

2009

## FLOODPLAIN MANAGEMENT IN KENTUCKY



# Quick Guide

Kentucky Division of Water / Flood Mitigation Program  
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502-564-3410 <http://www.water.ky.gov>

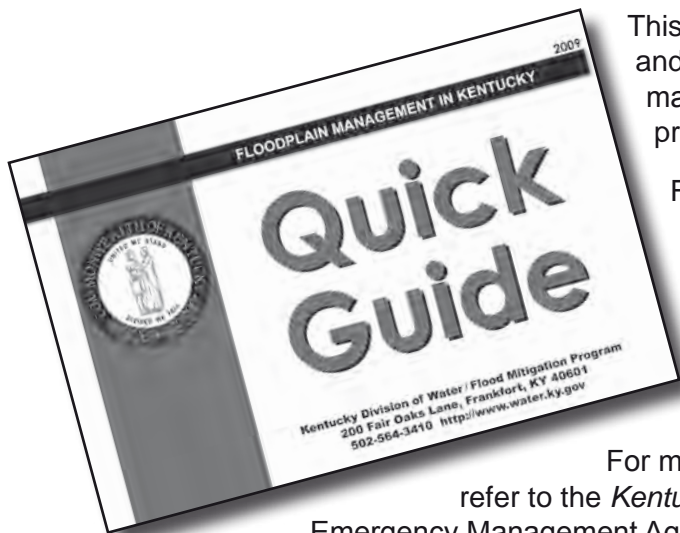
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## About this Guide



This **Quick Guide** will help you understand more about why and how communities in the Commonwealth of Kentucky manage floodplains and regulate floodplain development to protect people and property.

Floodprone communities adopt ordinances that detail the rules and requirements for floodplain development. **In case of conflict, that ordinance and not this publication, must be followed.** Please direct questions and comments on this **Quick Guide** to the Kentucky Division of Water, Floodplain Management Section at 502-564-3410 or online at <http://www.water.ky.gov>.

For more detail on all aspects of floodplain management, please refer to the *Kentucky Floodplain Administrators Handbook* and the Federal Emergency Management Agency (FEMA) *National Flood Insurance Program Floodplain Management Requirements Study Guide and Desk Reference for Local Officials* (FEMA 480).

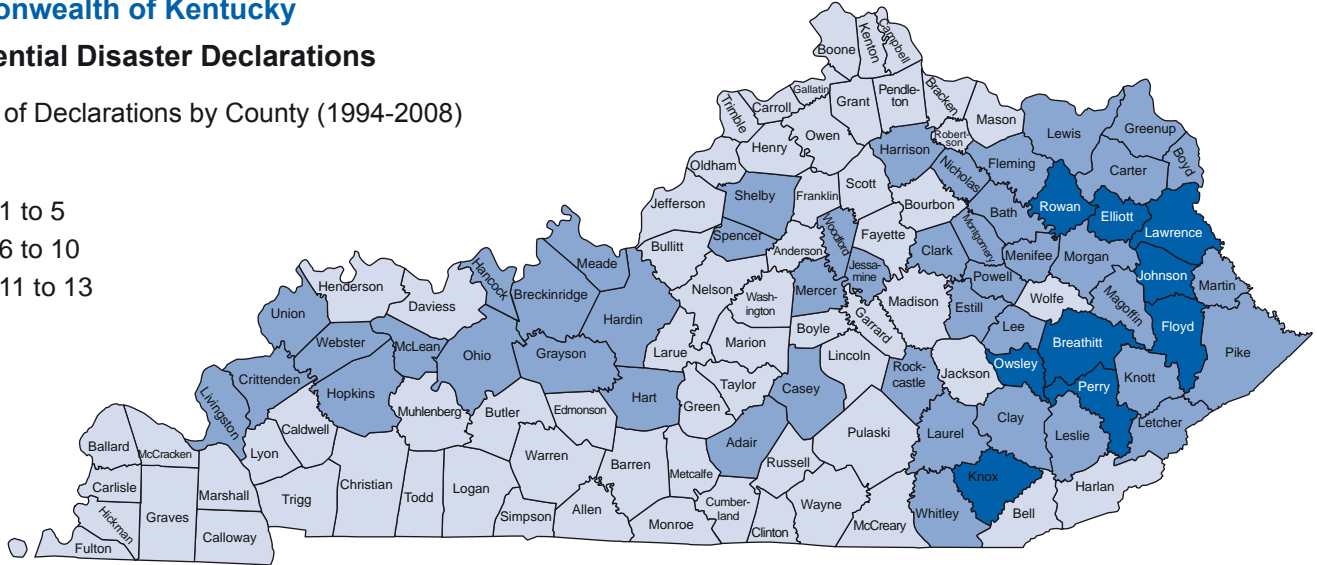
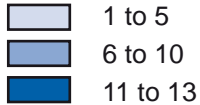
The development and publication of this **Quick Guide** was taxpayer funded through the Federal Emergency Management Agency.

# Kentucky Disaster Declarations

## Commonwealth of Kentucky

### Presidential Disaster Declarations

Number of Declarations by County (1994-2008)



Not all flood events are declared major disasters. Floodprone areas have been identified in many counties, cities and towns in Kentucky. Many floods are local, affecting only small areas, such as a few homes, a limited number of communities or a few watersheds. Floods cause significant economic losses in Kentucky. Since 1978, flood insurance policy holders have received over \$206 million in claim payments.

## National Flood Insurance Program

The National Flood Insurance Program (NFIP) was created by Congress in 1968 to protect lives and property and to reduce the financial burden of providing disaster assistance. The NFIP is administered by the Federal Emergency Management Agency. Nationwide, over 20,000 communities participate in the NFIP — including most of Kentucky's floodprone communities.

The NFIP is based on a mutual agreement between the federal government and communities. Communities that participate agree to regulate floodplain development according to certain criteria and standards.

The partnership involves:

- **Flood Insurance** – Property owners in participating communities are eligible to purchase federal flood insurance for buildings and contents.
- **Flood Hazard Maps** – In partnership with FEMA, the state produces flood maps in accordance with FEMA standards. The maps are used by communities, insurance agents and others.
- **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, the benefits of participation and the impact of non-participation in communities that have identified Special Flood Hazard Areas within their jurisdictional boundaries go to:

<http://www.water.ky.gov/floodplainmanagement/nationalfloodinsuranceprogram/>

## NFIP Community Rating System

The NFIP's Community Rating System (CRS) is a voluntary program that provides communities the opportunity to reduce flood insurance premiums for its citizens. Communities in the regular phase of the NFIP may apply to participate in the CRS. To participate the community must commit to implement and certify activities that contribute to reduced flood risk. Examples of actions communities can take to reduce the cost of flood insurance premiums include:

- Inform people about floodplain management, flood hazards, flood insurance and flood protection.
- Monitor flood conditions, issue warnings and coordinate flood response activities.
- Preserve open space in the floodplain
- Enact and enforce higher standards for safer development
- Maintain the flood carrying and storage capacity of drainage systems.
- Undertake engineering studies and develop floodplain maps and flood data.
- Obtain grants to buy out or elevate houses or to floodproof businesses.

