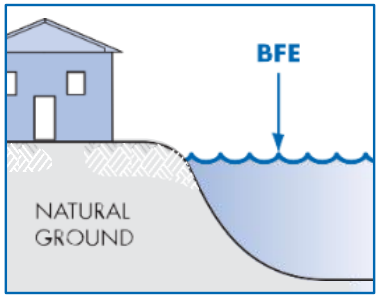
Some floodplains are delineated using approximate methods and therefore do not have specified Base Flood Elevations (BFEs). For assistance, contact your community's planning, engineering, or permit office. If unknown, to obtain a BFE or base flood depth, please contact your regional, U.S. Army Corps of Engineer (USACE) or Tennessee Valley Authority (TVA) offices to learn if that data is available.

The FEMA publication Managing Floodplain Development in Approximate Zone A Areas (FEMA 265) is useful for engineers and community officials and is located here: www.fema.gov/media-library/assets/documents/1911.

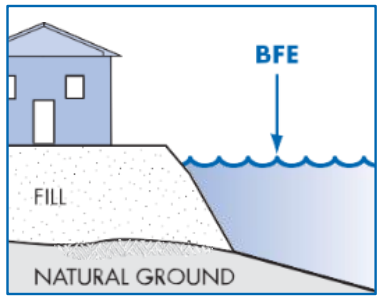
Even if the estimated BFE indicates flooding might be only a foot or two deep, it is recommended that the lowest floor be at least three (3) feet above the highest adjacent grade. Not only does this improve flood protection, but lower flood insurance premiums may apply.



Flood Map Revisions Processed by FEMA



Letter of Map Changes (LOMCs) are documents issued by FEMA that revise or amend the flood hazard information shown on the FIRM without requiring the FIRM to be physically revised and re-published. **Letters of Map Revision (LOMRs), Letters of Map Revision Based on Fill (LOMR-Fs)** and **Letters of Map Amendment (LOMAs)** are all forms of LOMCs that are issued for a property, or properties, on the revised FIRM panel.



The most accurate information available is used to make flood maps, including topographic base maps and detailed engineering methods or methods of approximation. Map revisions are issued when technical data is submitted to support the changes. Various map changes are processed directly by FEMA and are listed below and additional information can be found at https://www.fema.gov/letter-map-changes :

- **Letter of Map Amendment (LOMA)** is an official amendment to an effective FIRM that may be issued when a property owner provides additional technical information from a professional land surveyor or civil engineer, such as ground elevation relative to the BFE. Lenders may waive the flood insurance requirement if the LOMA removes a building site from the SFHA because natural ground at the site is at or above BFE.
- **Letter of Map Revision Based on Fill (LOMR-F)** is an official revision to an effective FIRM that is issued to document FEMA's determination that a structure or parcel of land has been elevated by fill above the BFE, and therefore is no longer in the SFHA. Lenders may waive the insurance requirement if the LOMR-F removes a building site from the SFHA.
- **Conditional Letter of Map Revision (CLOMR)** is a letter commenting on whether a proposed project, if built as shown on the submitted documentation, would meet the standards for a map revision. Communities may require this evidence prior to issuing a permit, and the Certificate of Occupancy/Compliance should be withheld until receipt of the final LOMR based on "as-built" documentation and certification.
- **Letter of Map Revision (LOMR)** is an official revision to an effective FIRM that may be issued to change flood insurance risk zones, SFHAs and floodway boundary delineations, BFEs, and other map features. Lenders may waive the insurance requirement if the approved map revision shows buildings to be outside of the SFHA.

Letter of Map Change (LOMC) Information

There are multiple sets of forms available on the FEMA website to assist in the request for a Letter of Map Change (LOMC). These forms can be found at www.fema.gov/flood-mapping-related-forms.

- **Letter of Map Amendment (LOMA), MT-EZ form:** This form should be used to request that FEMA remove a single structure or a legally recorded parcel of land or portions thereof, described by metes and bounds certified by a Registered Professional Engineer or Licensed Land Surveyor, from a designated Special Flood Hazard Area (SFHA) via Letter of Map Amendment (LOMA)
- **Letter of Map Revision Based on Fill (LOMR-F), MT-1 form:** This form should be used to assist requesters (community officials, individual property owners, and others) in gathering the information that FEMA needs to determine whether property (structure(s), parcel(s) of land) is likely to be flooded during the flood event that has a 1% chance of being equaled or exceeded in any given year (base or 100-year flood). Lands that are at risk of being inundated by the base flood are designated as SFHAs.
- **Conditional Letter of Map Revision (CLOMR) MT-2 form:** This form should be used to assist FEMA on a proposed project that would, upon construction, affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA). A licensed TN engineer completes this package.

Letter of Map Change (LOMC) Information, Continued

- **Letter of Map Revision (LOMR) MT-2 form:** This form should be used for revisions to effective Flood Insurance Study reports, Flood Insurance Rate Maps or Flood Boundary and Floodway Maps by individual and community requesters. These forms will provide FEMA with assurance that all pertinent data relating to the revision are included in the submittal. They also will ensure that: (a) the data and methodology are based on current conditions; (b) qualified professionals have assembled data and performed all necessary computations, and (c) all individuals and organizations affected by proposed changes are aware of the changes and will have an opportunity to comment on them.

More information about LOMCs and an Online LOMC application are available on FEMA's website:

www.fema.gov/change-flood-zone-designation-online-letter-map-change.

Community Flood Map Changes

The following are examples of how FEMA flood map changes affect flood insurance and applicable requirements, options, and savings (other situations not reflected here may affect your flood premium). To obtain a flood insurance quote for your property, contact your property insurance agent. To find an insurance agent near you, call the NFIP's toll-free number at (888) 356-6329 or visit www.FloodSmart.gov.

EXAMPLE 1:

If maps show change from moderate-to-low flood risk (Flood Zones X) to high risk (Zones A, AE, AH, or AO): **Flood insurance is mandatory.**

Flood insurance is federally required for most mortgage holders. Insurance costs may rise to reflect the true (or high) risk. The Newly Mapped Procedure can offer savings under the **Preferred Risk Policy (PRP)**. A PRP offers multiple coverage combinations for both buildings and contents (contents-only coverage is available for renters) that are in moderate- to low-risk areas (X Zones). PRPs are available for residential or non-residential buildings also located in these zones, and that meet eligibility requirements based on the building's entire flood loss history. The Newly Mapped Procedure allows policyholders lower-cost PRP rates for the first 12 months after new maps go into effect. After the first year, the rate begins its transition to a full-risk rate with annual rate increases of no more than 18% each year.

Policyholders not eligible for the Newly Mapped Procedure may still benefit from the NFIP's **Grandfathering Rule**. Eligible policyholders can keep their prior Flood Zone or Base Flood Elevation for rating purposes after maps change. Grandfathering applies if the structure was built in compliance with an earlier (or older version) flood map or the policyholder has maintained continuous flood coverage.

Community Flood Map Changes, Continued

EXAMPLE 2:

If maps change from high flood risk (Flood Zones A, AE, AH, or AO) to moderate-to-low risk (Zone X or Shaded X):

Flood insurance is optional but still recommended. The risk is only reduced, not removed.

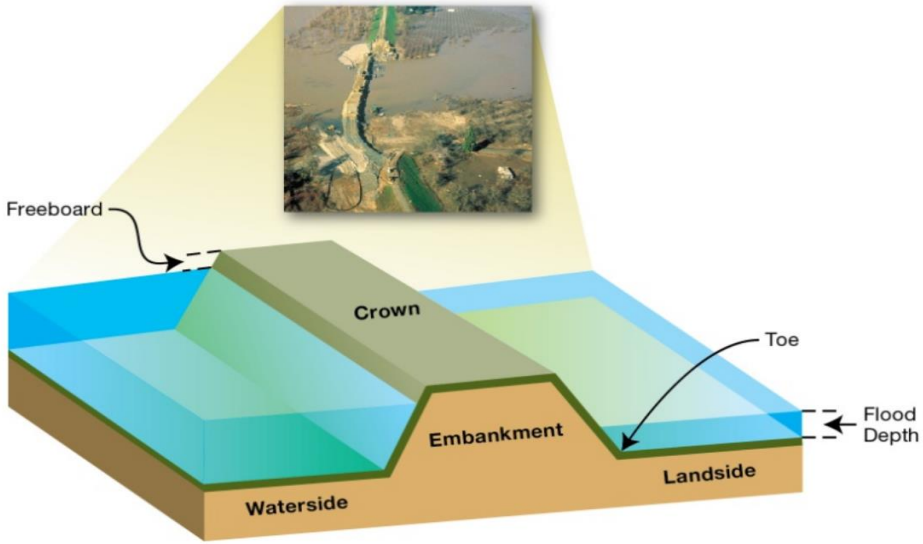
You can still obtain flood insurance, and at a lower rate. Even though flood insurance isn't federally required in this example, everyone is financially vulnerable to floods. In fact, people outside of mapped high-risk flood areas file more than 20% of all NFIP flood insurance claims and receive one-third of federal disaster assistance for flooding.

Your insurance agent can easily convert an existing policy to a lower-cost PRP if the building qualifies. Note that lenders always have the option to require flood insurance in these areas.

For further information and to learn more about flood insurance rating, visit www.FloodSmart.gov.

Levee Analysis and Mapping Procedures (LAMP)

Under FEMA's prior levee approach, a levee system that did not meet the National Flood Insurance Program (NFIP) requirements was analyzed and mapped as if it had no effect on the landward side of the levee system during the base (1-percent-annual-chance) flood. This was known as the "without levee" approach.



Given recent technological advances in data collection and hydrologic and hydraulic modeling, FEMA is able to implement a more refined approach to mapping flood hazards in areas landward of levee systems. FEMA has replaced the former levee analysis and mapping approach with a suite of alternative procedures created to:

- Comply with all current statutory and regulatory requirements governing the NFIP
- Be a cost-effective, repeatable, and flexible approach
- Leverage local input, knowledge, and data through proactive stakeholder engagement
- Align available resources for engineering analysis and mapping
- Consider unique levee and flooding characteristics
- Allow a variety of approaches to be applied to a levee system if needed

The new levee analysis and mapping procedures recognize that levee systems have different components, and some of these components have more flood hazard reduction capability than others. In the context of the new procedures, these components are called reaches. A levee reach is defined as any continuous length of a levee system to which a single analysis and mapping procedure may be applied. There is no minimum or maximum length for a levee reach, as its definition will be primarily data dependent. For information, FEMA's Analysis and Mapping Procedures for Non-Accredited Levees – New Approach - https://www.fema.gov/media-library/assets/documents/33587

Levee Analysis and Mapping Procedures (LAMP), Continued

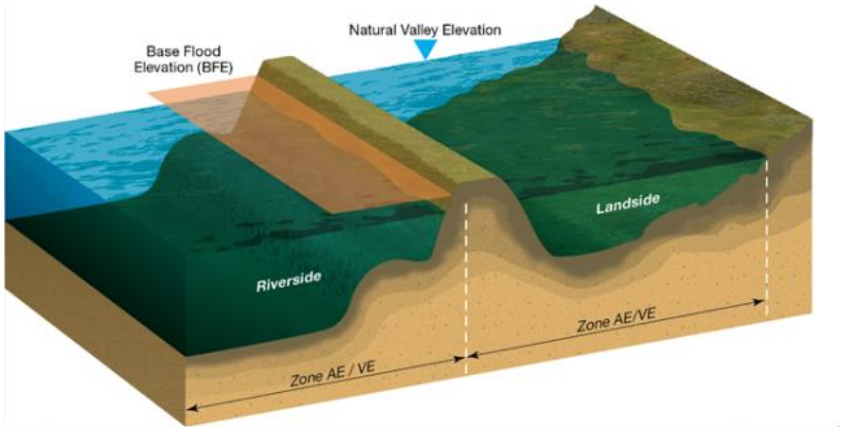
Natural Valley Procedure

The Natural Valley Procedure will be used in two ways: first landward of the entire levee system to determine the outer limits of any Zone D areas used and second as a potential procedure applied to individual levee reaches to determine the SFHA on the landward side of the levee reach. The Natural Valley Procedure can be applied to all non-accredited levee reaches.

Below are several factors to consider when determining whether to use the Natural Valley Procedure to determine the SFHA:

- The levee reach does not significantly obstruct the flow of water;
- Data necessary for more complex methods is not and will not be available in the near term; or
- The community (or Tribal entity, when appropriate) provides feedback that it is the acceptable procedure to use.

For riverine levee systems, the Natural Valley Procedure will reflect the levee geometry in the hydraulic model, but will allow water to flow on either side of the levee. For coastal levee systems, the Natural Valley Procedure will reflect the levee geometry, and consideration will be given as to how the levee system will impact wave propagation.

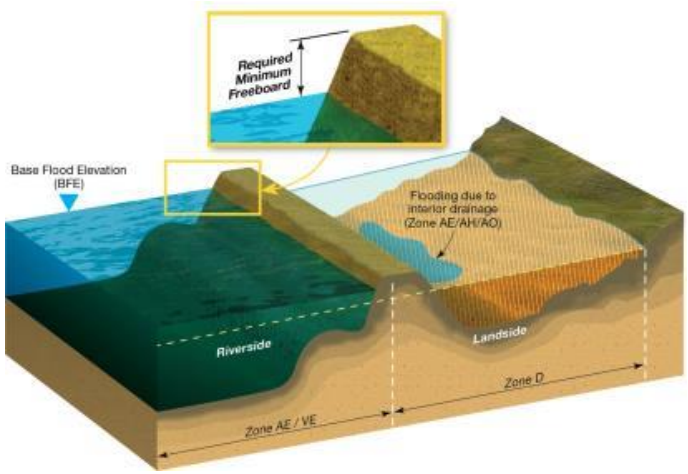


Levee Analysis and Mapping Procedures (LAMP), Continued

Sound Reach Procedure

A Sound Reach is defined as a continuous section of a levee system that has been designed, constructed, and maintained to withstand the flood hazards posed by a 1-percent-annual-chance flood, in accordance with sound engineering practices. A Sound Reach is beneficial in that it can be modeled assuming it will remain in place during the 1-percent-annual-chance flood and, thus, its impact will be reflected in the delineation of the final SFHA. Sound Reaches differ from an accredited levee system because they are part of a levee system that as a whole cannot meet accreditation requirements.

No reach-specific levee modeling is required for a Sound Reach. However, SFHAs from the system-wide interior drainage analysis, and/or adjacent levee reaches may still be delineated landward of Sound Reaches.

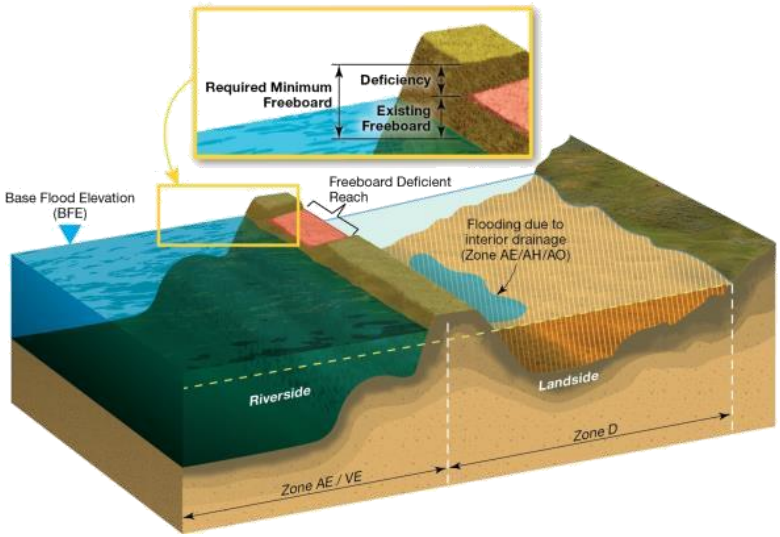


Levee Analysis and Mapping Procedures (LAMP), Continued

Freeboard Deficient Procedure

The Freeboard Deficient Procedure can be applied if the 1-percent-annual-chance flood is between the top of levee but it cannot meet the freeboard standard. A Freeboard Deficient Reach must meet structural analysis, Operation and Maintenance, and inspection standards. Freeboard Deficient Reaches differ from an accredited levee system because they are part of a levee system that as a whole cannot meet accreditation requirements and because they cannot meet the regulatory freeboard standard.

As with the Sound Reach Procedure, no reach-specific modeling is required for a Freeboard Deficient Reach. However, SFHAs from the system-wide interior drainage analysis, and/or adjacent levee reaches, may still be delineated landward of Freeboard Deficient Reaches.

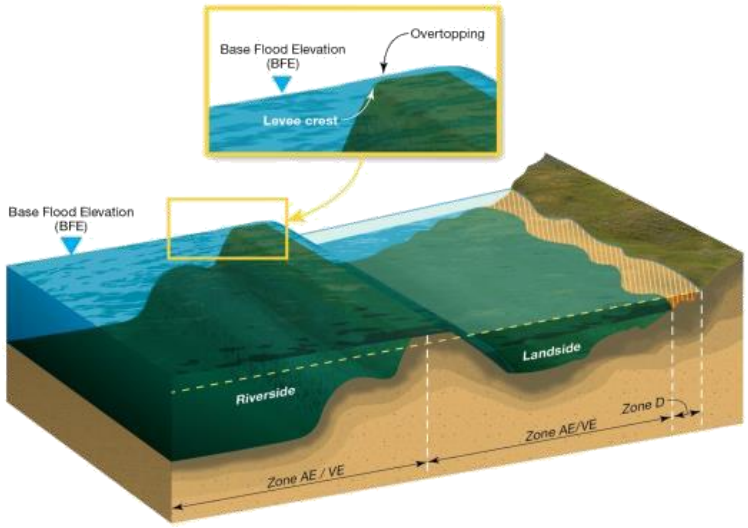


Levee Analysis and Mapping Procedures (LAMP), Continued

Overtopping Procedure

The Overtopping Procedure can be applied when the 1-percent-annual-chance flood is above the levee crest for a reach, and the community or levee owner has provided appropriate technical justification that the 1-percent-annual-chance flood event will not cause structural failure. In addition to the structural standards established in 44CFR65.10, it is expected that more detailed structural analysis will be required in order to justify that the levee system can sustain the 1-percent-annual-chance flood. As with a Sound Reach and Freeboard Deficient Reach, an Operations and Maintenance Plan and documentation of inspection are required.