Property owners in 16 Kentucky communities with a "Class 9" or better CRS rating receive discounts ranging from 5% to 25% for properties in a Special Flood Hazard Area (SFHA) and 5% to 10% for properties not in a SFHA. For detailed information about the CRS program go to <http://training.fema.gov/EMIWeb/CRS/>.

## Why Do We Regulate the Floodplain?

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

**To reduce future flood losses in Kentucky** – Floodplain development regulations are simply a “good neighbor” policy designed to protect our citizens from future flood losses. Regulating floodplain development helps keep flooding conditions from getting worse as development continues.

**To make sure that federal flood insurance is available** – Your community must join the NFIP before its residents can purchase flood insurance. If not, your community can be ineligible for some types of federal assistance. In addition, your residents may be unable to secure a mortgage.

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

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



## Community Responsibilities

To participate in the NFIP, your community agrees to adopt and enforce a flood damage prevention ordinance. Responsibilities required by ordinances include, but may not be limited to:

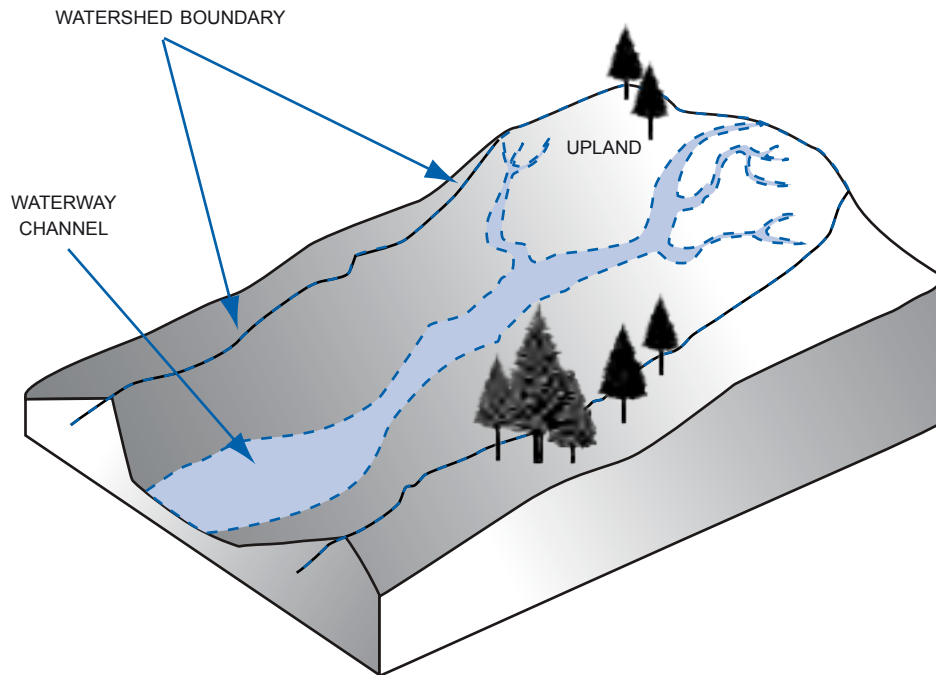
- **Require** Elevation Certificates to document compliance.
- **Require** new and substantially improved residential structures and manufactured homes to be elevated to or above the BFE.
- **Conduct** field inspections and cite any violations to the community's Flood Damage Prevention Ordinance.
- **Require** non-residential structures to be elevated or floodproofed.
- **Ensure** that building sites are reasonably safe from flooding.
- **Carefully** consider requests for variance.
- **Advise** FEMA when updates to flood maps are needed.



## Introduction to the Riverine Watershed

A watershed is the area of land that drains runoff to a point on a waterway. Sometimes it is called the drainage basin. The size and shape of a watershed depends on the shape of the land, the underlying geology, the steepness of the slopes, and how many small waterways, or tributaries, join the larger waterway.

Every river, creek, stream and ditch has a watershed. Many small watersheds, or sub-watersheds, combine to make large watersheds.



## Natural and Beneficial Floodplain Function

Undeveloped floodplains can serve natural and beneficial functions. They:

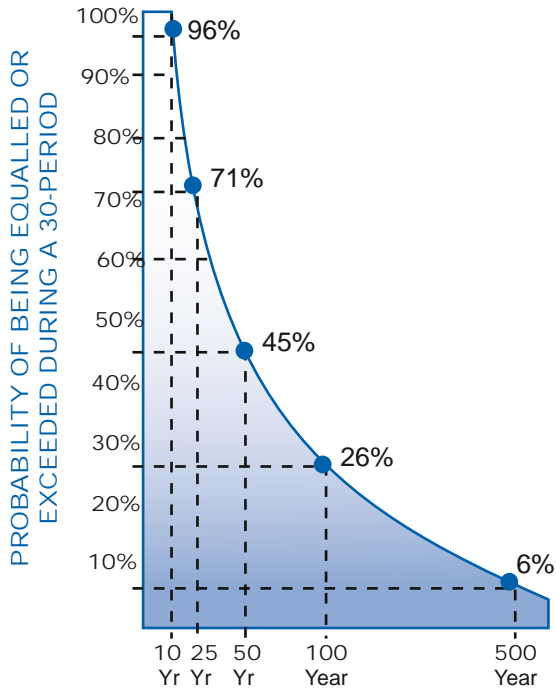
- Store flood water and stormwater.
- Enhance water quality by filtering runoff through wetlands.
- Offer habitats for plants and animals.
- Sustain biological productivity.
- Reduce erosion and sediment runoff.
- Offer recreation opportunities.

"No Adverse Impact" (NAI) floodplain management is essentially a "do-no-harm" policy based on the concept that the actions of any community or property owner should not adversely affect others. It calls for identifying the potential direct and indirect adverse impacts of any development action on people, property and the environment. Adverse impacts must be avoided or mitigated.




The Association of State Floodplain Managers, Inc. developed the NAI concept in response to rising flood damages, even though communities administer floodplain management ordinances. At <http://www.floods.org>, click on the NAI tab to download publications, the NAI Tool Kit and PowerPoint as well as several documents about legal issues.

## Annual Chance Floods



The 1%-annual chance flood, also called the Base Flood, has been selected by the National Flood Insurance Program as the basis for delineation of Special Flood Hazard Areas (SFHA) on Flood Insurance Rate Maps (FIRMs). The Special Flood Hazard Area is the basis for floodplain regulations administered by Kentucky's communities.