For an Overtopping Reach, technical analyses will be performed to determine the volume of water that will overtop the levee during the 1-percent-annual-chance flood event. This volume of water will be used to establish the SFHA.

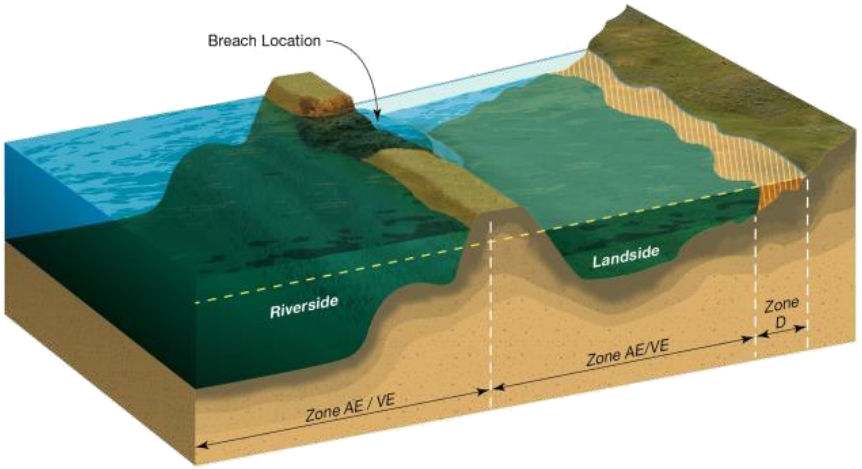


Levee Analysis and Mapping Procedures (LAMP), Continued

Structural-Based Inundation Procedure

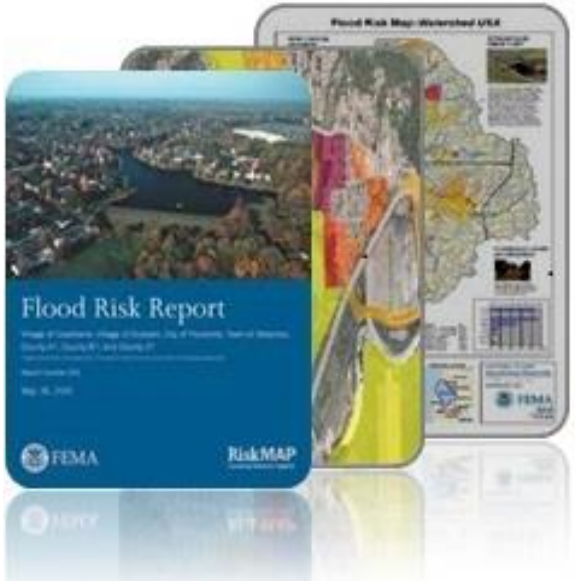
In some instances, levee systems have reaches with either structural deficiencies that are known or structural integrity that is unknown (a common occurrence for older levee systems). Levee systems with structural integrity issues may, however, provide some flood risk management benefits by impeding conveyance to some degree. For these levee reaches, FEMA will rely on modeling of breaches along the levee reach.

It is not possible to predict the exact location of a levee breach. This procedure, therefore, does not predict the probability of failure at any breach location, nor does it provide a specific determination or evaluation of the overall levee system performance or require a determination of the likely failure mechanism. The procedure instead results in the development of a levee reach-specific SFHA that might occur as a result of potential breaches along a particular levee reach during the 1-percent-annual-chance flood. To determine this SFHA, possible locations of system breaches, geometry, and failure duration will be considered.



Risk MAP Products

What are FEMA Risk MAP Products?



Flood Risk Products go beyond the basic flood hazard information. Flood Risk Products provide a deeper and user-friendly analysis of flood risks within a community.

Flood Risk Products help community members and officials view and visualize their local flood risk, allowing communities to make informed decisions about reducing flood loss and mitigating potential damage from flood hazards. These individuals may include property owners, emergency management officials, community planners and developers, real estate and insurance specialists, and other professionals and community decision-makers. The following is a list of these products:

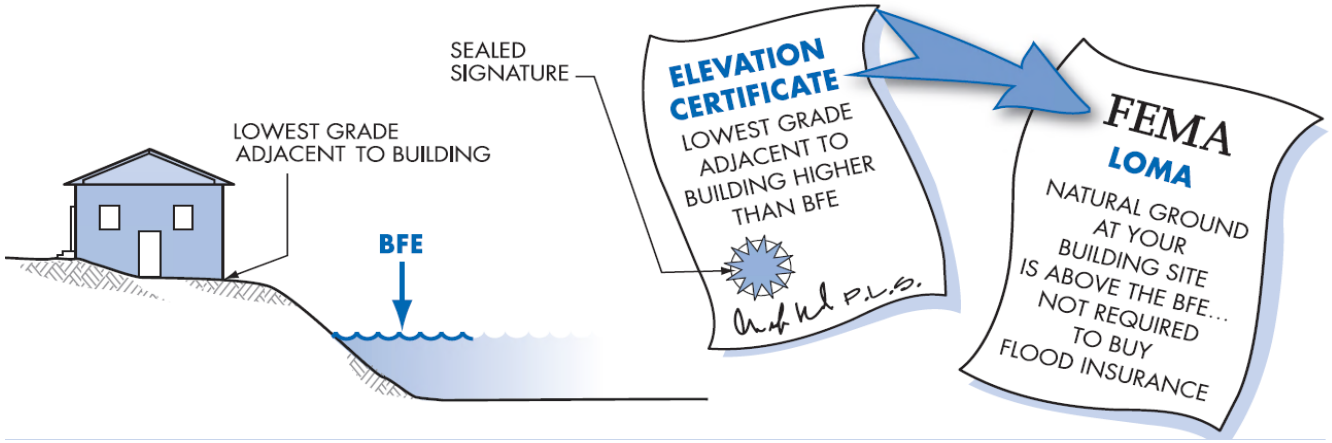
- **Flood Risk Map (FRM):** The FRM depicts flood risk data for a flood risk project area and is typically used to illustrate overall flood risk for the area. The content and format of individual FRMs may vary among project areas to best represent the local conditions. Typical maps might show the potential flood losses associated with the 1%-annual-chance flood event for each census block, areas planned for new or revised maps, key watershed features that affect local flood risk, and information about potential or successful past projects to reduce flood risk.
- **Flood Risk Report (FRR):** The FRR provides community- and watershed-specific flood risk information extracted from the Flood Risk Database (FRD), explains the concept of flood risk, and identifies useful tools and reference materials. The FRR, used in combination with the Flood Risk Map (FRM), is a good tool for communities to use for raising local flood risk awareness.

Risk MAP Products, Continued

- **Flood Risk Database (FRD):** The FRD stores all flood risk data for a flood risk project, including the information shown in the Flood Risk Report (FRR) and on the Flood Risk Map (FRM). The FRD provides a wealth of data that may be used to analyze, communicate, and visualize flood risk on an ad hoc basis for a variety of uses. Communities are encouraged to use this database to support mitigation efforts and raise awareness. Data in the FRD represents a snapshot in time. Data is not updated regularly once the final FRD is posted to the FEMA Flood Map Service Center. Elements in the FRD can include:
  - **Changes Since Last FIRM** shows where the Special Flood Hazard Area (SFHA) has changed since the last effective Flood Insurance Rate Map (FIRM).
  - **Areas of Mitigation Interest** communicates where conditions have contributed to the severity of flooding losses, allowing for better prioritization of flood mitigation efforts and use of funds.
  - **Flood Depth and Analysis Grids** communicate the depth and velocity of floodwaters as well as the probability of an area being flooded over time.
  - **Flood Risk Assessment Data** provides an assessment of potential financial consequences and other impacts associated with structures located in an SFHA. This data also enables communities to make informed decisions regarding future land development and community infrastructure.
  - In addition to these standard flood risk datasets, the **Flood Risk Database** may contain custom flood risk datasets created for the specific project area or even risk datasets related to other hazards. Geographic Information System (GIS) software and specialized skills are required to view the FRD and the associated elements.

For more information on FEMA Risk MAP products, go to www.fema.gov/risk-map-flood-risk-products#

Building Sites Higher Than the BFE



Because of limitations of scale or topographic definition of the source maps used to prepare a FIRM, small areas may be inadvertently shown within an SFHA on a FIRM even though the structure and natural ground is at or above the elevation of the 1%-annual-chance flood and therefore shown on the FEMA flood map as being “in” the SFHA.

Recognizing that these situations do occur, FEMA established administrative procedures to change the designation for these properties on the FIRM. If a property owner thinks their property has been inadvertently mapped in a SFHA, they may submit a request to FEMA for a Letter of Map Amendment (LOMA). This requires hiring a professional land surveyor to complete a FEMA Elevation Certificate (EC). Submit a request for a Letter of Map Amendment to FEMA along with the EC to verify that your structure is above the BFE. If FEMA approves your request, the mandatory federal requirement to purchase flood insurance could be removed. Keep the certificate and the LOMA with your deed since this information relates to the property and may be transferred to future buyers.

Keep in mind that it is the lender’s prerogative to require flood insurance even if FEMA grants a LOMA. Check with your lender first before applying for a LOMA to remove the flood insurance requirement.

Activities in SFHAs That Require Local Permits and Approvals

The following development activities require a Floodplain Development Permit. The Code of Federal Regulations defines “development” as any man-made change to improved or unimproved real estate, including but not limited to dredging, filling, grading, paving, excavation, or drilling operations or storage of equipment or materials. Keep in mind that your local community may have additional situations that stipulate the need for a Floodplain Development Permit.

- **Construction** of new buildings
- **Additions** to existing buildings
- **Improvements** of existing buildings
- **Renovation** of existing building (interior or exterior)
- **Repair** of damaged buildings
- **Placement** of manufactured (mobile) homes
- **Subdivision** of land
- **Construction** or placement of temporary buildings and accessory structures
- **Construction** of agricultural buildings
- **Construction** of roads, bridges, culverts, and utilities
- **Placement** of fill, grading, excavation, mining, and dredging
- **Alteration** of stream channels
- **Drilling** (oil and gas)

Some Key Floodplain Development Permit Review Steps

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

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

Applying for a Floodplain Development Permit

Your local community's Floodplain Development permitting process will include a comprehensive review of the proposed development addressing the following topics:

- Is the site in the mapped FEMA floodplain or floodway?
- Will fill material be placed on the site?
- Have other state and federal permits been obtained?
- Is the site reasonably safe from flooding?
- Does the site plan show the flood zone, Base Flood Elevation, natural ground elevations, and proposed building location?
- Is substantial improvement of an older building proposed?
- Is an addition proposed?
- Will new buildings and utilities be elevated properly?
- Will manufactured homes be properly elevated and anchored?
- Do the plans show an appropriate and safe foundation?
- Will an Elevation Certificate be required?

FLOODPLAIN DEVELOPMENT APPLICATION
LINCOLN COUNTY, TN

Application is hereby made for a Floodplain Development Permit as required under Article III, Section C of the Floodplain Management Ordinance of LINCOLN COUNTY, TN for development as defined in Article II, September, 2013 incorporating all units of the NFIP **Floodplain Management Requirements**. This permit application does not preclude the need for other Federal, State, or Local permit applications.

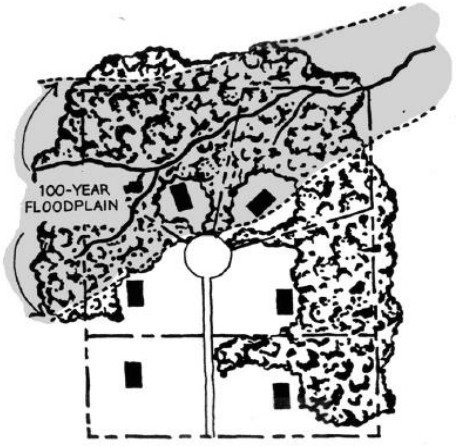
Owner: Address:
Phone No: Email:
If you are applying for this development permit, but are not the owner:
Applicant: Address:
Phone No: Email:
AND/OR
Contractor: Address:
Phone No: Email:

LEGAL DESCRIPTION
Tax Map Parcel ID:
Is this part of a subdivision? ☐ Yes ☐ No Subdivision: Lot #:
If Pre-existing Structure: Address:
Road Name: City and Zip code:
General explanation of proposed development:

TYPE OF DEVELOPMENT
Check the appropriate box to the left of the type(s) of development requested and complete information for each applicable line:
☐1. Residential Structure Dimensions
☐1a. New Structure
☐1b. Addition to Structure
☐1c. Renovations/repairs/maintenance
☐2. Non-Residential Structure
☐2a. New Structure
☐2b. Addition to Structure
☐7. Filling[1] (MT-1 Required) Cubic Yards
☐8. Dredging (MT-1 Required)
☐9. Excavation (MT-1 Required)
☐10. Levee (MT-1 Required)
☐11. Drilling (MT-1 Required)
☐12. Mining Number of Acres

Safer Uses of the Floodplain

Let the floodplain perform its natural function—if possible, keep it as open space. Other compatible uses: recreational areas, playgrounds, reforestation, parking, gardens, pasture, and created wetlands. One resource that is very helpful on this topic is “Subdivision Design in Flood Hazard Areas” (FEMA/APA Planning Advisory Service Report Number 473), which can be found here: www.planning.org/publications/report/9026823.

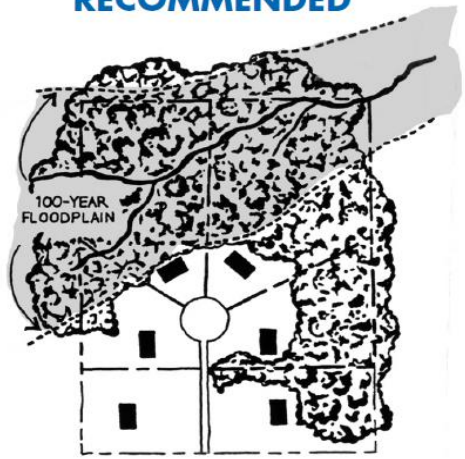


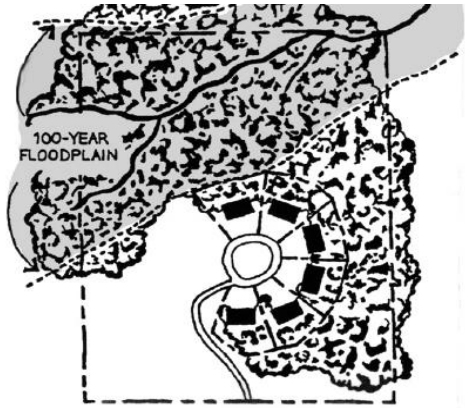
All land subdivided into lots, some homesites and lots partially or entirely in the floodplain.

NOT RECOMMENDED

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

RECOMMENDED





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

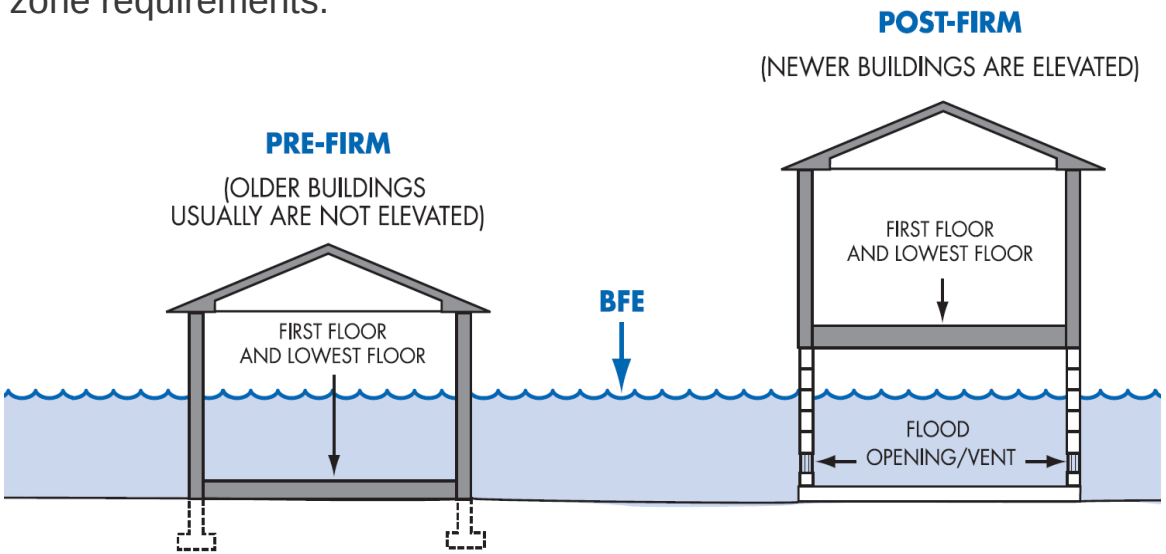
RECOMMENDED

Pre-FIRM and Post-FIRM Structures

A building is **Pre-FIRM** if it was built before the date of your community's first FIRM, and before many communities adopted elevation requirements in high-risk flood areas. If built or substantially improved after that date, a building is **Post-FIRM**. For these proposals, have the applicant submit a cost estimate based on FEMA's guidelines in FEMA P-758, Substantial Improvement/Substantial Damage Desk Reference, located at: https://www.fema.gov/media-library/assets/documents/18562.

Substantial improvement is any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the "start of construction" of the improvement. Find the initial FIRM date for your community online at www.fema.gov or call your community's floodplain administrator.

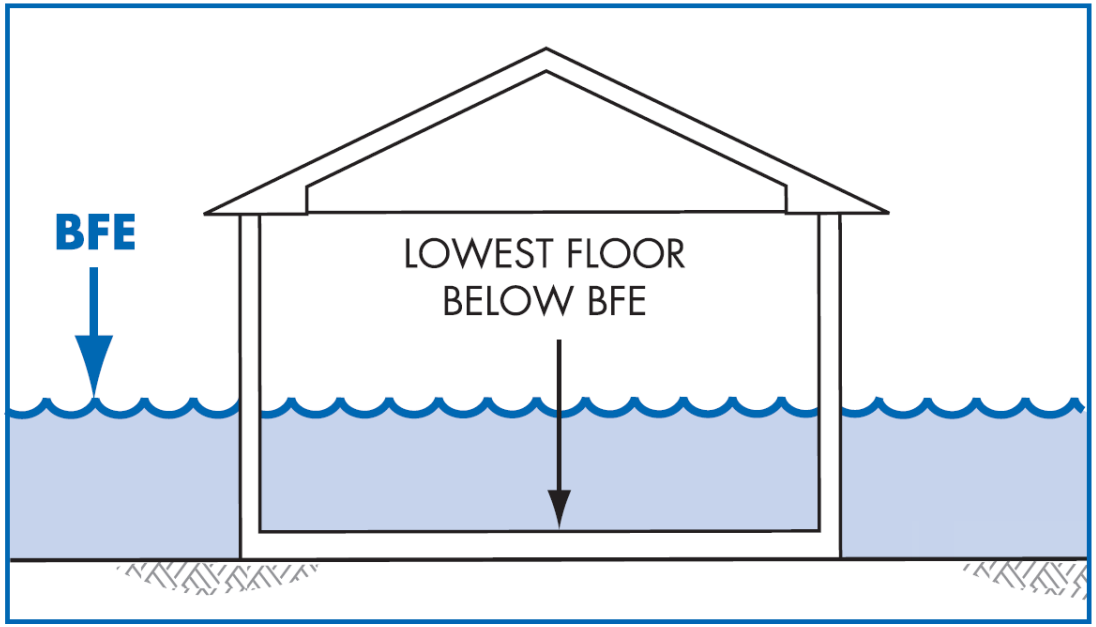
Permits are required for improvements or repairs to Pre-FIRM buildings, which may have to be elevated to the current BFE and flood zone requirements.



Think Carefully Before You Seek a Floodplain Variance

Very specific conditions related to the property (not the owner's actions or preferences) must be satisfied to justify a local community granting a **floodplain variance**, such as:

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



A floodplain variance allows construction in a high-risk flood area built below the BFE without being elevated. It does **not** waive a lender's flood insurance requirement.

Even if a variance is granted by a local community, flood insurance will be **very expensive**—perhaps more than $5,000 in annual premiums. Not only will flood insurance be cost prohibitive, but the structure would not be eligible for a federally backed mortgage and may be difficult to sell in the secondary market.

(See **Freeboard**, on next page.)

Freeboard: Build Higher, Reduce Damage, Save on Insurance

Freeboard is a factor of safety when constructing a building in the Special Flood Hazard Area (SFHA), usually one, two, or even three feet above the Base Flood Elevation (BFE). Building higher than local NFIP requirements provides peace of mind and can save money. Freeboard can compensate for the many unknown factors that could contribute to flood heights greater than the BFE.

Annual Flood Insurance Cost	
If you have:	
☑ a post-FIRM structure	
☑ in an AE Zone	
☑ with $250,000 structural coverage (maximum)	
☑ with $100,000 contents (maximum)	
The approximate annual cost for flood insurance:	
+3 ft.	$500
+2 ft.	$550
+1 ft.	$700
BFE	$1,100
-1 ft.	$5,000
-2 ft.	expensive (submit for rate)

NOTE: *This is hypothetical and flood insurance premiums change yearly. For specific rate information contact a licensed insurance agent.*

NOTE: Flood insurance rates and various fees change from time to time. Rather than specific costs for insurance, this figure gives a feel for how much difference just a foot or two can make.

Building owners will save insurance money if they elevate above the BFE. More dramatically, the cost of insurance can more than double if the building is only foot below the BFE.

Remember: 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 about $5,000 a year.

Freeboard: Go Above the BFE

Want to save some money and have peace of mind at the same time? Then add Freeboard to build higher than the minimum elevation requirement! In Tennessee, new construction and substantially improved structures must be built above the BFE (1-3 feet above BFE recommended and in many communities required). Additional Freeboard will add safety and reduce flood insurance costs.

Post FIRM Single-Family Construction Annual Flood Insurance Premium* Example Flood Zone AE or Numbered A Zones with Elevation Certificate Lowest Floor Elevation Compared to Base Flood Elevation

Lowest Floor Elevation	Structure $100,000	Contents $50,000	Total Admin Fees	Total Annual Premium	30-Yr. Mortgage Total Flood Insurance Cost
3' above	$224	$125	$133	$482	**$14,460**
2' above	$318	$125	$147	$590	**$17,700**
1' above	$574	$153	$190	$917	**$27,495**
At BFE	$1,292	$270	$315	$1,877	**$56,310**
1' below	$3,256	$500	$644	$4,400	**$132,000**

*October 2017 rates

Though other factors affect flood insurance rates, the most significant is the relationship of the lowest floor elevation to the BFE. For Post-FIRM buildings (see page 42), the lower the structure is relative to BFE the higher the cost of insurance. This is true in all types of A Zones and for all insurable structures.

Elevation Certificate and Its Purpose

A community's permit file must have an official record that shows new buildings and substantial improvements in all identified Special Flood Hazard Areas (SFHAs) are properly elevated. This elevation information is needed to document compliance with the local community's floodplain management ordinance. FEMA encourages communities to use the Elevation Certificate (EC) developed by FEMA to fulfill this requirement. The EC is also used as a tool for accurately rating a flood insurance policy for properties located in SFHAs. Find FEMA's current EC at: www.fema.gov/media-library/assets/documents/160.

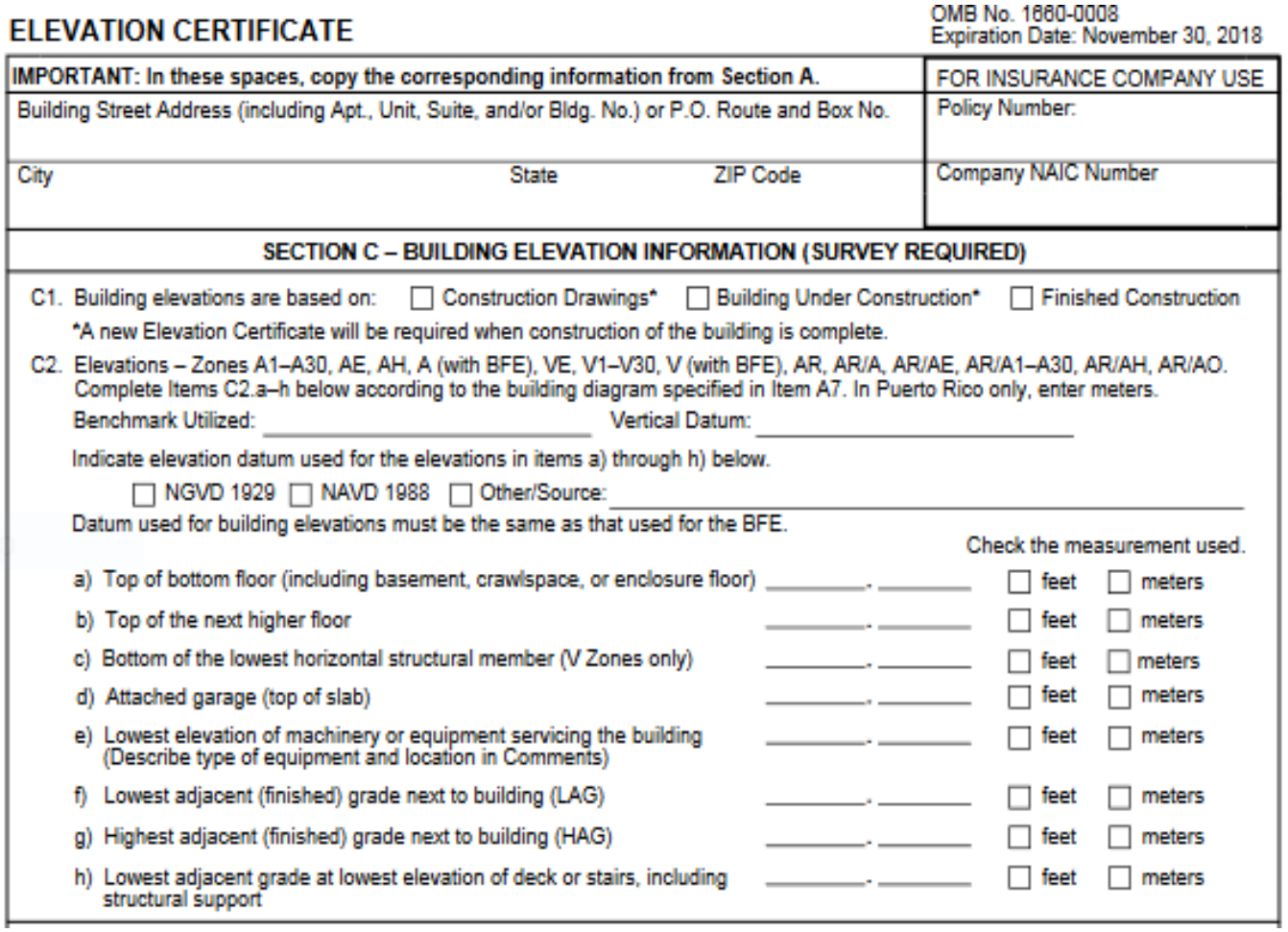
- In Tennessee, the EC must be completed and sealed by a licensed surveyor (a registered professional engineer or architect may complete an EC when based on "construction drawings" only)
- An EC can be used to show the ground elevation at a development site when required for the permit application
- Insurance agents use the EC as a tool to write and rate flood insurance policies for SFHA properties
- The EC is generally required as part of a Letter of Map Amendment (LOMA) application to waive the flood insurance requirement

For more information about Tennessee's Certified Floodplain Surveyor (CFS) Program and Elevation Certificate training, visit: https://www.taps-inc.com/.

Completing the Elevation Certificate

An **Elevation Certificate** (EC) is required by the local permit official as part of an SFHA development permit application prior to construction and/or at the time of finished construction.

It has numerous sections and includes detailed information to verify that buildings are properly elevated to reduce flood risk.



ELEVATION CERTIFICATE

OMB No. 1660-0008
Expiration Date: November 30, 2018

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.			Policy Number:
City	State	ZIP Code	Company NAIC Number

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–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: _____ Vertical Datum: _____

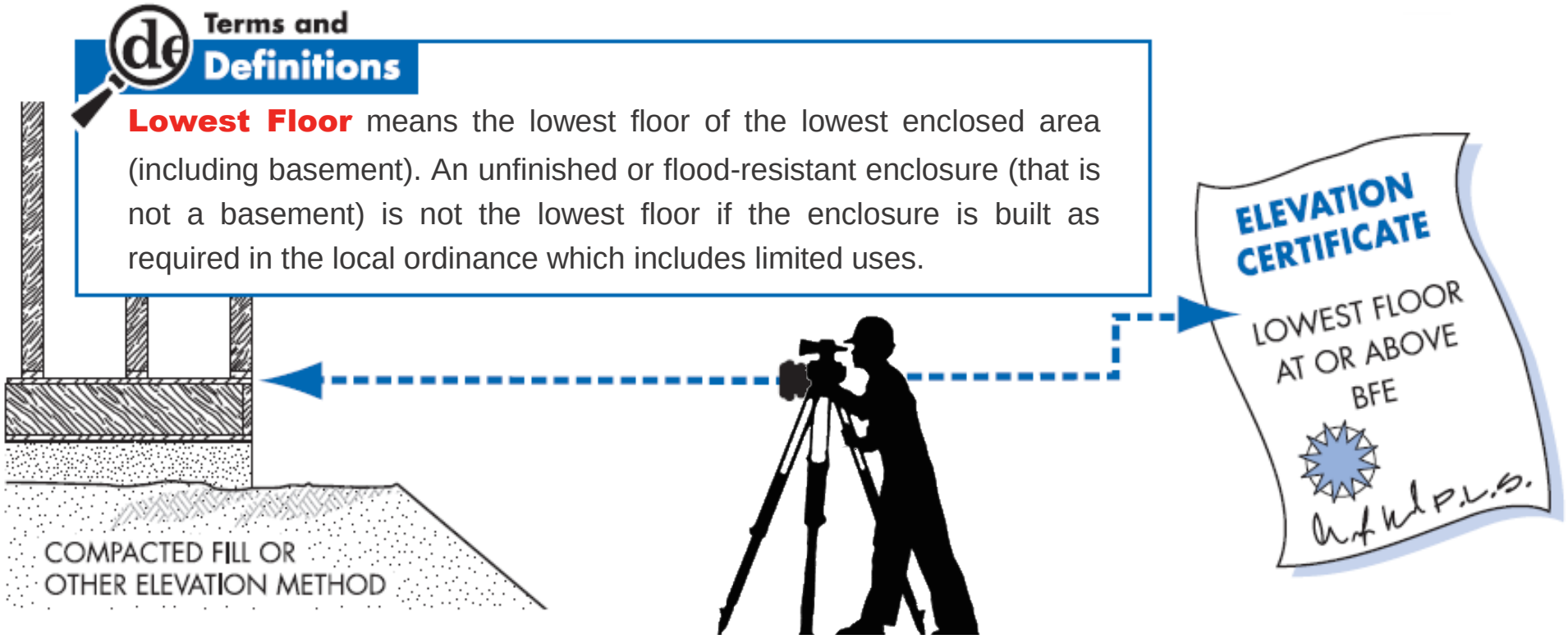
Indicate elevation datum used for the elevations in items a) through h) below.

☐ NGVD 1929 ☐ NAVD 1988 ☐ Other/Source: _____

Datum used for building elevations must be the same as that used for the BFE.

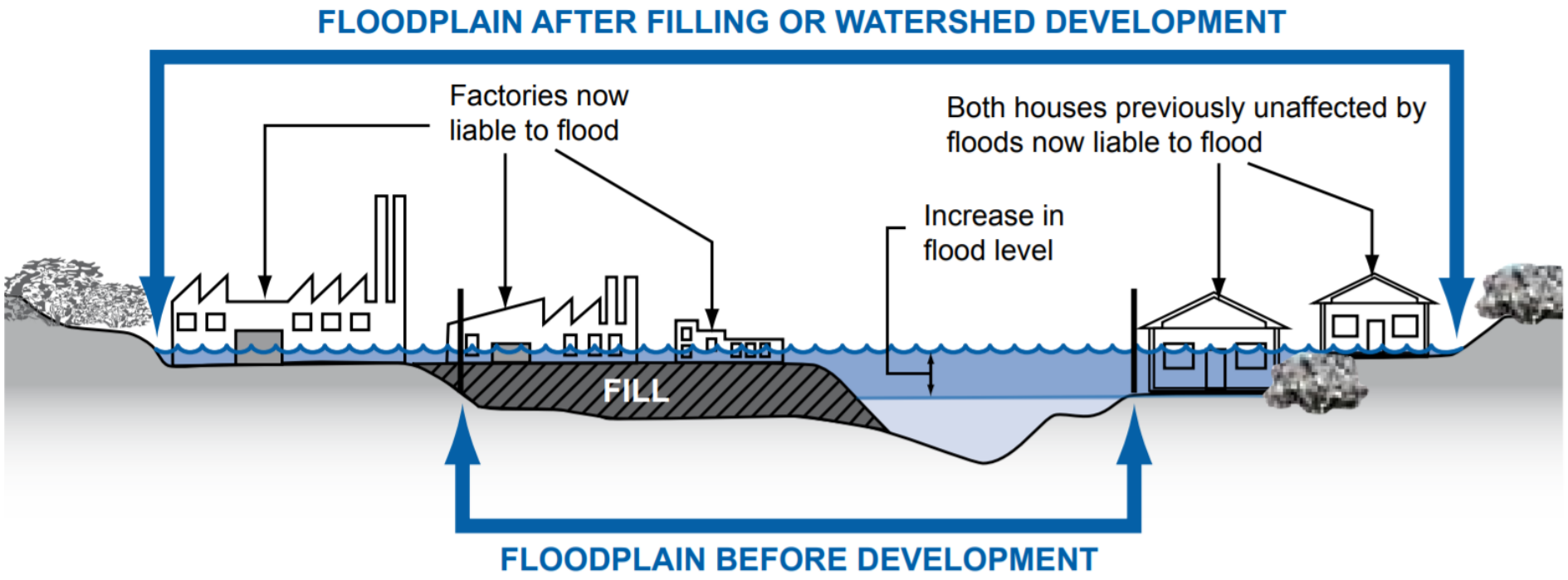
		Check the measurement used.	
a) Top of bottom floor (including basement, crawlspace, or enclosure floor)	_____.____	☐ feet	☐ meters
b) Top of the next higher floor	_____.____	☐ feet	☐ meters
c) Bottom of the lowest horizontal structural member (V Zones only)	_____.____	☐ feet	☐ meters
d) Attached garage (top of slab)	_____.____	☐ feet	☐ meters
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments)	_____.____	☐ feet	☐ meters
f) Lowest adjacent (finished) grade next to building (LAG)	_____.____	☐ feet	☐ meters
g) Highest adjacent (finished) grade next to building (HAG)	_____.____	☐ feet	☐ meters
h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support	_____.____	☐ feet	☐ meters

Documentation is Important – for You and Your Community



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 proves that you built correctly. It can be used to obtain the correct insurance rating.