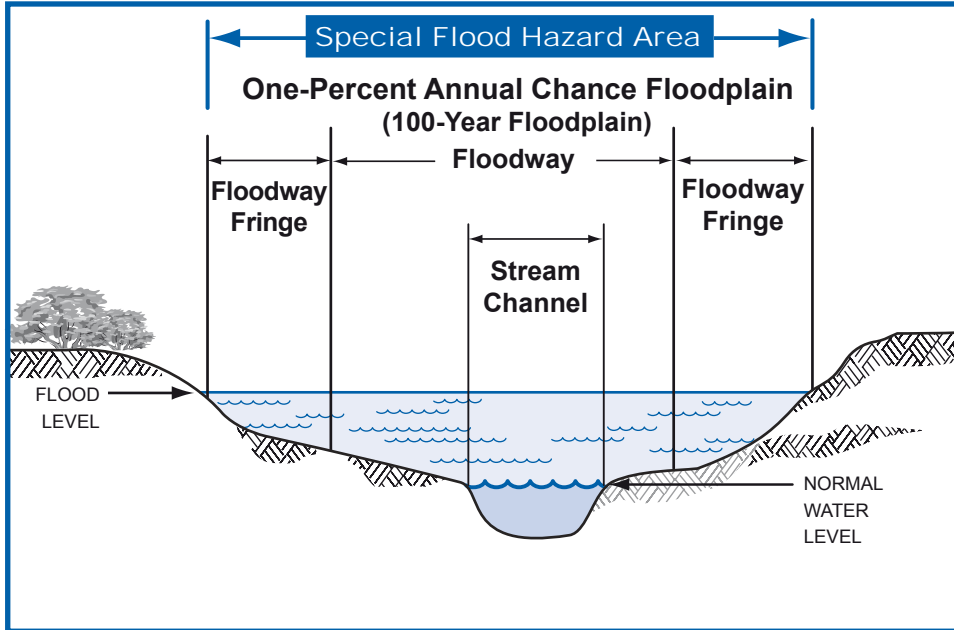
The boundary of the floodplain delineated for the 0.2%-annual chance flood (also called the 500-year flood) sometimes is shown on the NFIP flood maps.

 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.

## Understanding the Riverine Floodplain



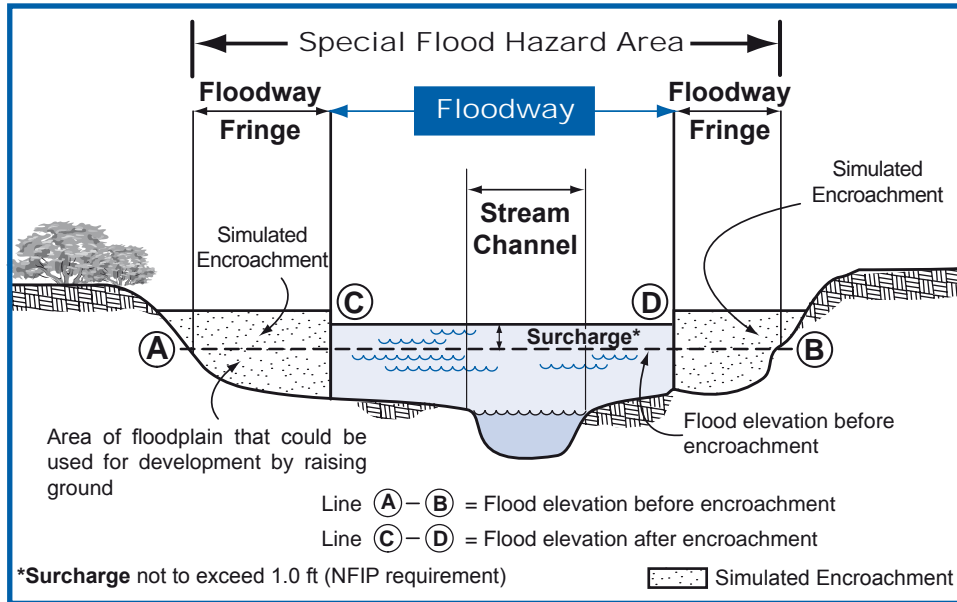
### Terms and Definitions

The **Special Flood Hazard Area (SFHA)** is that portion of the floodplain subject to inundation by the base flood (1%-annual chance) and/or flood-related erosion hazards. SFHAs are shown on FHBMs or FIRMs as Zones A, AE, A1-A30, AH, AO, and AR.

See page 11 to learn about the floodway, the area of the floodplain where floodwaters usually flow faster and deeper.

For floodplains with Base Flood Elevations, check the Flood Insurance Study (FIS) to find the Flood Profile which shows water surface elevations for the different frequency floods (see page 18).

## Understanding the Floodway



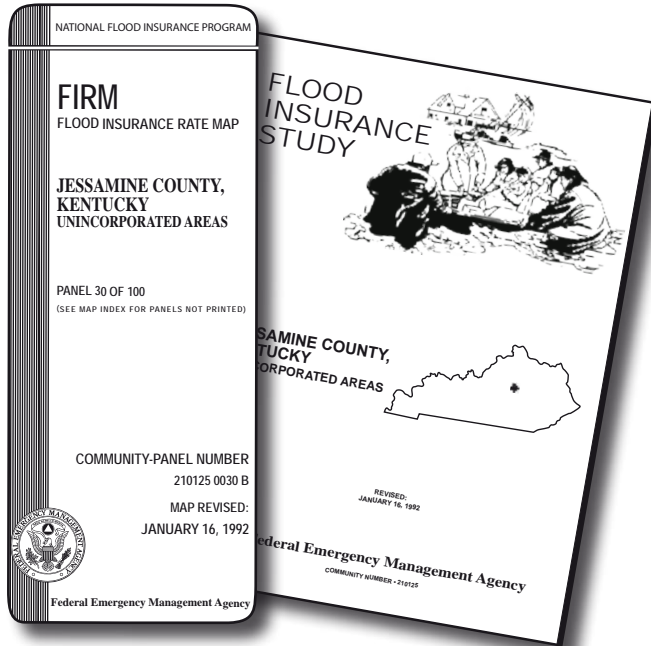
## Terms and Definitions

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 a designated height.

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 (see page 32). You may need a Professional Engineer licensed in Kentucky, to make sure your proposed project won’t increase flood levels.

## Looking for Floodplain Information?



View online flood maps or order paper copies of the flood maps at the FEMA Map Service Center at <http://www.msc.fema.gov/>. You may also order maps by calling 1-800-358-9616.

FEMA publishes Flood Insurance Rate Maps (FIRMs) and Flood Insurance Studies (FIS) for communities in Kentucky.

All FIRMs show Special Flood Hazard Areas (SFHAs). The flood hazard may be determined by approximate or detailed methods. The Floodway may be modeled as part of the analysis.

Flood hazard studies may be prepared by local governments, state and federal agencies, special districts, or by engineering companies working for private property owners and developers.