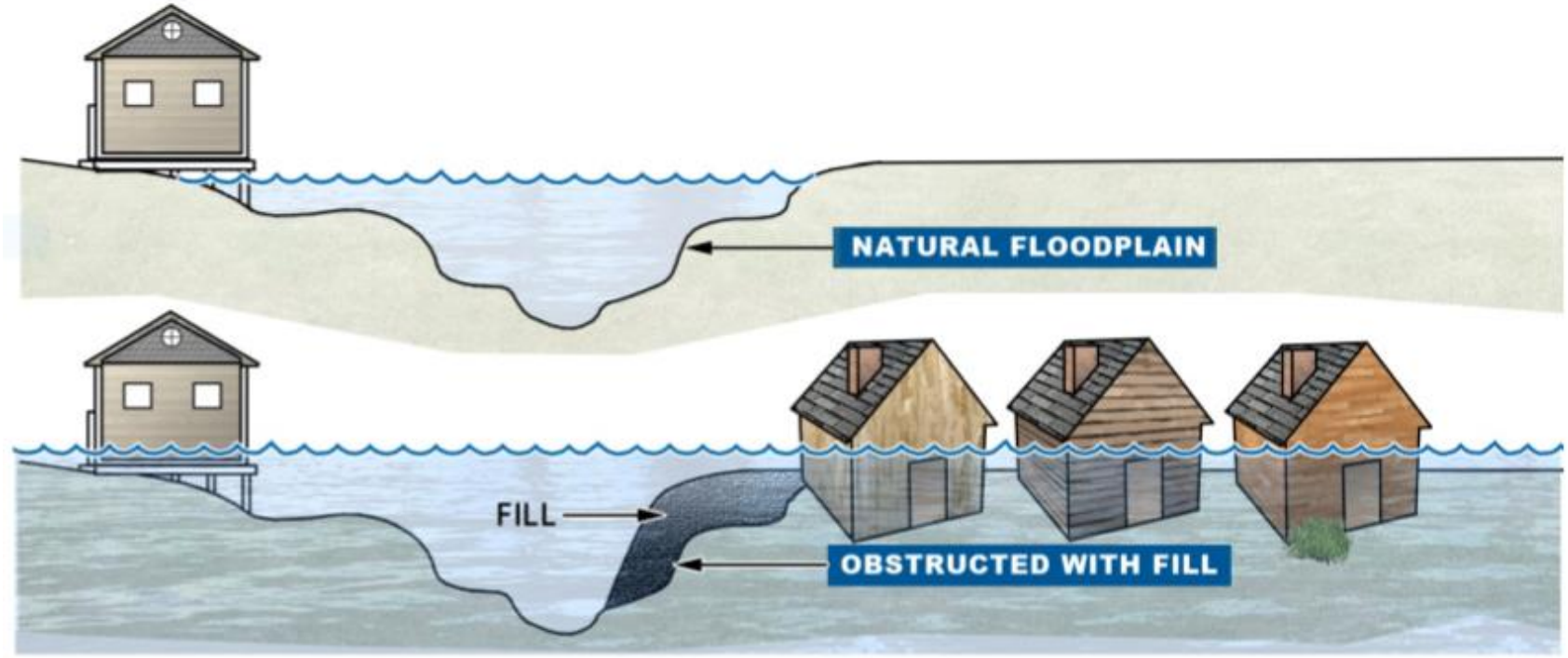
Development Can Increase Flooding



Today's Floodplain is not Tomorrow's Floodplain! Floodplain development, construction of roads across waterways, and development in the upper watershed can increase flood depths and alter flow patterns. Floodway fill may be allowed **only** if an engineering evaluation demonstrates that “no rise/no impact” in flood level will occur (see next page).

The Adverse Impacts of Floodplain Fill

Floodplain serves as storage for flood water. If storage space is blocked by fill material, future flooding may be worsened. Floodplain fill can alter valuable floodplain functions, including wildlife habitat and wetlands. Your community may apply the same restrictions to in the flood fringe as those applied in floodways.



To ensure that a proposed development, including placement of fill in or near a floodplain, won't adversely impact your neighbor, check with your community's planning, engineering, or permit office before beginning any construction.

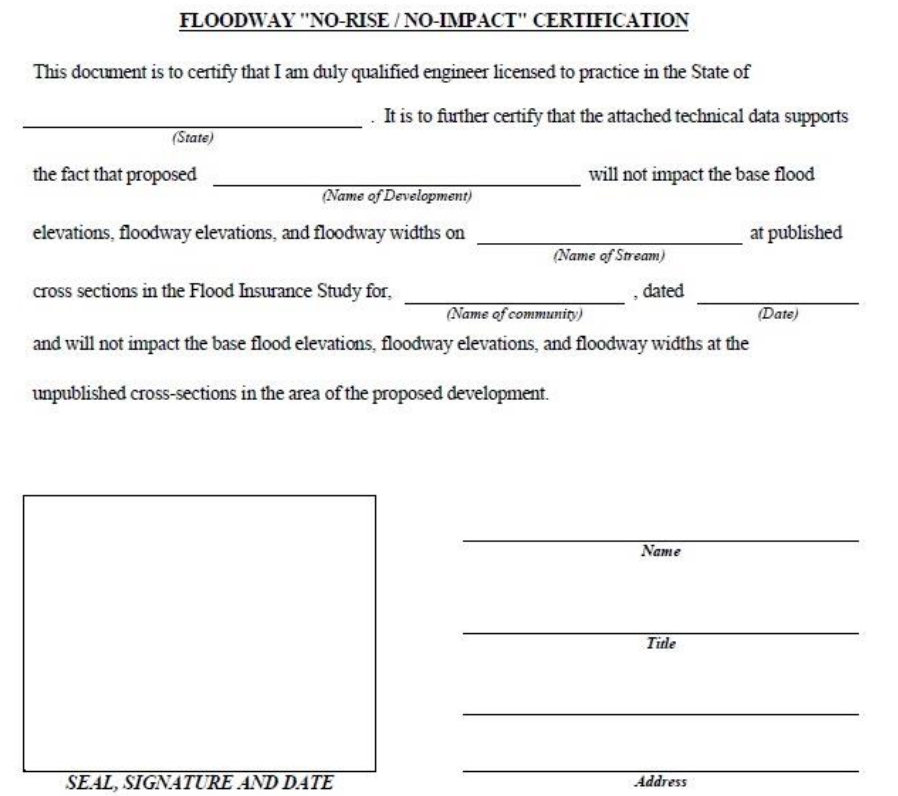
Required “No-Impact” Certification

Check with your community for guidance before you decide to work in a floodway. Any project in a floodway must be reviewed to determine if the project will increase flood heights and ensure floodplain fill won’t harm your neighbor.

A hydrology and hydraulic (H&H) engineering study must be conducted before a permit can be issued. The community’s permit file must have a record of the results of this analysis, which can be in the form of a No-Rise/No-Impact Certification. This certification must be supported by technical data and signed by a registered professional engineer.

For further information about the No-Rise/No-Impact certification, visit:

http://tn.gov/environment/topic/nfip-technical-resources



FLOODWAY "NO-RISE / NO-IMPACT" CERTIFICATION

This document is to certify that I am duly qualified engineer licensed to practice in the State of _____ (State). It is to further certify that the attached technical data supports the fact that proposed _____ (Name of Development) will not impact the base flood elevations, floodway elevations, and floodway widths on _____ (Name of Stream) at published cross sections in the Flood Insurance Study for, _____ (Name of community), dated _____ (Date) and will not impact the base flood elevations, floodway elevations, and floodway widths at the unpublished cross-sections in the area of the proposed development.

SEAL, SIGNATURE AND DATE

Name

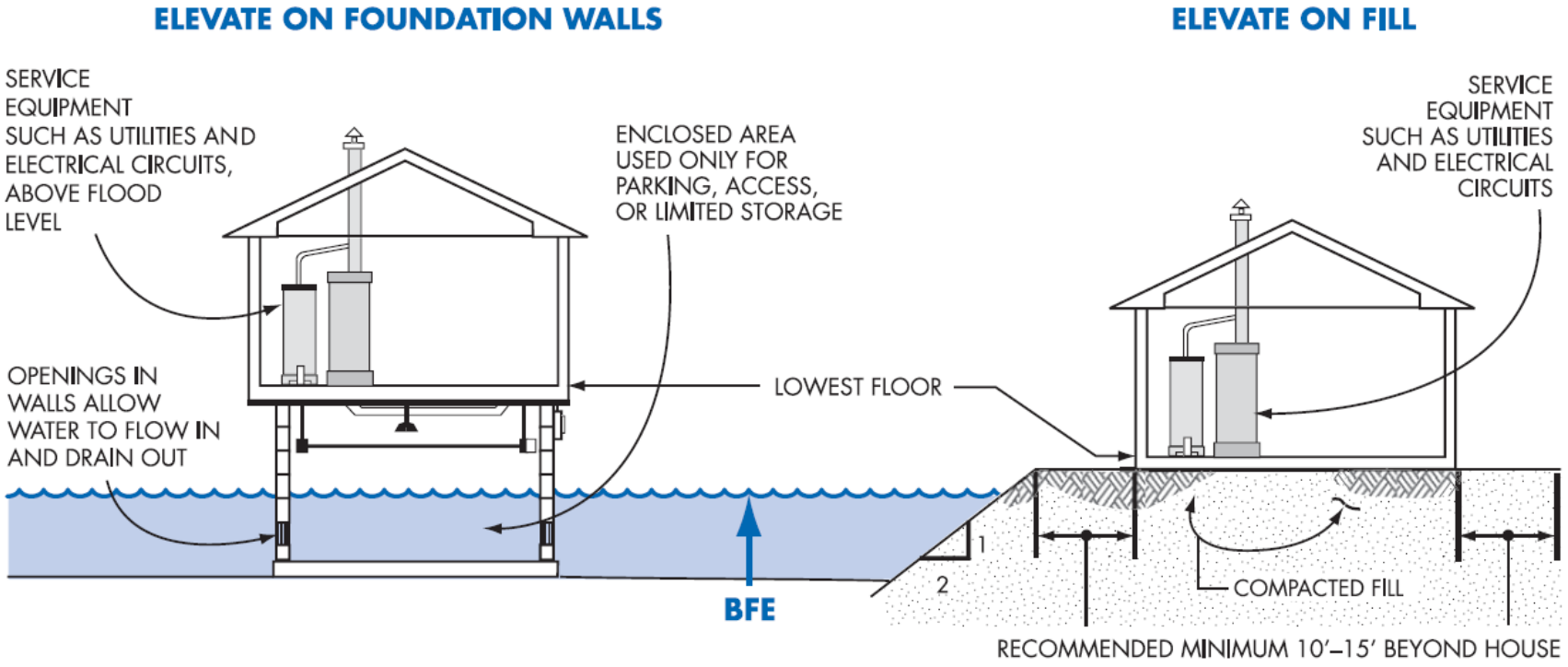
Title

Address

The engineering analysis must be based on technical data obtained from the state or FEMA.
Save time and money—don’t build in a floodway!

How to Elevate your Floodplain Building

CAUTION: To ensure that a proposed development, including placement of fill in or near a floodplain, won't adversely impact your neighbor, check with your community's planning, engineering, or permit office before beginning any construction. Building construction and enclosures (including crawlspace) have special requirements in the high-risk flood zones. As a condition of NFIP participation, a community must adopt a floodplain management ordinance requiring that new and substantially improved residential buildings must be constructed with the lowest floor above the Base Flood Elevation (BFE). Non-residential buildings can either be elevated or floodproofed to the BFE. FEMA encourages communities to adopt regulations requiring at least a one-foot freeboard. Building at least one foot above the BFE significantly lowers flood insurance rates due to lower flood risk.



Approximate Zone A Procedures

FEMA Minimum requirements for floodplain management in Approximate A Zones require communities to determine whether a proposed building site will be "reasonably safe from flooding". FEMA requires in 44 CFR 60.3 (b)(3) a detailed method for a proposed development greater than 50 lots or 5 acres requiring the applicant to conduct a site specific engineering analysis to determine a BFE. If the development is below the threshold, the simplified method for estimating BFEs can be used. Communities have the discretion to determine which method should be used when a proposed development is below the aforementioned thresholds.

***Simplified Method:**

- Overlaying topographic maps on the Digital Flood Insurance Rate Maps (DFIRMs) and extrapolating the BFE.
- Data extrapolation is extending the flood profile beyond the detailed study area to the site location. The flood profile/stream bed should have a constant slope to the site location.
- Use either method plus previous flooding history

Detailed Method:

- Hydrology and Hydraulics study
- Obtaining a BFE from the USACE or TVA

*Please note that the *Simplified method is not acceptable to use for an Elevation Certificate.*

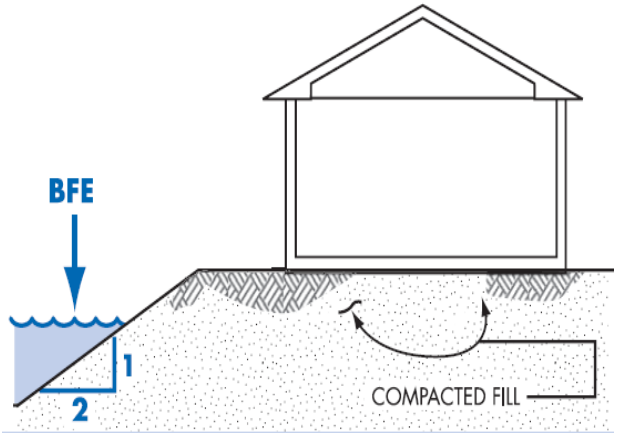
Managing Floodplain Development in Approximate Zone A Areas: A Guide for Obtaining and Developing Base (100-Year) Flood Elevations (FEMA 265) is available for download at http://www.fema.gov/library/viewRecord.do?id=1526

Compaction of Floodplain Fill (A Zones)

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

- Extend 10 to 15 feet beyond the footprint of the structure
- Be good clean soil, free of large rocks, construction debris, and woody material (e.g. stumps, roots). Communities should refer to local community guidelines for fill material that is required for any specific compaction testing
- Have graded side slopes that are not steeper than 2:1 (one-foot vertical rise for every two 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)
- Be machine compacted to 95% of the maximum density (determined by a design professional)

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



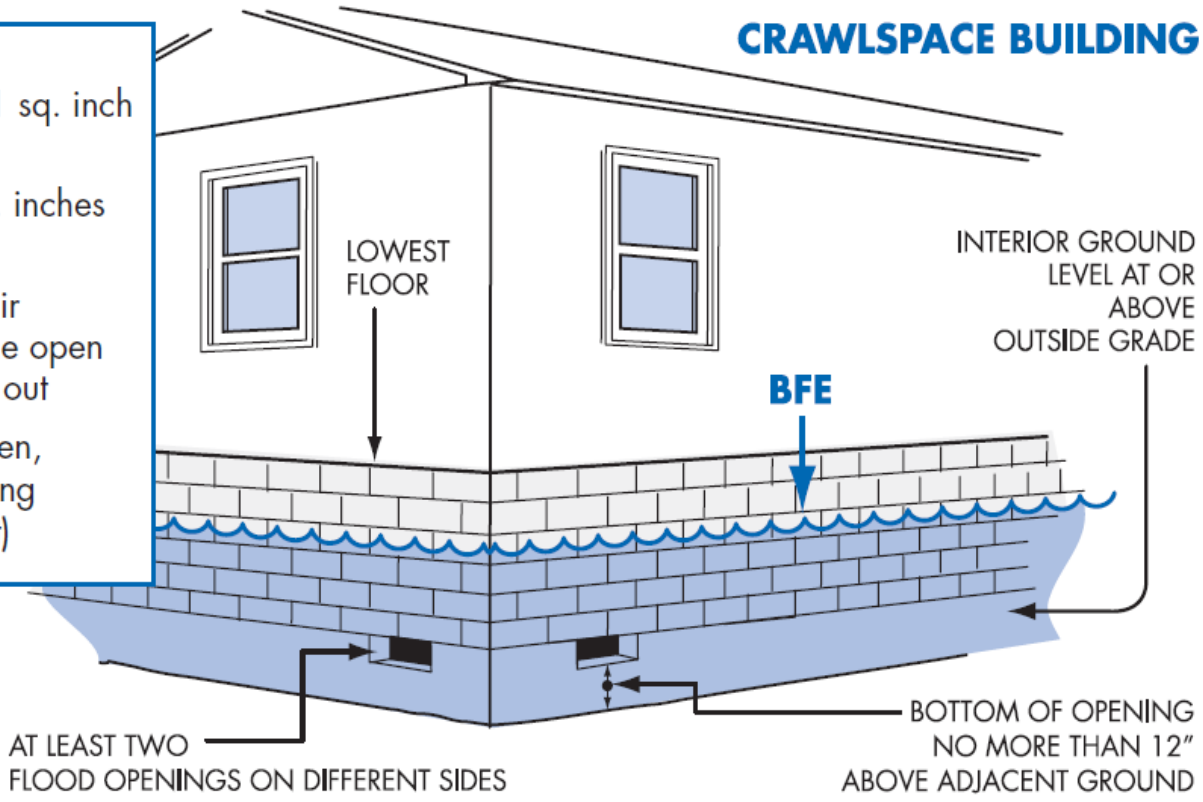
More information on the "reasonably safe from flooding" standard can be found in FEMA's Technical Bulletin 10 at https://www.fema.gov/media-library/assets/documents/3522

Enclosures Below the Lowest Floor

NOTE:

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

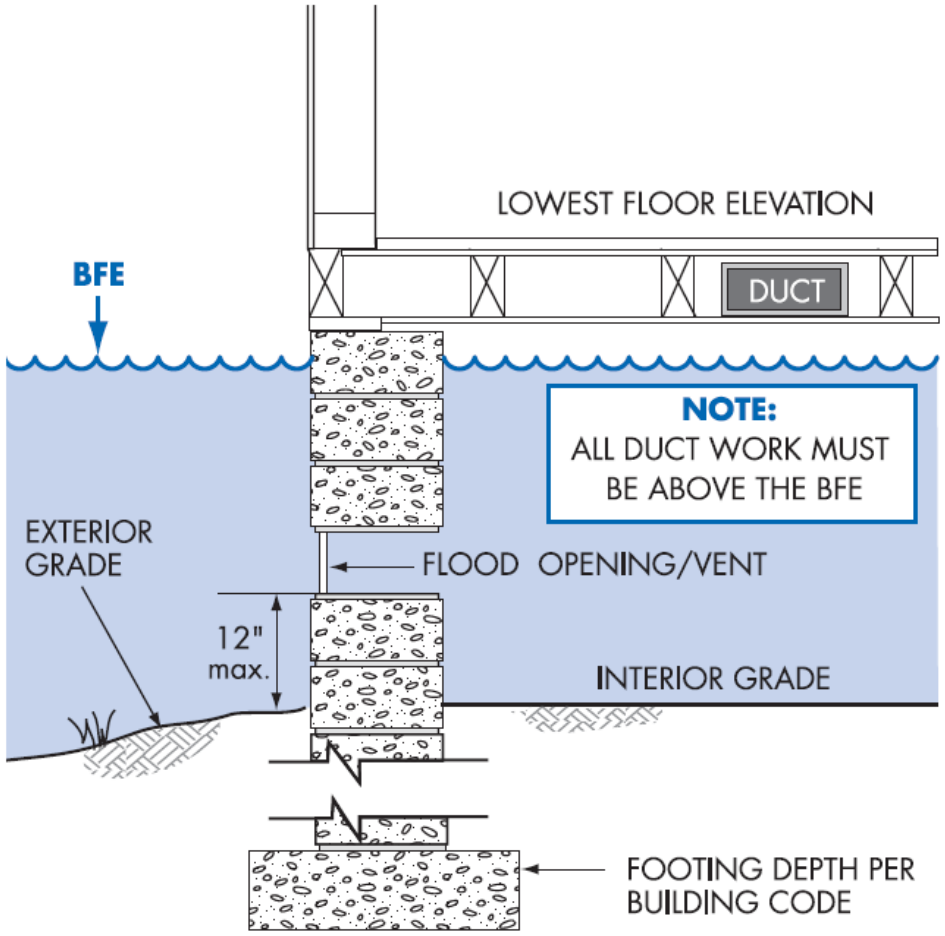
ALTERNATIVE: Engineered openings are acceptable **if certified** to allow adequate automatic inflow and outflow of floodwaters.



Solid perimeter walls can enclose flood-prone space. A crawlspace is a good way to elevate a few feet. In all cases the following are required: flood vents/openings, elevated utilities above the BFE, flood resistant materials and limitations on use of enclosures below the lowest floor. Check with the local permit office for details and restrictions.

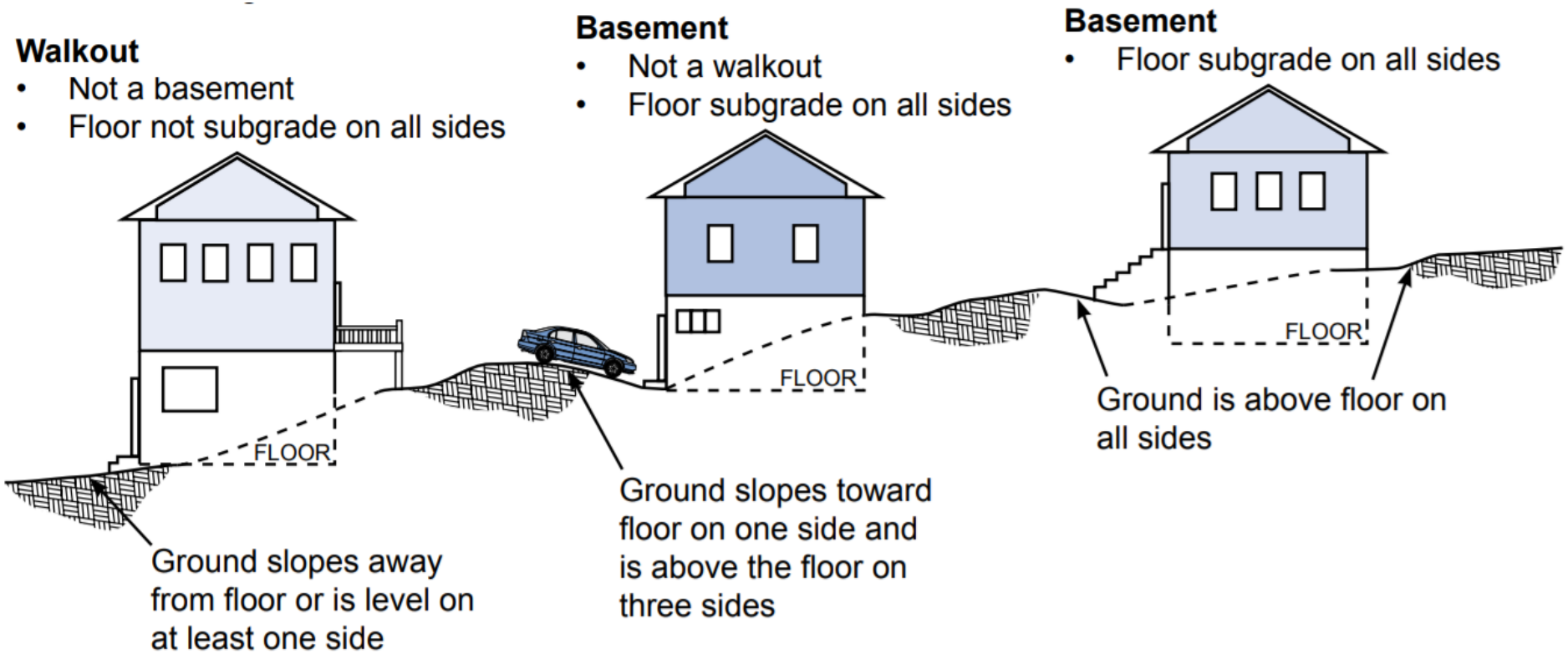
Crawlspace Details (A Zones)

- The Lowest Floor Elevation must be 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 interior or exterior grade
- Standard air ventilation units must be disabled in the “open” position to allow water to flow in and out
- Interior grade must be equal to or higher than exterior grade on at least one side
- Calculate Net Flood Opening: A building that measures 30’ x 40’ has 1,200 square feet of enclosed crawlspace. Flood vents must provide 1,200 square inches of net open area (or have certified engineered openings). If a standard air vent unit provides 60 square inches of net open area, 20 vent units are required to satisfy the flood opening requirement (1,200 divided by 60).

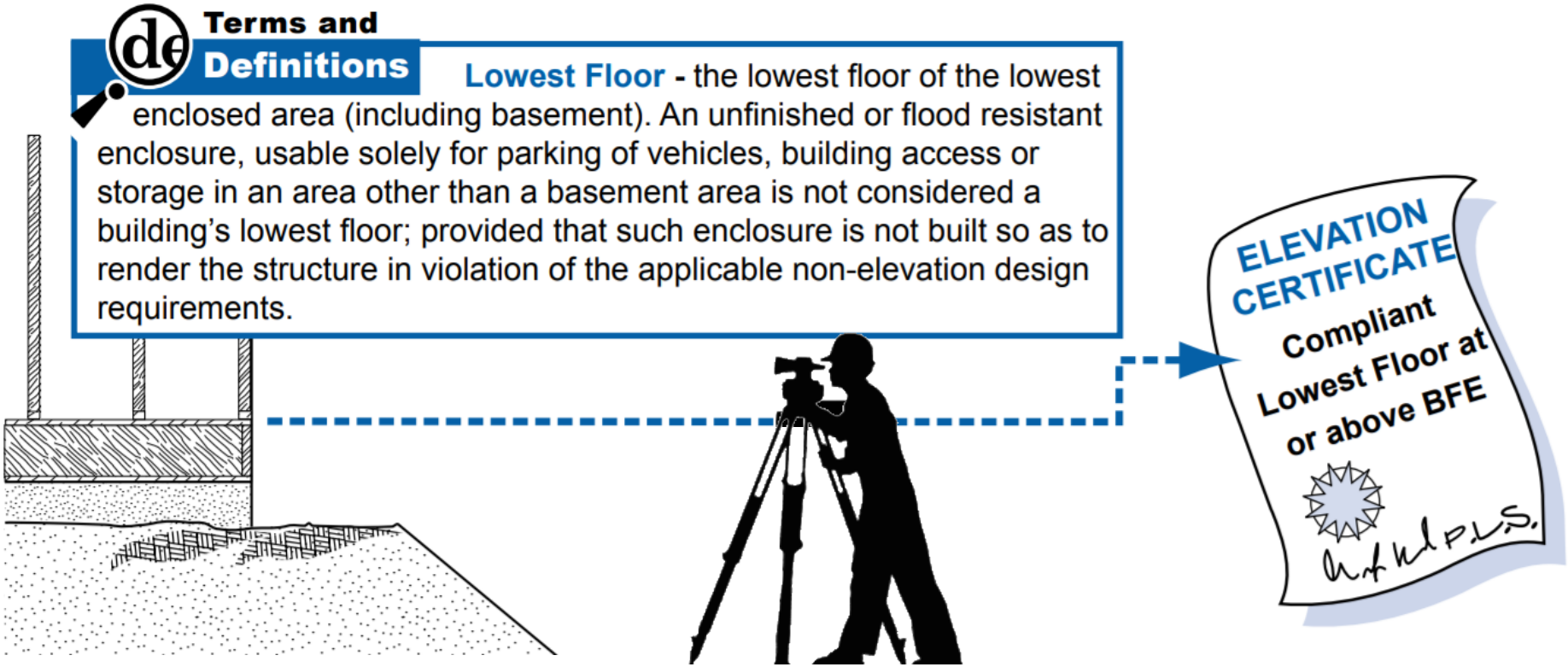


What is a Basement?

A **basement** is any portion of a structure that has a subgrade floor (below ground level) on all sides. “Walkout basements,” "daylight basements" or "terrace levels" are usually subgrade on only three sides, with one side at or above grade. If the ground slopes toward the floor as in the center illustration, it is considered below ground level and the subgrade floor is a basement.



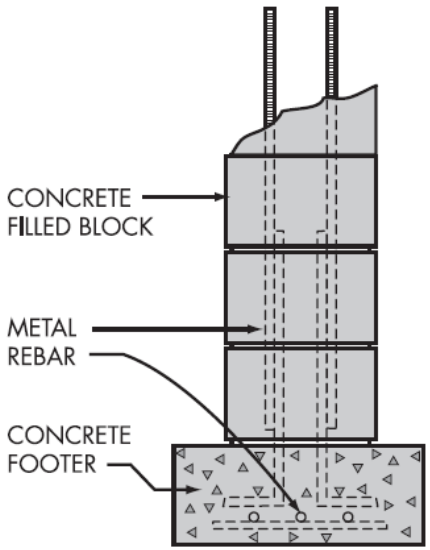
The Lowest Floor

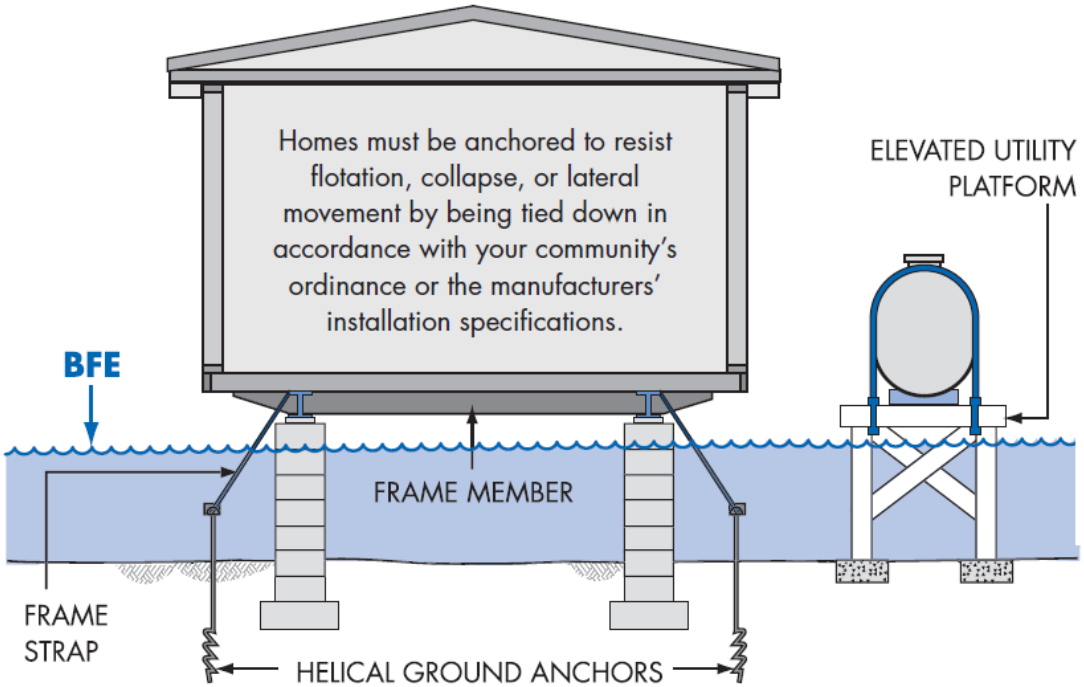


The lowest floor of a building and its relationship to the BFE is used to determine flood insurance rates. The lowest adjacent grade and its relationship to the BFE is used to determine if flood insurance is mandatory. If the lowest floor of a structure is at or above the BFE, a completed Elevation Certificate can be used to get lower cost flood insurance. One foot above BFE is recommended and is required in most communities.

Manufactured Homes Require Special Attention

Experience shows that manufactured homes are easily damaged. As little as 1 foot of water can cause substantial damage.

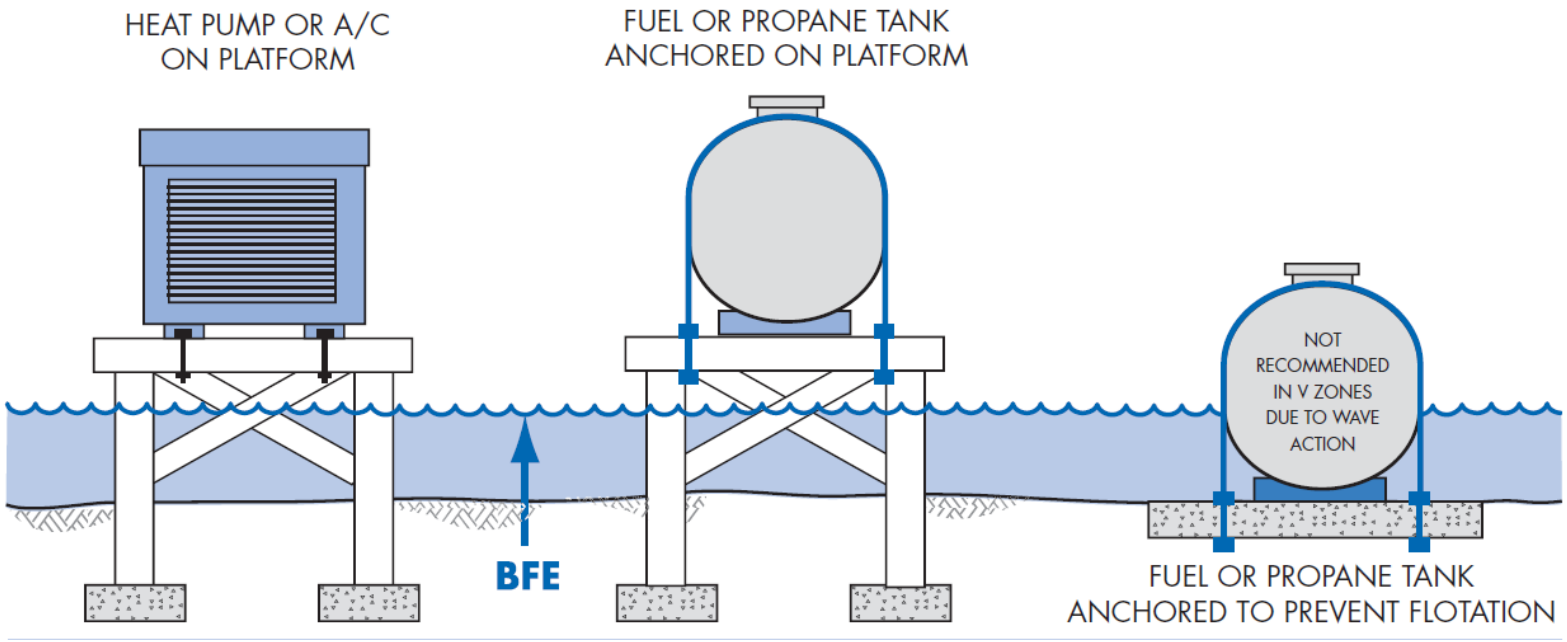




REMINDER: FEMA defines manufactured homes to include mobile homes. For more information, see FEMA P-85, *Protecting Manufactured Homes from Floods and Other Hazards* is a good reference: www.fema.gov/media-library/assets/documents/2574.

Utility Service Outside Buildings

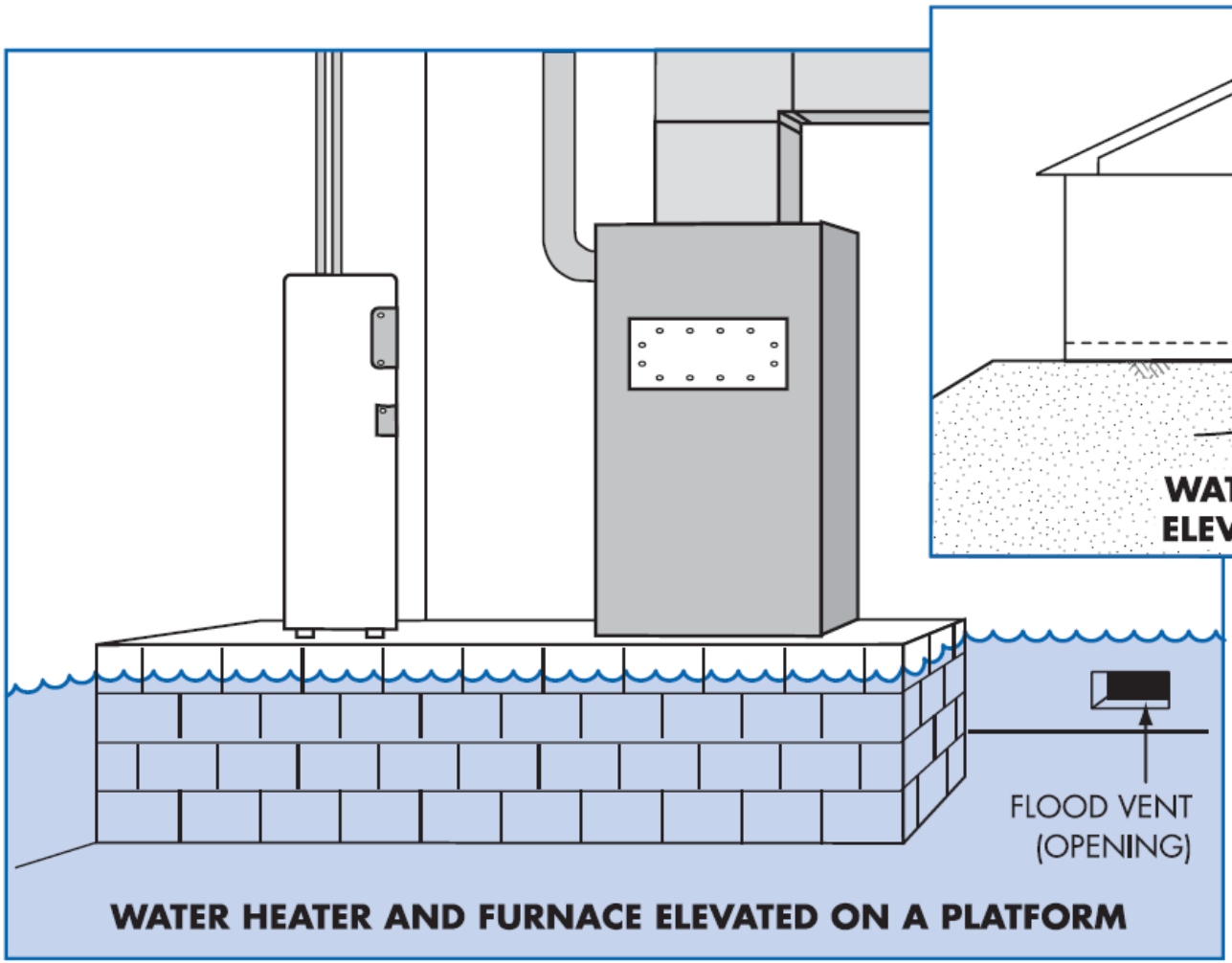
Fuel and propane tanks may cause explosion and pollution risks during flood conditions! Even shallow water can create large buoyant forces on tanks so extra care must be taken to ensure that all tanks are anchored.

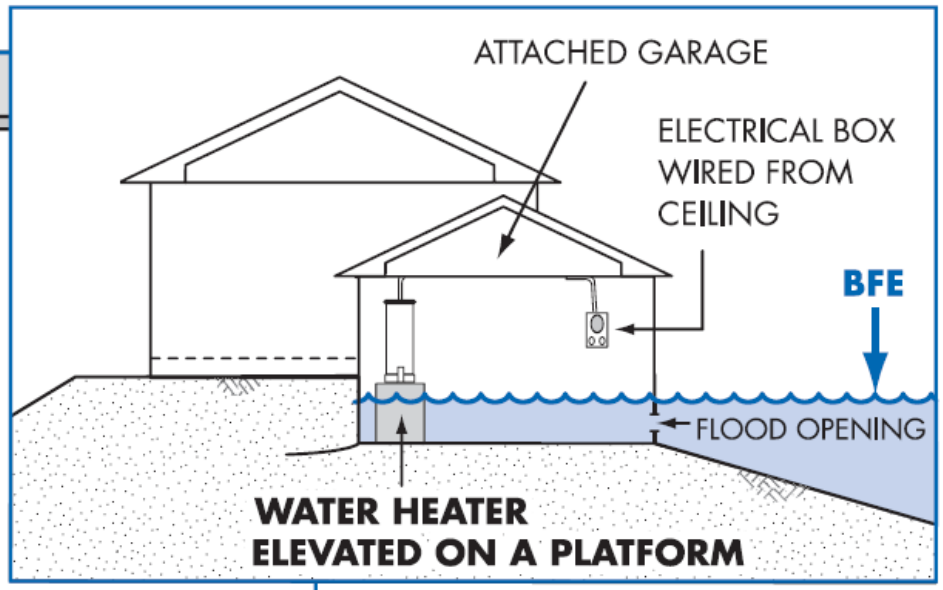


Whether inside an attached garage or outside the building, all utilities, appliances and equipment must be elevated above the BFE or protected against flood damage. Utilities include plumbing, electrical components, gas lines, fuel tanks, and heating and air conditioning equipment.

Additional Resource: FEMA 348, Protecting Building Utilities from Flood Damage: www.fema.gov/media-library/assets/documents/3729

Utility Service Inside Enclosures





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.

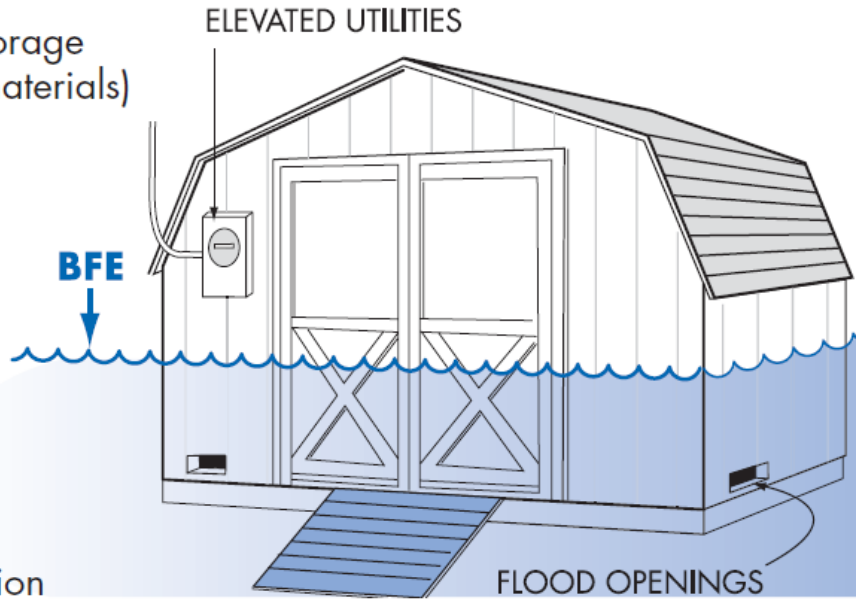
Accessory (Appurtenant) Structures

An **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, pools, carports, storage sheds, decks, gazebos, pole barns, and hay sheds.

Even small buildings are considered “development” and permits or variances with noted conditions are required. They must be elevated or anchored and built to withstand flood damage. Remember, everything inside is likely to get wet when flooding occurs.

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 floating
- Have flood openings/vents
- Be built of flood-resistant materials
- Have elevated utilities
- Not be modified for different use in the future
- Have documented floor elevation



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
- 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 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.

IMPORTANT FLOOD SAFETY INFORMATION

Camping or temporary placement of your RV near the water requires special attention to flood risk. Check with the campground or RV park operator about flood warnings and emergency evacuation routes and plan accordingly in the event of flash flooding or rising water. Remember to “Turn Around, Don’t Drown.”

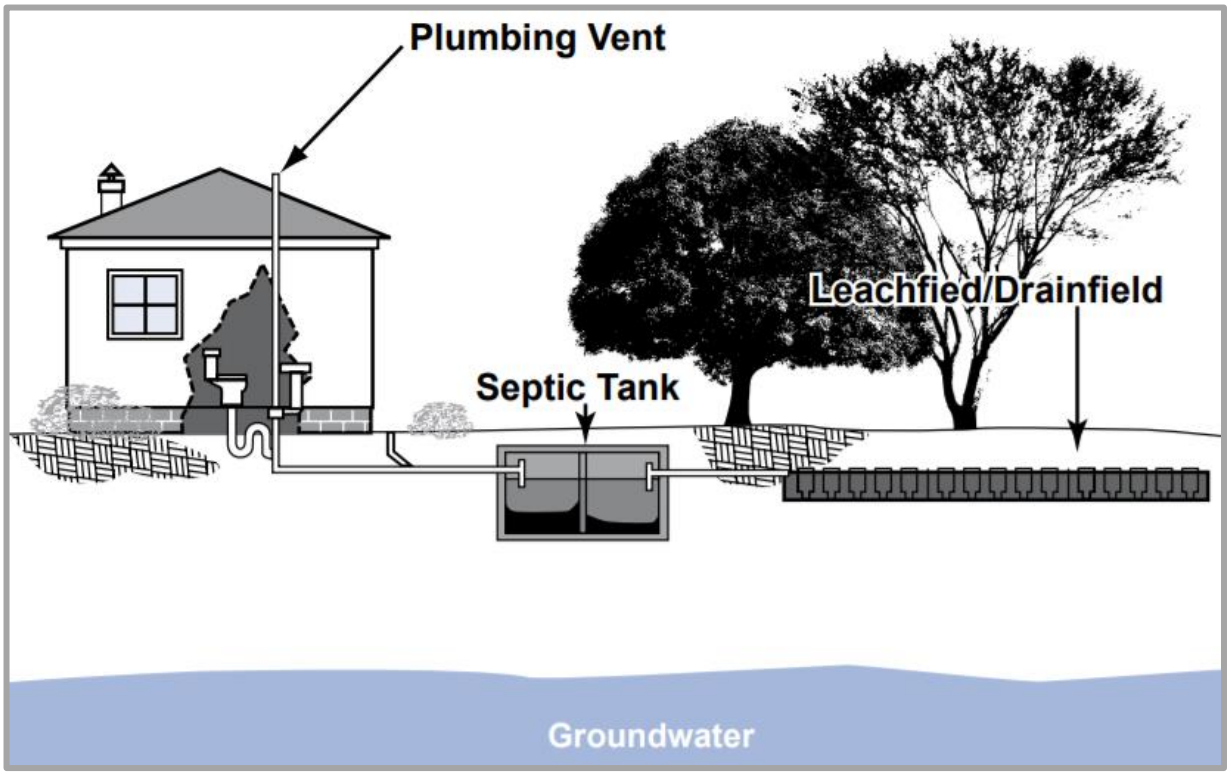
Septic Tanks

Buried and mounded septic systems can be exposed and/or displaced during a flood. In addition to making them unusable, damage to these systems can release their contents.

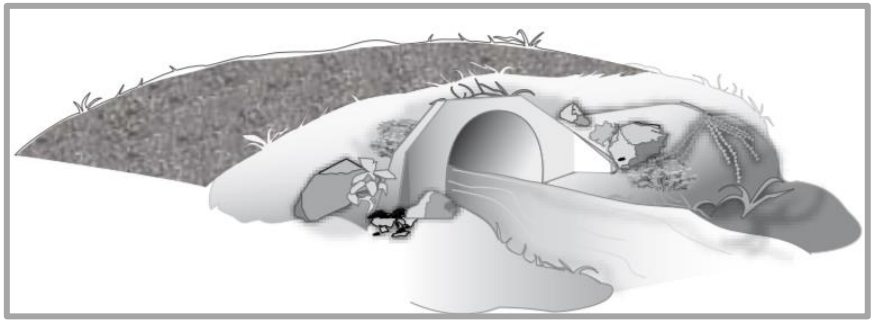
Septic systems are often destroyed in a flood hazard area. Therefore, they should be located either outside areas subject to erosion during a base flood or below the depth of expected erosion. Specific standards for septic tanks and field line placement are regulated by the Tennessee Department of Environment and Conservation. Please contact them for specific information.

Approved Environmental Review Permits are required for On-Site Wastewater Treatment Systems. Communities should approach the Tennessee Department of Environment and Conservation prior to redevelopment to identify potential wastewater options.

Elevated/mounded septic systems can require significant volumes of fill, which, if placed under or immediately adjacent to buildings, are likely to deflect waters to nearby properties.



Private Water Crossings



Private stream crossings, including bridges, low water crossings and culverts can be vulnerable to flood damage if not designed and constructed to perform safely under varying natural conditions. Poorly designed and constructed stream crossings can result in extensive property damage, danger to people and environmental damage. To minimize or eliminate losses, stream crossings should be sited and built using the following general criteria.

- Fairly level with long approaches with gentle slopes and firm, stable soil conditions.
- Relatively shallow water depth and low velocity during floods.
- Minimum probability of scouring and sediment displacement.
- Adequate spacing for entering the public highway at right angles.
- Away from fish spawning areas, water intakes and lake outlet sites.
- The flood carrying capacity of the existing channel must be maintained.

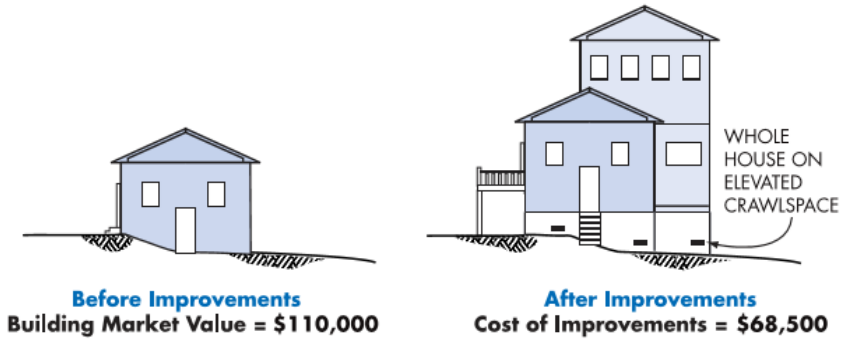
The FEMA Region III publication, Private Water Crossings: Considerations before you build or rebuild does not provide individual engineering and construction designs, it does include information and examples useful in deciding which type of crossing may best fi particular situations. It is available online at https://www.fema.gov/media-library-data/20130726-1724-25045-9448/fema_p_778_508compliant.pdf

Structural design must be based on the maximum anticipated water depth and velocity and the intended use of the crossing. Coordination between the owner, engineer, contractor and appropriate local, state and federal agencies is essential to project success. Remember permits from multiple government agencies are required.

Improving Your Floodplain Building

Substantial improvement means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement.

This term includes structures which have incurred substantial damage from any cause, regardless of the actual work performed.



Important Information

If the cost of the improvement equals or exceeds 50% of the market value of the building, you must comply with the Substantial Improvement requirements.

If the costs are less than 50% of its market value, only the addition is required to be built above the BFE, but you should still consider ways to reduce future damage.

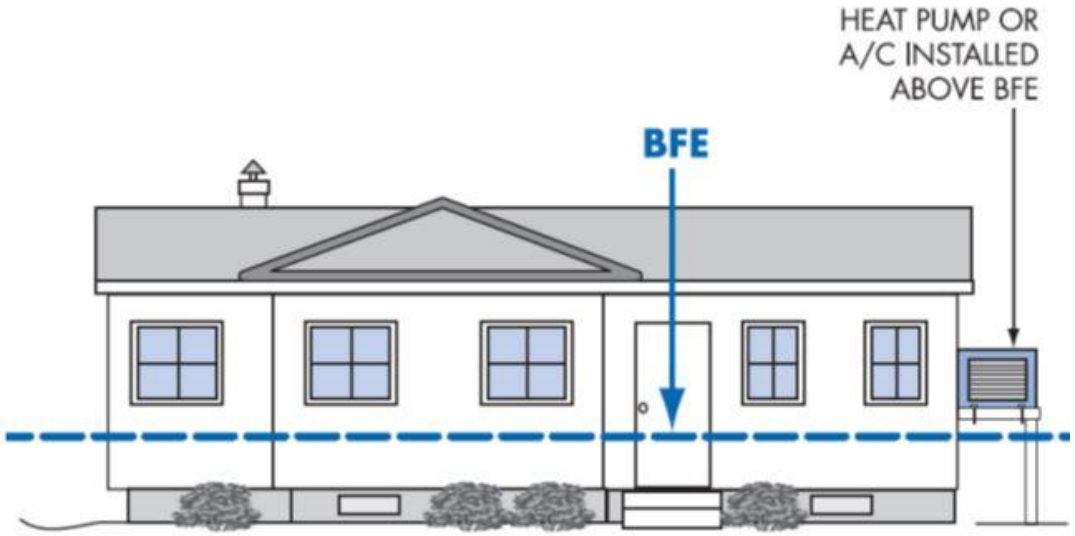
The cost to correct previously cited violations of state or local health, sanitary, or safety code to provide safe living conditions can be excluded. Alteration of a registered historic structure is allowed, as long as it will continue to meet the criteria for listing as a historic structure and FEMA P-467-2 Historic Structures.