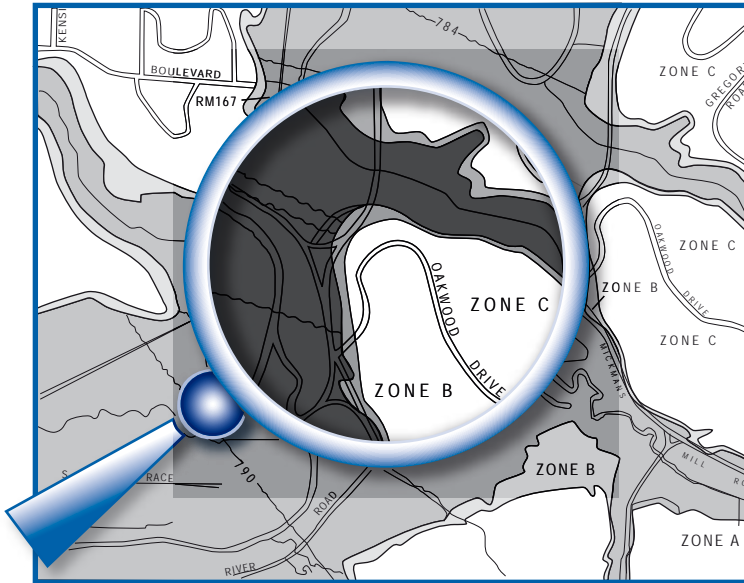
To revise the FIRM, studies may be submitted as a Letter of Map Revision (LOMR). FEMA will review the data and revise the FIRMs as appropriate.

Not all waterways have designated floodplains - but all waterways can flood, even though a flood hazard study may not have been prepared.

Flood Maps and Flood Insurance Studies should be available for viewing at your local planning or permit office.

## Online Flood Map Tools

You can view FIRMs and print clips from FIRMs called FIRMettes by using FEMA's online tools at the FEMA Flood Map Store at: <http://www.msc.fema.gov/>.



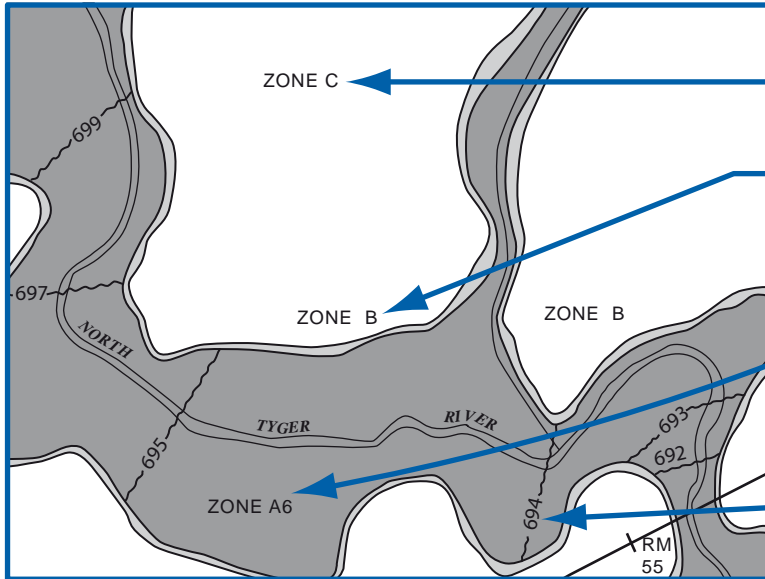
From the Map Store you can:

- Locate a FIRM by state, county and community and FIRM panel.
- Zoom in or out to view a specific area of a FIRM.
- Create a FIRMette showing a specific area of the FIRM, the FIRM Title Block, north arrow and FIRM approximate scale.
- Print the FIRMette.
- Save the FIRMette as an Adobe PDF or an image file.
- Click on "What is a FIRMette?" on the Flood Map Store web page for detailed instructions on how to make a FIRMette.

From the Flood Map Store you can also purchase a CD-ROM containing the FIRMs and related information for your community.



## Old Format Flood Insurance Rate Map

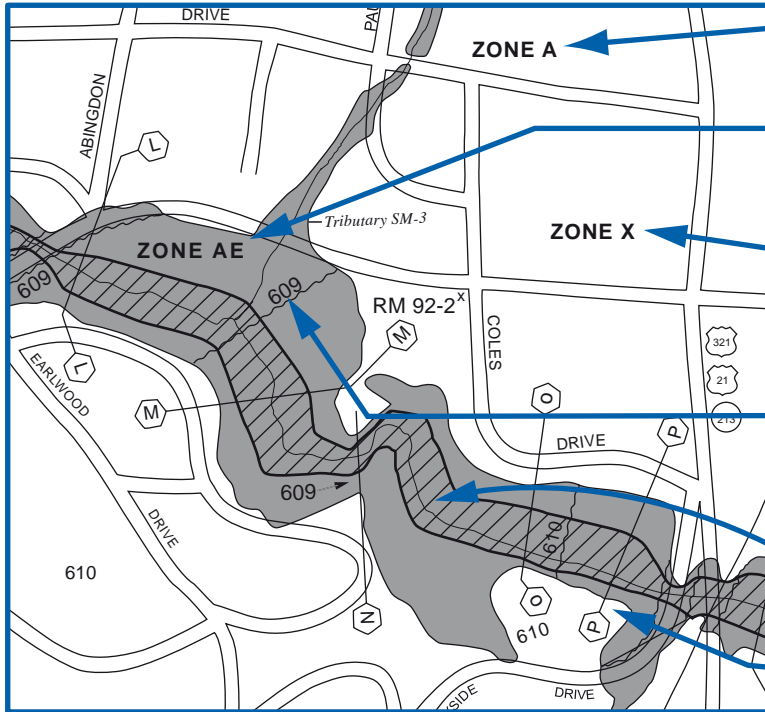


### FLOOD HAZARD ZONES

- 1** Zone C (or Zone X) is all other areas, considered to be low risk.
- 2** Zone B (or shaded Zone X) is subject to flooding by the 0.2% annual chance (500-year) flood, and is a moderate risk area.
- 3** Zone A, Zones A1-A30 and Zone AE are subject to flooding by the base or 1% annual chance (100-year) flood, and are considered high risk areas.
- 4** Base Flood Elevation (BFE). Water surface elevation of the base flood at specific locations.

FEMA prepares Flood Insurance Rate Maps (FIRMs) to show areas that are at high risk of flooding after intense or major storms. Most FIRMs show the flood elevation (how high the water may rise), called the Base Flood Elevation.

## Flood Insurance Rate Map



- 1 Zone A (approximate) is the 1% annual chance floodplain without BFEs.
- 2 Zone AE is the 1%-annual chance (100-year) floodplain with BFEs (also called Zone A1- A30).
- 3 Zone X (shaded or unshaded) is all other areas considered low risk (formerly Zone B or C).
- 4 Base Flood Elevation (BFE) is the water surface elevation, rounded to the nearest foot, of the base flood at specific locations.
- 5 The Floodway is the cross-hatched area.
- 6 Cross Section location (see page 17).

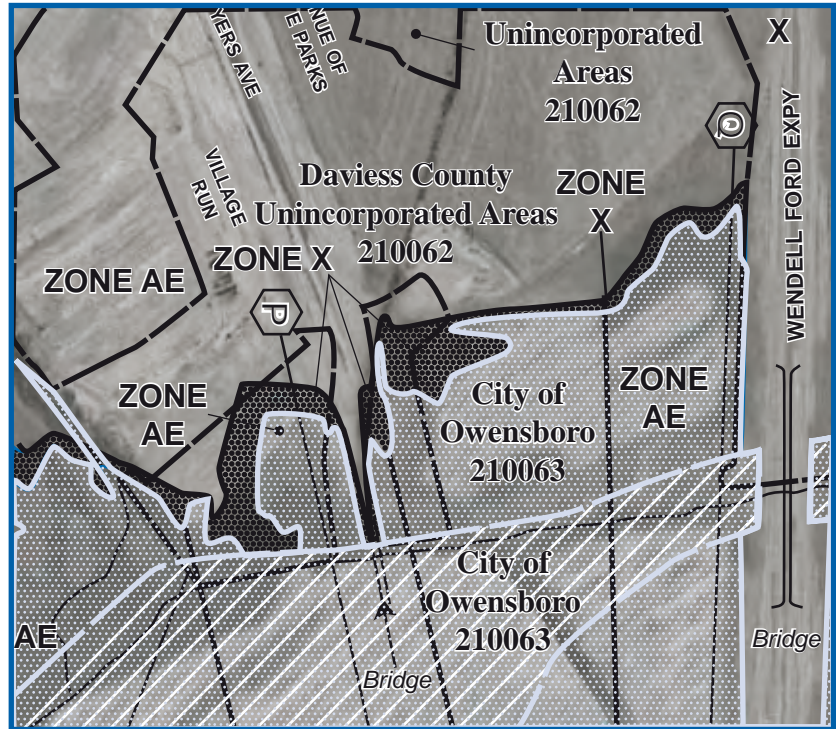
## The Countywide Digital FIRM

FEMA, in cooperation with state, local and business partners is producing countywide Digital Flood Insurance Rate Maps (DFIRMs) through the Map Modernization program.

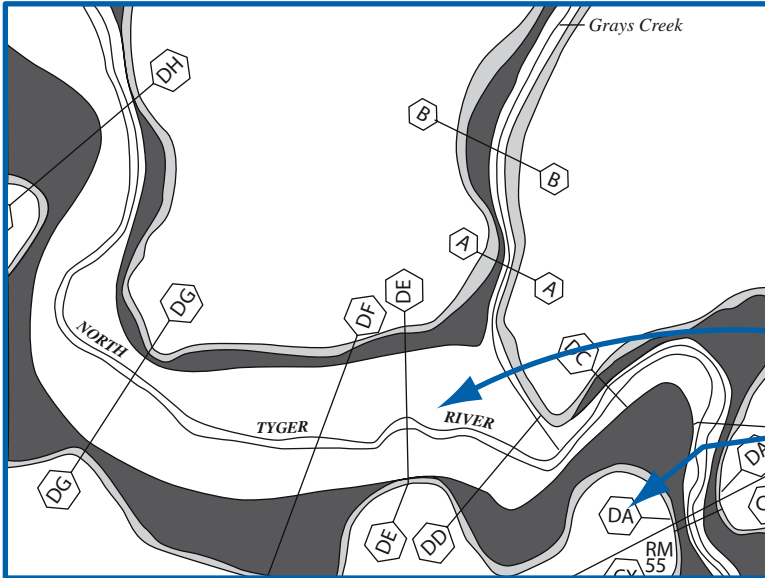
DFIRMs are in an industry-standard Geographic Information System format, that allows users to view information in a graphical format and add or remove layers of data according to their needs.

The flood risk zones, street names jurisdictional boundaries and other data can be overlaid on aerial photographs. The new map format enables more efficient and accurate flood risk determinations.

Visit <http://www.water.ky.gov/> and follow the Floodplain Management link to Map Modernization for more information on DFIRMs and Kentucky's Map Modernization Program.



## Flood Boundary and Floodway Map



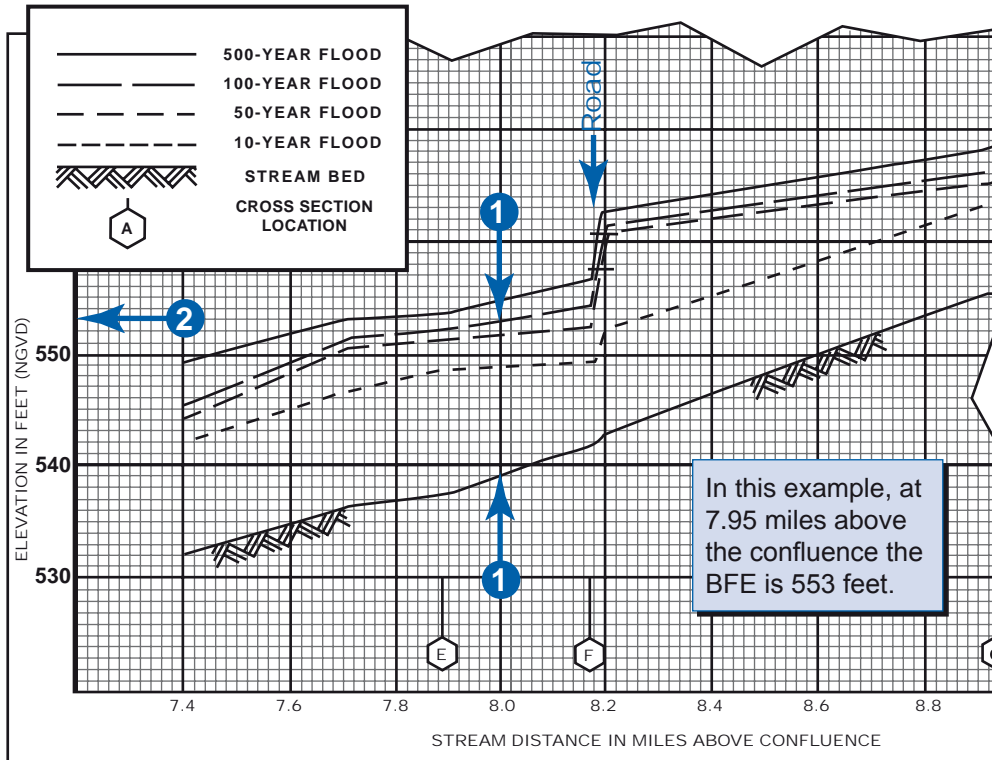
Important

### Information

Floodway maps do not show flood zones or BFEs. Check the companion FIRM for that information. Page 14 shows the FIRM that matches the map clip to the left.

- 1 The Floodway is the white area around the waterway centerline.
- 2 Cross Section location, where ground surveys determined the shape of the land and how constrictions such as bridges and culverts affect the flow of floodwater.