See FEMA P-758 *Substantial Improvement/Substantial Damage Desk Reference* for more information.

Non-Substantial Improvements

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

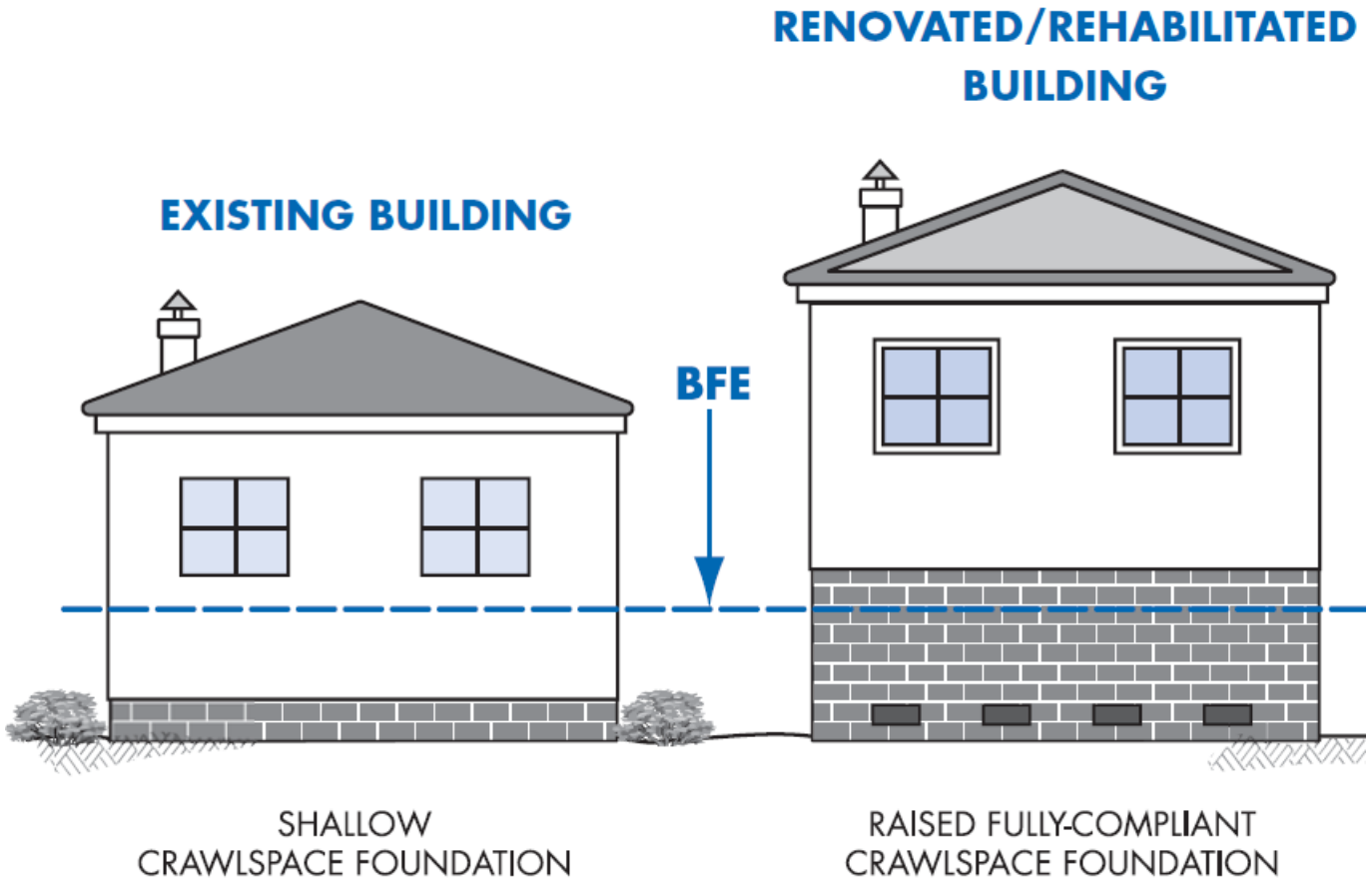
- Use flood resistant materials, for example tile, closed-cell wall insulation and polyvinyl wall coverings.
- Raise air conditioning equipment, heat pump, furnace, hot water heater and other appliances on platforms.
- Install electrical outlets higher above the floor.
- Move ductwork out of crawlspaces.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



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

Substantial Improvement: Renovation Only

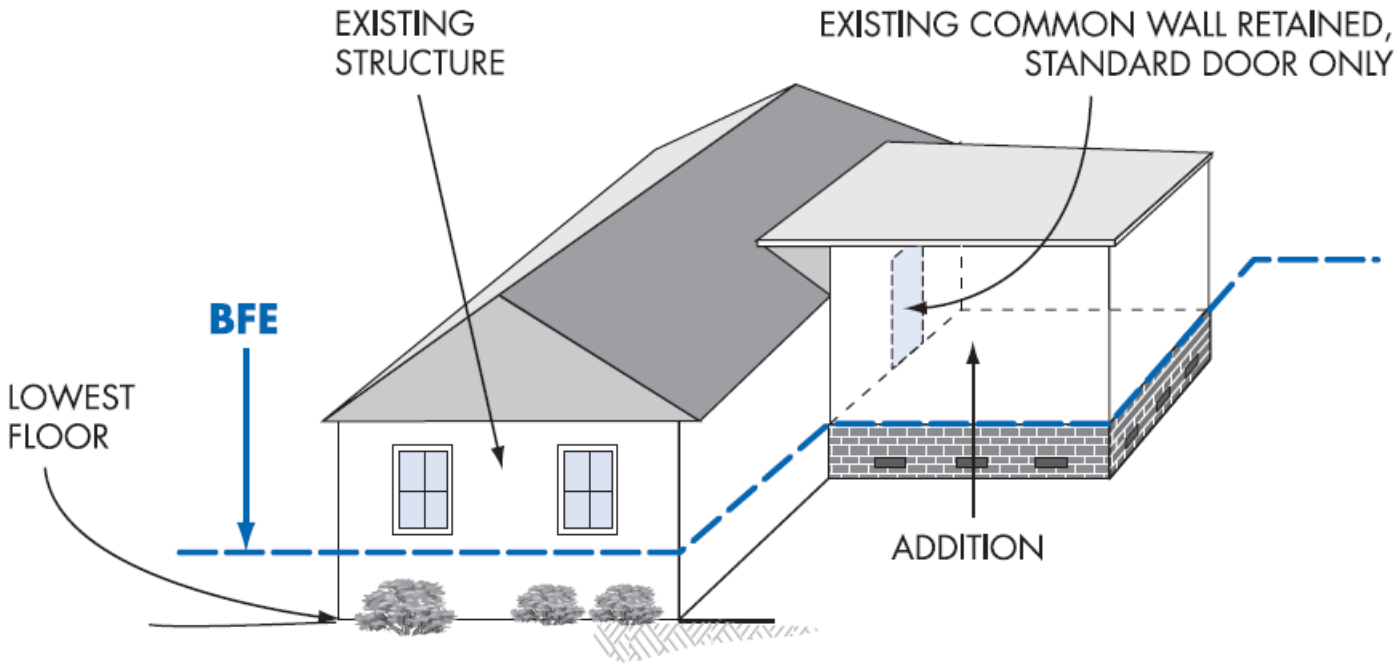
Floodplain buildings can be improved, renovated, rehabilitated, or altered, but special rules apply. Check with your local permit office **BEFORE** you begin. It will be easier to do it right the first time. The cost to correct previously cited violations of state or local health, sanitary, or safety codes to provide safe living conditions can be excluded from the cost of renovations. Alteration of a registered historic structure is allowed, by variance, if it will continue to meet the criteria for listing as a historic structure.



Substantial Improvement: Lateral Addition Only

You must get a permit from your community to build an addition to your floodplain building. Only the addition must be built with the lowest floor above the BFE 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.
- See the “Substantial Improvement: Addition Plus Other Work” section of this document 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.



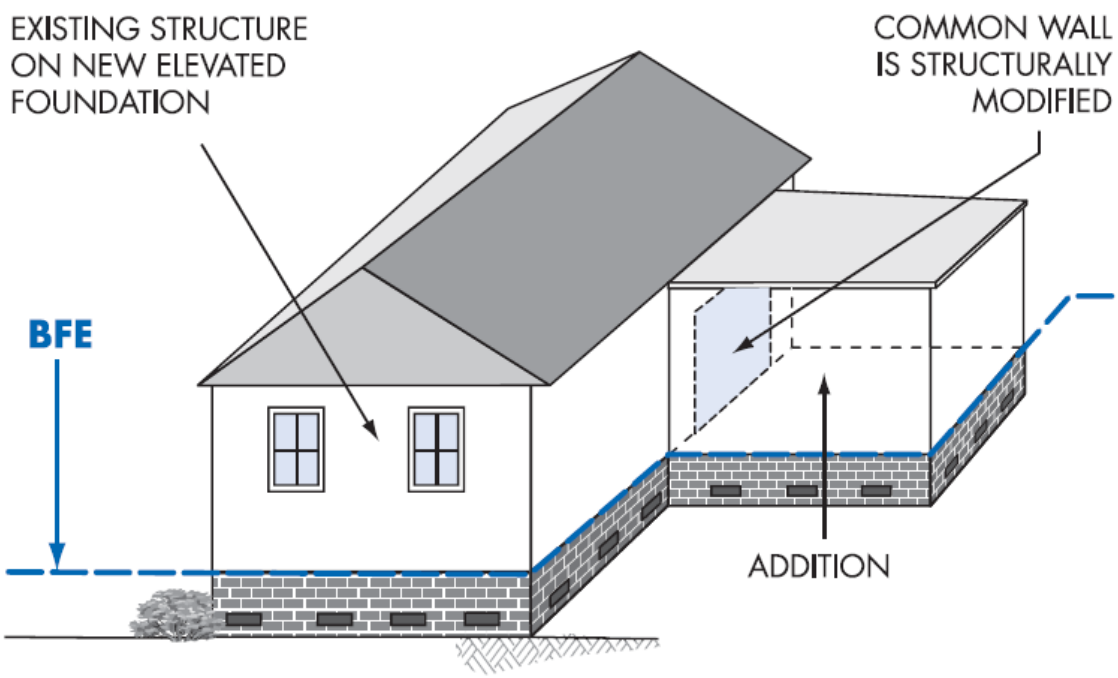
Substantial Improvement: Addition Plus Other Work

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

Substantial Improvement is triggered if:

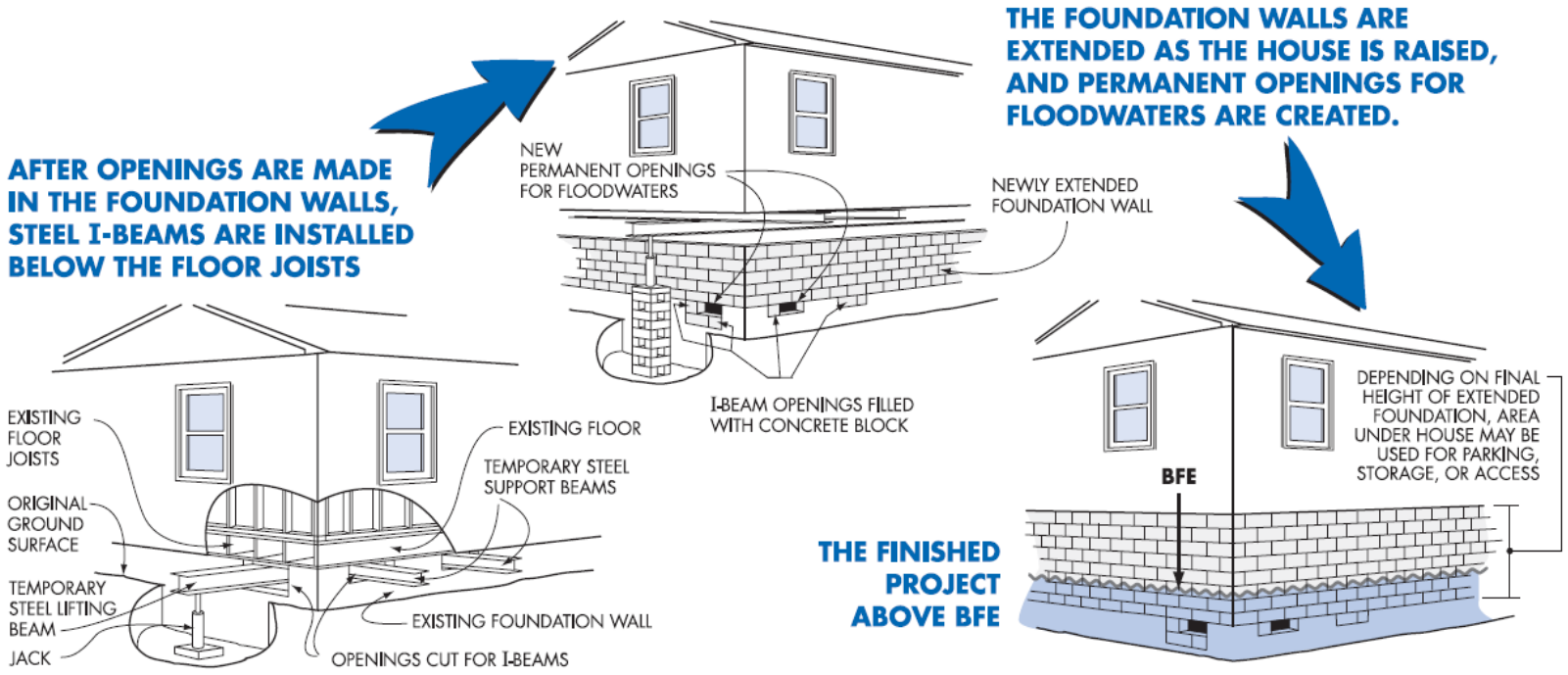
- The work involves adding a new top floor, modifying the interior of the existing building, or structural modifications to the existing common wall (for lateral addition); and
- The cost of all proposed work plus the cost of improvements equals or exceeds 50% of the market value of the existing building

Your community's permit office can help you determine which requirements apply. It is always a good idea to request a preliminary review before you get too far along with your plans. An additional resource is FEMA P-784, Substantial Damage Estimator (SDE): www.fema.gov/media-library/assets/documents/18692



Elevating Pre-FIRM Buildings

This is one way to elevate an existing building to comply with floodplain regulations.

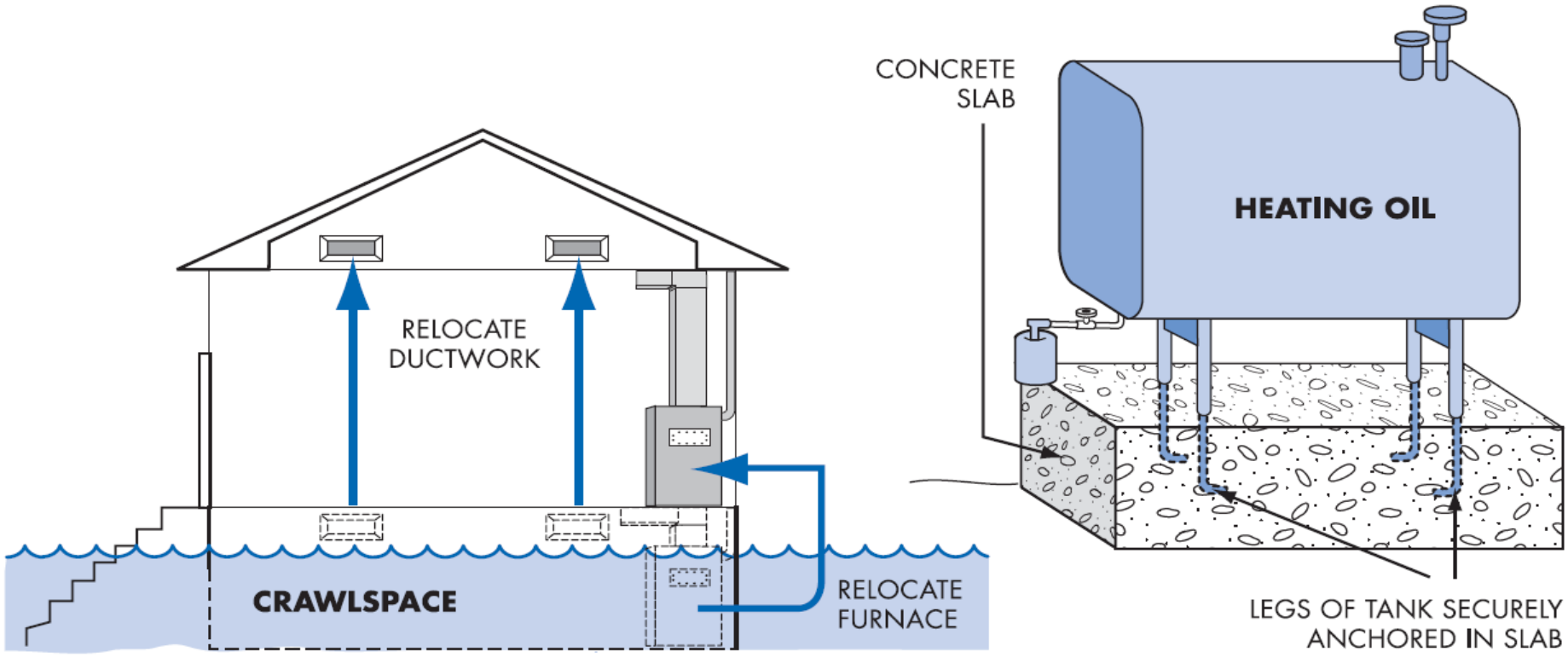


Additional Resources:

- FEMA 348, Protecting Building Utilities from Flood Damage: www.fema.gov/media-library/assets/documents/3729
- FEMA P-312, Homeowner's Guide to Retrofitting: www.fema.gov/media-library/assets/documents/480
- FEMA's Increased Cost of Compliance: www.fema.gov/increased-cost-compliance-coverage
- FEMA's Increased Cost of Compliance (ICC) Coverage: Guidance for State and Local Officials: www.fema.gov/media-library/assets/documents/1973

Easy and Low-Cost Protection Options 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.