## Use the Stream Flood Profile to Determine BFEs



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 chance flood.

- 1 On the Flood Insurance Rate Map, locate your site by measuring the distance along the centerline of the stream channel from a cross section, 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 elevation.

## Floodway Data Tables

The Floodway delineates that portion of the SFHA that must be reserved to convey the Base Flood without increasing the water surface elevation more than the amount specified in the Floodway Table.

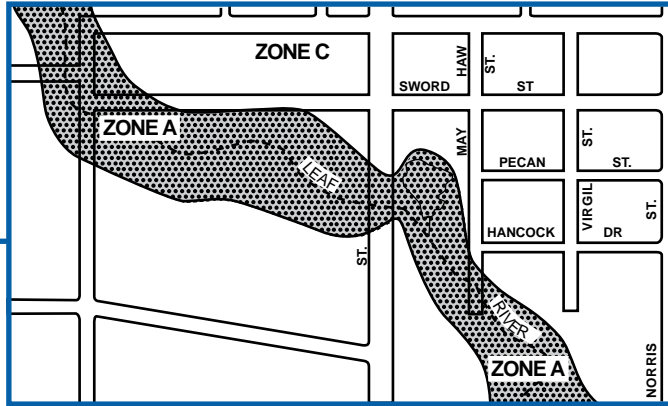
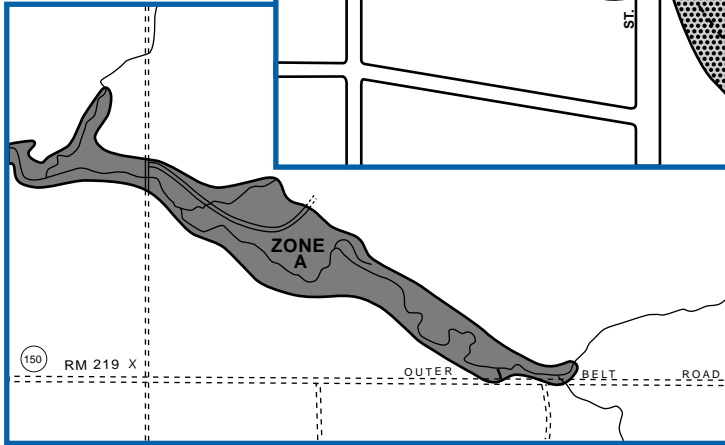
| Floodway        |                               |                                       | Base Flood Water Surface Elevation |                     |               |          |
|-----------------|-------------------------------|---------------------------------------|------------------------------------|---------------------|---------------|----------|
| WIDTH<br>(FEET) | SECTION AREA<br>(SQUARE FEET) | MEAN VELOCITY<br>(FEET PER<br>SECOND) | REGULATORY                         | WITHOUT<br>FLOODWAY | WITH FLOODWAY | INCREASE |
| 124             | 209                           | 1.0                                   | 391.1                              | 391.1               | 392.1         | 1.0      |
| 44              | 125                           | 1.6                                   | 395.5                              | 395.5               | 396.3         | 0.8      |
| 41              | 176                           | 1.1                                   | 396.6                              | 396.6               | 397.4         | 0.8      |
| 52              | 205                           | 1.0                                   | 398.4                              | 398.4               | 399           | 0.6      |
| 68              | 247                           | 0.8                                   | 398.5                              | 398.5               | 399.1         | 0.6      |

The Flood Insurance Study (FIS) has a Floodway Table for every waterway that was studied by detailed methods for which floodways were delineated.

- 1 This is the only readily available velocity data to use in computations of hydrodynamic loads.
- 2 Computed BFE (rounded values are shown on the FIRM).
- 3 Amount of allowable increase - not more than 1-foot at any location.

## Approximate Zone A

Topographic maps can be used to estimate the Base Flood Elevation (BFE).



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.

If you need help in determining the BFE, check with the Kentucky Division of Water or your community's planning, engineering or permit office. FEMA publication *Managing Floodplain Development in Approximate Zone A Areas* (FEMA 265) is useful for engineers.

## Letters of Map Change

- 1 Letter of Map Amendment (LOMA)** is an official change to an effective FIRM that may be issued when a property owner provides additional technical information such as ground elevation relative to the BFE, SFHA and the building. Lenders may waive the flood insurance requirement if the LOMA documents a structure on ground is above the mapped floodplain.
- 2 Letter of Map Revision (LOMR)** is an official change to an effective FIRM that may be issued to change flood insurance risk zones, floodplain and boundary delineations, BFEs, and/or other map features. Lenders may waive the flood insurance requirement if the approved map revision shows structures to be outside of the SFHA.
- 3 Letter of Map Revision Based on Fill (LOMR-F)** is an official change 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 BFE, and therefore is no longer in the SFHA. Lenders may waive the flood insurance requirement if the LOMR-F shows a structure on fill is above the BFE and outside of the SFHA.
- 4 Physical Map Revision (LOMR-PMR)** may be issued for major physical floodplain changes that require engineering analyses, such as bridges, culverts, channel changes, flood control measures, and large fills that change the BFE or Floodway. PMRs are also issued when a new study updates or improves the FIRM.



Important

### Information

Check FEMA's Flood Hazard Mapping website for more information about map revisions concerning homeowners, engineers, and surveyors.

To learn the Status of Map Change Requests, call FEMA's Map Service Center at 1-800-358-9616.

Information:

<http://www.fema.gov/hazard/map/lomc>

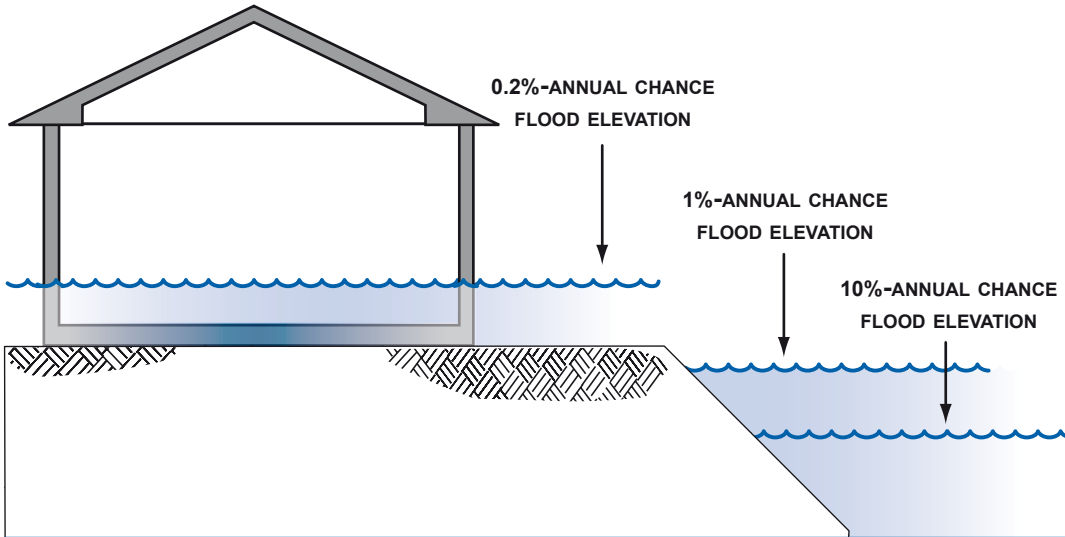
Forms:

<http://www.fema.gov/business/nfip/forms>

Requests for map revisions must be endorsed by your community.



## Nature Doesn't Read Maps!



**CAUTION!** Nature doesn't read maps! Major storms and flash floods can cause flooding that rises higher than the BFE. Consider Safety - protect homes and businesses by building higher. See page 61 to see how this will save money on flood insurance.



Important

### Information

Many people don't understand just how risky the floodplain can be. There is a 26% chance that a home in the SFHA will flood during a 30-year mortgage period. The chance that a major fire will occur during the same period is only 6%!

## Safe Uses of the Floodplain

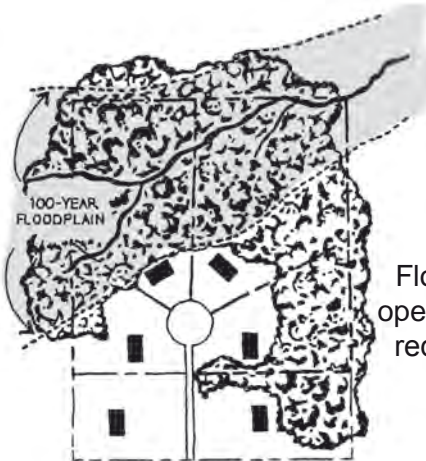


All land subdivided into lots, some home sites and lots partially or entirely in the floodplain.

**NOT RECOMMENDED**

All land subdivided into lots, some lots partially in the floodplain with setbacks to keep home sites on high ground.

**RECOMMENDED**

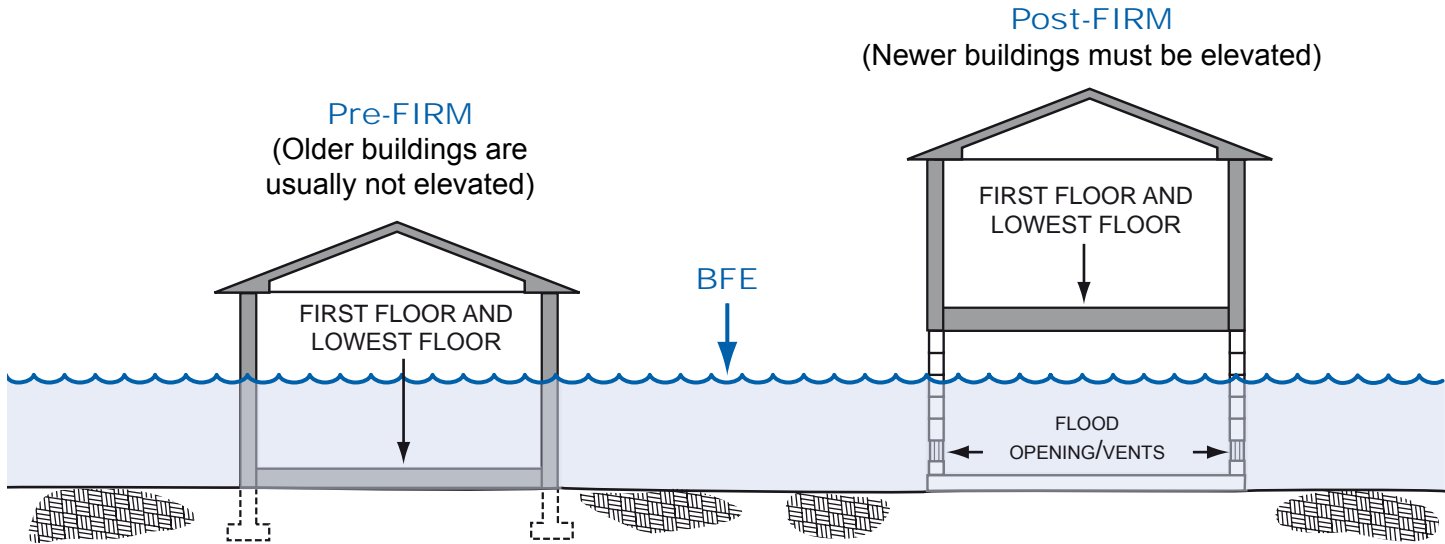


Floodplain land put into public/common open space, net density remains, lot sizes reduced and setbacks modified to keep home sites on high ground.

**RECOMMENDED**

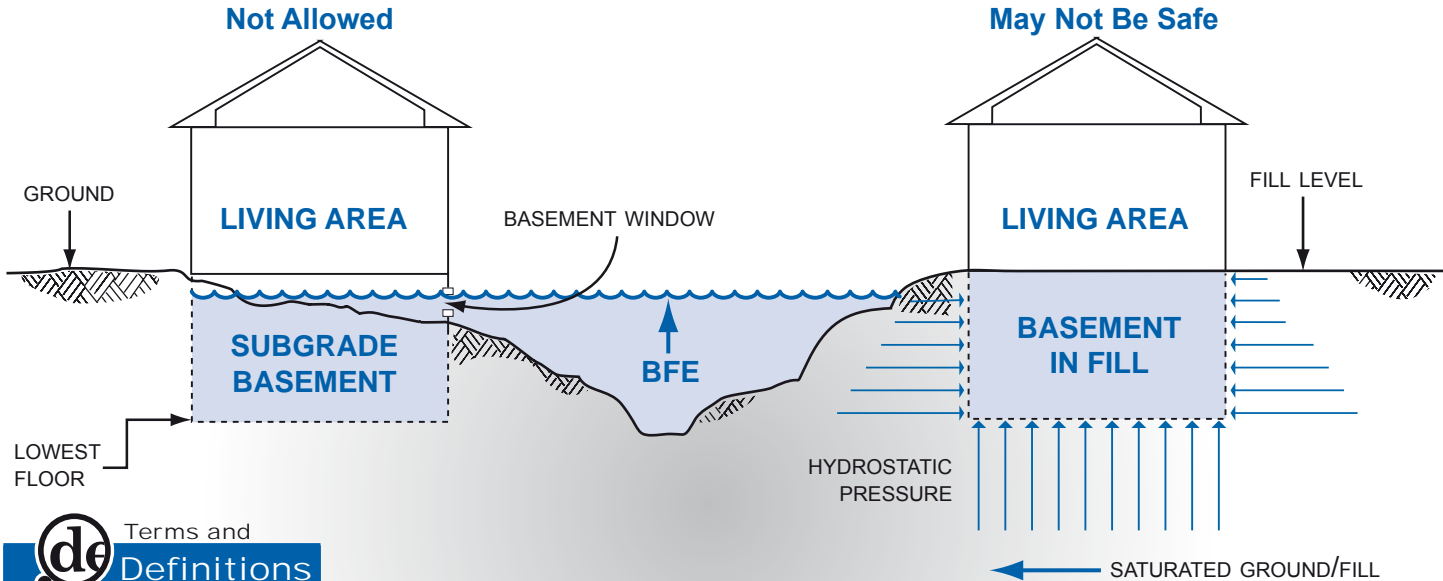
Let the floodplain do its job - if possible, keep it natural open space. Other low damage uses include: recreational areas with no buildings, athletic fields, hiker-biker trails, parking areas with gravel or pervious surfaces, tree farms, nurseries and gardens, pasture and croplands, reforestation, and created wetlands.