Post-Damage Considerations

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. Some permit fees can be waived after a disaster, but the permit cannot be waived. It is also a good idea to confirm with the community about any regulations for flood repetitive loss structures.

Substantial Damage Estimator

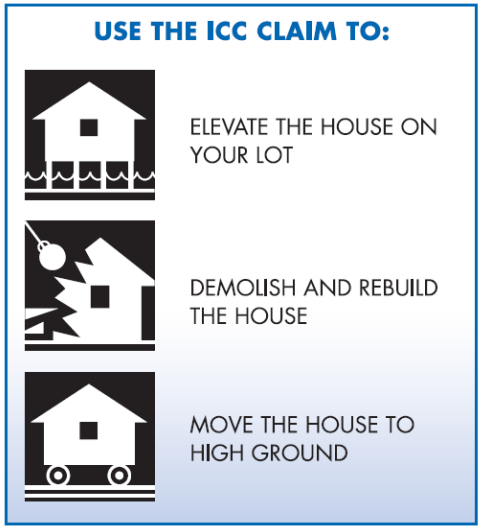
Communities participating in the National Flood Insurance Program (NFIP) often have difficulty determining whether buildings are substantially damaged. This difficulty is magnified after a major flood or other disaster where a large number of buildings have been damaged and there is a need to provide timely substantial damage determinations so that reconstruction can begin. Buildings located in a Special Flood Hazard Area (SFHA) that are determined to be substantially damaged or improved, must be brought into compliance with minimum requirements of the community's NFIP-compliant floodplain management laws or ordinances. This requirement applies to all structures in the SFHA, but is independent of the source of damage to the structure; damage as a result of flooding, high winds, fire, or any other source can trigger the requirement.

The **Substantial Damage Estimator (SDE)** was developed to assist State and local officials in estimating building value and damage costs for residential and non-residential buildings. The SDE software is based on the concept of using damage estimates for individual building elements to determine whether the structure as a whole is substantially damaged. Common non-residential structures (e.g., office buildings, strip malls, restaurants, etc.) are represented in the software. This computer application was created to support enforcement of the NFIP's regulatory requirements and is intended to be used in conjunction with an industry-accepted construction cost-estimating guide. It is anticipated that local building officials or other persons knowledgeable in residential and non-residential construction costs and practices will use this approach.

To obtain a copy of the Substantial Damage Estimator (SDE) Tool and the related SDE User Manual and Field Workbook, visit: https://www.fema.gov/media-library/assets/documents/18692

Post-Flood Compliance Funding

Increased Cost of Compliance (ICC) is part of most standard NFIP flood insurance policies. Claims for ICC benefits are filed separately from your claim for contents or building loss. If eligible, you can collect up to $30,000 to help cover the cost of bringing your home or business into compliance with your community's current Flood Damage Prevention ordinance. You may file a claim for ICC coverage if:



- You have NFIP flood insurance that includes ICC coverage
- Your building is in the mapped Special Flood Hazard Area
- Your building's lowest floor is below the BFE required by your community
- Your community has made an official determination that flooding and repair costs substantially damaged the building and will exceed 50% of the building's pre-damage market value
- Check to see if your community's floodplain ordinance has been amended to include a "Repetitive Loss" provision for ICC benefits. ICC benefits will be paid if a flood-insured structure was damaged by a flood two times in the past 10 years, where the cost of repairing the flood damage, on average, equaled or exceeded 25% of its market value at the time of each flood. This is called repetitive damage. Additionally, there must have been a flood insurance claim payment for each of the two flood losses. Note: A Repetitive Loss is not eligible under ICC unless it is defined in the community's Flood Damage Prevention Ordinance

Owners whose buildings are substantially damaged are required to bring the building into compliance with local floodplain regulations. If your building is damaged by flood and you meet the above criteria for filing an ICC claim, you will need to work with your local building official and claims adjuster to process the necessary paperwork.

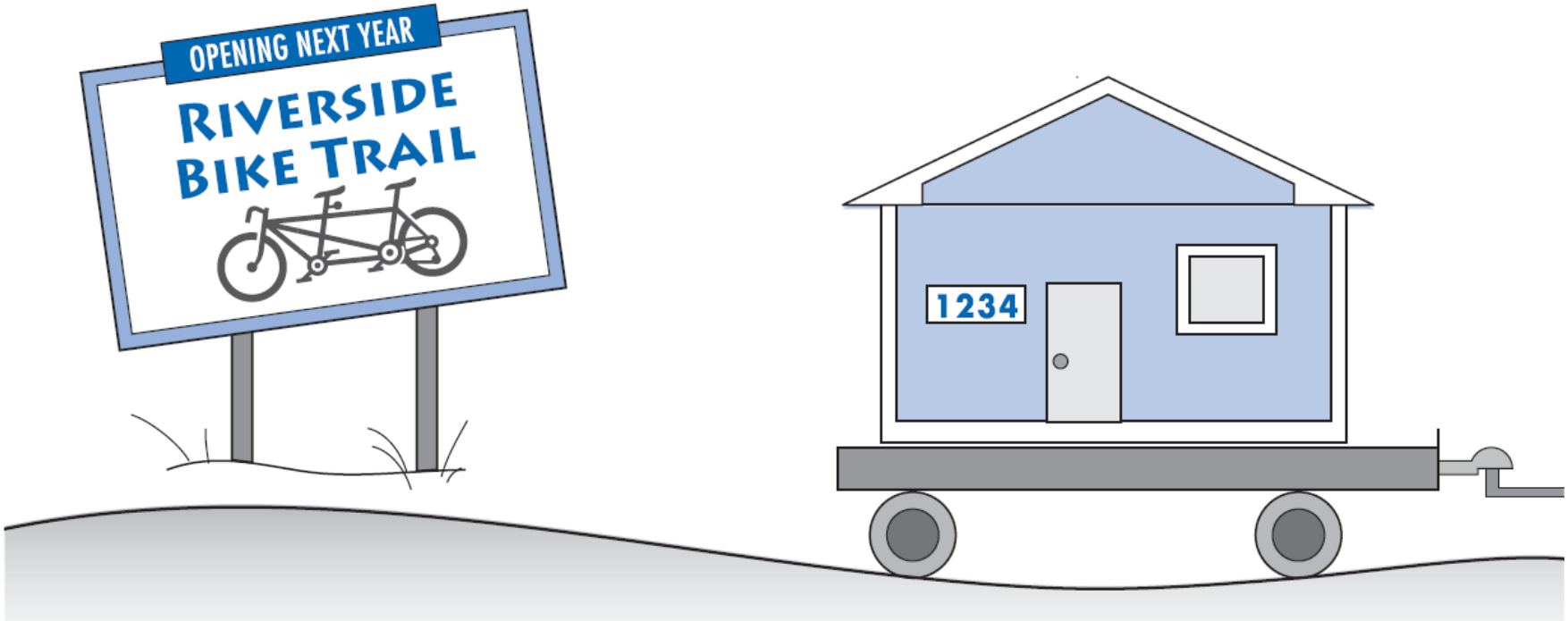
Additional Resources:

- FEMA's Increased Cost of Compliance: www.fema.gov/increased-cost-compliance-coverage
- FEMA's Increased Cost of Compliance Coverage: Guidance for State and Local Officials: www.fema.gov/media-library/assets/documents/1973

More Expansive Flood Mitigation Projects

Some Flood Mitigation Projects are More Costly—But Give You More Protection

After floods, some communities buy out and demolish homes that were severely damaged. The acquired land is dedicated to open space and can be used for recreation or to help restore wildlife habitat and wetlands. In some cases, FEMA also provides mitigation grant assistance to elevate or relocate a structure out of a flood-prone area for residents of flood-damaged communities. The **FEMA Hazard Mitigation Grant Program (HMGP)** is initiated and managed by the community, so check with your local engineering or planning office to determine if you're eligible for FEMA grant assistance.



Flood Insurance: Property Owner's Best Protection

Did you know? Typical homeowners' insurance policies do not provide coverage against flood losses. Federally backed flood insurance through the National Flood Insurance Program (NFIP) is made available to homeowners, renters, and business owners in communities that participate in the NFIP. Nationwide, Tennessee ranks 23rd in the number of NFIP policies.

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

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

Protected by a levee or dam? Even if you live in an area protected by levees or other flood control structures, there is a residual risk that those structures will be overtopped or fail. If your community's levee provides "1%-annual-chance" flood protection, there is still a possibility that a more severe event will cause flooding.

Flood Insurance: Property Owner's Best Protection, Continued

The NFIP and Tennessee's Association of Floodplain Managers urge you to protect your family and your financial future by purchasing a flood insurance policy. Being prepared by having flood insurance will save you money. For a $50,000 loan at 4% interest, for example, you will pay around $3,000 per year for 30 years. Compare that to a $100,000 flood insurance premium, which is about $700 per year. If your property is in a low-risk zone, your premium may be low and could include coverage for your property's contents. To purchase a policy, call your property insurance agent. To find an insurance agent near you, call NFIP's toll-free number at (888) 356-6329 or visit www.FloodSmart.gov.

What about disaster grants and loans? Federal disaster grants do not cover most losses, and repayment of a disaster loan can cost many times more than the price of a flood insurance policy. If you have a flooding disaster, contact your local engineering and planning department to learn more about eligibility requirements associated with FEMA's Hazard Mitigation Grant Program (HMGP) and options for mitigating flood risk to your property.

Factors that Affect Flood Insurance Rates

What is a flood? For a general understanding of factors affecting how NFIP flood insurance rating works, it is helpful to describe what the term "flood" means relative to rating. For purposes of the NFIP program, FEMA defines a **flood** as a general and temporary condition where two or more acres of normally dry land, or two or more properties, are inundated by water or mudflow. Floods are the most common natural disaster in the United States. And you don't need to live on the coast to be at risk. Flash floods, inland flooding, and seasonal storms affect every region of the country, severely damaging homes and businesses. Flood risk is based on many factors, both natural and man-made. These include, but are not limited to:

- Current weather patterns
- Natural changes in the environment
- Recent development in your community
- Date of construction
- History of flooding
- Flood map changes

Flood risks change over time. When flood maps are updated, you might learn that your property's risk is higher or lower than before. This can affect flood insurance costs and lender requirements for insurance. Where new flood maps show your property to now be at a high flood risk, most mortgage lenders will require flood insurance. The NFIP has cost-saving rating options to help reduce the financial impact. Where new maps show that your property is no longer at high risk, flood insurance is no longer required for federally backed mortgages. Keep in mind though that many lenders may still require you to obtain flood insurance. This is because nature doesn't follow flood map boundaries, and, while the flood risk may be reduced, it is not removed. The good news is that insurance rates may be lower. The maps are first issued in "preliminary" form for public viewing. Once approved, they become effective six to twelve months later. This gives residents time to prepare for any change in risk and talk to an insurance agent to learn ways to save on flood insurance.

Learning More About Floodplain Management

- For advice on flood information and permits, call your community's building permit office, engineering or planning department
- To view FIRMs online, visit the FEMA Map Service center at https://msc.fema.gov/portal
- View or download digital flood data and learn about Tennessee's flood hazard information at http://tnmap.tn.gov/assessment
- FEMA's online publications can be found at www.fema.gov/resource-document-library. Search by key word, title, or publication number. Call (800) 480-2520 to order free printed copies
- For information pertaining to flood maps, general flood insurance questions, or disaster assistance, call FEMA's Flood Information Exchange at (800) 358-9616
- Find online Elevation Certificate training for surveyors by going to www.fema.gov and searching for "Elevation Certificate"
- The NFIP's Community Rating System Resource Center is online at www.fema.gov/national-flood-insurance-program-community-rating-system
- Find out about floodplain management conferences and training workshops at http://web.tnafpm.com.

The Tennessee NFIP website is https://www.tn.gov/environment/nfip-national-flood-insurance-program.
The site provides important information about Letters of Map Change, Technical Resources, Flood Insurance, Technical Bulletins, Mapping Information and contact information.

Learning More About Flood Insurance

- Consumer information about flood insurance, flood risks, and flood maps is online at www.FloodSmart.gov. Click on “Insurance Center” 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 “NFIP Resources” then “Flood Hazard Maps” to learn more about flood maps.
- Also at www.FloodSmart.gov, click on “Know the Facts” to view “Fast Facts,” frequently asked questions, and a library of 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, you can call the National Flood Insurance Program’s toll-free number to get the name of an agent in your area who writes flood insurance: (888) 356-6329.
- To find out how many NFIP flood insurance policies are in force in your community, or how many claims have been paid since 1978, go to www.fema.gov/national-flood-insurance-program and click on “Statistics” on the left-hand column.

Useful Resources

Common Acronyms

BFE – Base Flood Elevation
CLOMA – Conditional Letter of Map Amendment
CLOMR – Conditional Letter of Map Revision
CLOMR-F – Conditional Letter of Map Revision based on Fill
CRS – Community Rating System
DFIRM - Digital Flood Insurance Rate Map
EC – Elevation Certificate
FEMA – Federal Emergency Management Agency
FBFM – Flood Boundary and Floodway Map
FHBM – Flood Hazard Boundary Map
FIS – Flood Insurance Study
ICC – Increased Cost of Compliance
LOMA – Letter of Map Amendment
LOMC – Letter of Map Change
LOMR – Letter of Map Revision
LOMR-F – Letter of Map Revision based on Fill
NFIP – National Flood Insurance Program
TEMA – Tennessee Emergency Management Agency

Internet Links

TEMA http://www.tnema.org
Tennessee Department of Commerce and Insurance https://www.tn.gov/commerce
Tennessee Department of Environment and Conservation https://www.tennessee.gov/environment/
Family Disaster Planning http://www.redcross.org/get-help/how-to-prepare-for-emergencies/make-a-plan
Considerations for Rebuilding Your Flood-Damaged House https://www.fema.gov/media-library-data/20130726-1720-25045-3853/ra_homeowner.pdf
NFIP Floodplain Management Requirements A Study Guide and Desk Reference for Local Officials https://www.fema.gov/media-library/assets/documents/6417
NFIP Publications https://www.fema.gov/national-flood-insurance-program-publications
FEMA Elevation Certificate https://www.fema.gov/media-library/assets/documents/160
NFIP Technical Bulletins https://www.fema.gov/media-library/collections/4

Selected Definitions

Base Flood – A term used in the FEMA National Flood Insurance Program (NFIP) to indicate the minimum size flood to be used by a community as a basis for its floodplain management regulations; presently required by regulation to be that flood which has a one-percent annual chance of being equaled or exceeded in any given year. Also known as a 100-Year Flood or One-Percent Annual Chance Flood.

Base Flood Elevation (BFE) – (1) The height in relation to mean sea level (MSL) expected to be reached by the waters of the Base Flood at specific points in the floodplain areas. (2) The elevation for which there is a one-percent chance in any given year that flood levels will equal or exceed it. (3) The elevation shown on the Digital Flood Insurance Rate Map (DFIRM) for Zones A that indicates the water surface elevation resulting from a flood that has a one-percent or greater chance of being equaled or exceeded in any given year. The BFE is generally based on statistical analysis of stream flow records for the watershed and rainfall and runoff characteristics in the general region of the watershed, and application of hydraulic backwater models.

Development – activities that range from the renovation and construction of new or existing buildings or ancillary structures.

Encroachment – is any floodplain development that could obstruct flood flows, such as fill, a bridge, or a building. A driveway, road, or parking lot at grade (without any filling) would not cause an obstruction. Development of lakeshore floodplains, where there is no flow, is not considered an encroachment.

Floodway or Regulatory Floodway – means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

Selected Definitions (continued)

Freeboard – Freeboard means a factor of safety usually expressed in feet above a flood level for purposes of floodplain management. “Freeboard” tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed.

Reasonably Safe from Flooding – Base flood waters will not inundate the land or damage structures to be removed from the SFHA and that any subsurface waters related to the base flood will not damage existing or proposed buildings.

Special Flood Hazard Area (SFHA) – is the portion of the floodplain subject to inundation by the base flood and/or flood related erosion hazards. SFHAs are shown DFIRMs as Zones A, AE, AH and AO.

Substantial Damage – Damage of any origin sustained by a structure whereby the cost of restoring the structure to its “before damaged” condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. All structures that are determined to be substantially damaged are automatically considered to be substantial improvements, regardless of the actual repair work performed. If the cost necessary to fully repair the structure to its “before damaged” condition is equal to or greater than 50% of the structure’s market value before damages, then the structure must be elevated (or floodproofed if it is nonresidential) to or above the Base Flood Elevation (BFE), and meet other applicable NFIP requirements.

Selected Definitions (continued)

Substantial Improvement – Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage," regardless of the actual repair work performed. The term does not, however, include either:

- Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or
- Any alterations of a "historic structure," provided that the alteration will not preclude the structure's continued designation as a "historic structure."
- Floodplain management requirements for new construction apply to substantial improvements. NFIP Increased Cost of Compliance (ICC) coverage does not apply to substantial improvements unless a structure is substantially damaged due to flooding.

Variance – A grant of relief by a community from the terms of a floodplain management regulation. Because a variance can create an increased risk to life and property, variances from flood elevation or other requirements in the Floodplain Management Ordinance should be rare. Insurance premium rates are required by statute to be based on actuarial risk and will not be modified by the granting of a variance. Specific criteria for granting a variance is described in the supplemental information. FEMA may review a community's findings justifying the granting of variances. If that review indicates a pattern inconsistent with the objectives of sound floodplain management, FEMA may take appropriate action including probation and suspending the community from the NFIP.