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



A building is Pre-FIRM if the "start of construction" commenced before December 31, 1974 or before the effective date of the community's initial FIRM, whichever is later. A building is Post-FIRM if the "start of construction" commenced on or after December 31, 1974 or the effective date of the initial FIRM, whichever is later.

## Basements Are Unsafe in Special Flood Hazard Areas



### Terms and Definitions

A **basement** is any portion of a structure that has a subgrade floor (below ground level) on all sides.

Basements below BFE **are not** allowed in new development and flood insurance coverage is very limited in existing basements for very good reason. It only takes an inch of water over the sill and the entire basement fills up! Excavating a basement into fill doesn't always make it safe because saturated groundwater can damage the walls.

## Some Activities Requiring Floodplain Development Permits

- New construction
- Additions to existing structures
- Substantially improved structures
- Placing manufactured (mobile) homes
- Subdivision development, including infrastructure
- Temporary buildings and accessory structures
- Agricultural buildings
- Parking or storage of recreational vehicles
- Temporary or permanent materials storage, including gas/liquid storage and sand/gravel
- Roads, bridges, and culverts
- Fill, grading, excavation, mining, and dredging
- Stream alteration or relocation



YOU NEED PERMITS FOR **ALL** OF THESE ACTIVITIES

## Some Key Steps in Floodplain Development Permit Review

The Permit Reviewer has to check many things. Key Questions are:

- Is the site in an identified floodplain?
- Is the site in the mapped floodway?
- Have all state and federal permits been obtained?
- Is the site "reasonably safe from flooding"?
- Does the site plan show the Base Flood Elevation?
- Does the site plan show existing ground contours?
- Is substantial improvement of an older building being proposed?
- Is an addition proposed?
- Will new structures and utilities be properly elevated and anchored?
- Will the manufactured home be properly elevated and anchored?
- Do the plans show an appropriate and safe foundation?
- Has the owner submitted an Elevation Certificate?



## Carefully Complete the Permit Application

### APPLICATION FOR PERMIT TO CONSTRUCT ACROSS OR ALONG A STREAM AND / OR WATER QUALITY CERTIFICATION (excerpts)

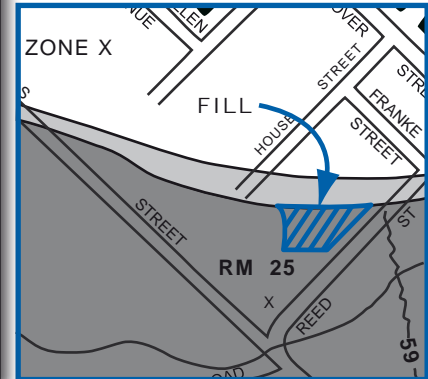
If the project will disturb more than 1 acre of soil, a Notice of Intent for Storm Water Discharges will also be returned to the Floodplain Management Section of the Division of Water.

- OWNER: Dave and Sally Jones  
Give name of person(s), company, governmental unit, or other owner of proposed project  
MAILING ADDRESS: 781 Any Street  
TELEPHONE #: 000-000-0000 EMAIL: Dave and Sally@
- ENGINEER: Joe Engineer P.E. NUMBER: 000  
Contact Division of Water if waiver can be granted.
- DESCRIPTION OF CONSTRUCTION: New Single Family Home  
List the items to be constructed in the floodplain
- COUNTY: Anycounty NEAREST COMMUNITY: Anytown
- USGS QUAD NAME Anyquad LATITUDE/LONGITUDE: 38.15
- STREAM NAME: Water Creek WATERSHED SIZE (i
- LINEAR FEET OF STREAM IMPACTED: 122
- DIRECTIONS TO SITE: South on Highway X to Water Creek turn



### Important Information

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



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

## Commonwealth Permit for Stream Construction

- Construction across or along a stream requires authorization from the Kentucky Division of Water and from local communities.
- Learn more about the Stream Construction permit at <http://www.water.ky.gov/permitting>.
- Activities that involve work in a wetland or a stream (bank stabilization, filling, dredging, or channel relocation) must receive a "401 Water Quality Certification" from the Kentucky Division of Water.
- The Division of Water provides technical assistance when floodplain information is not readily available.



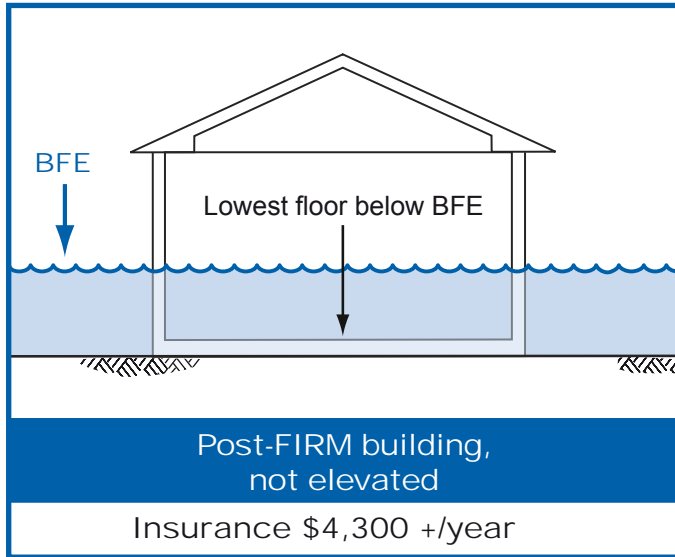
### Important Information

Floodplain activities that must have a Division of Water Permit include construction of buildings, placement of fill, stream alterations, bridges, culverts, and dams.

Certain activities that are proposed in a corridor of a designated Wild River must obtain written authorization from the Kentucky Division of Water before construction is started.



## Think Carefully Before You Seek a Variance



Very specific conditions must be satisfied to justify a variance:

- If in a floodway, the project causes no increase in flood level.
- Shall not cause additional threats to public safety or extraordinary public expense.
- Historic structures must meet specific historic structure designation requirements.
- Variances may be considered for accessory (see page 51) and agricultural structures.

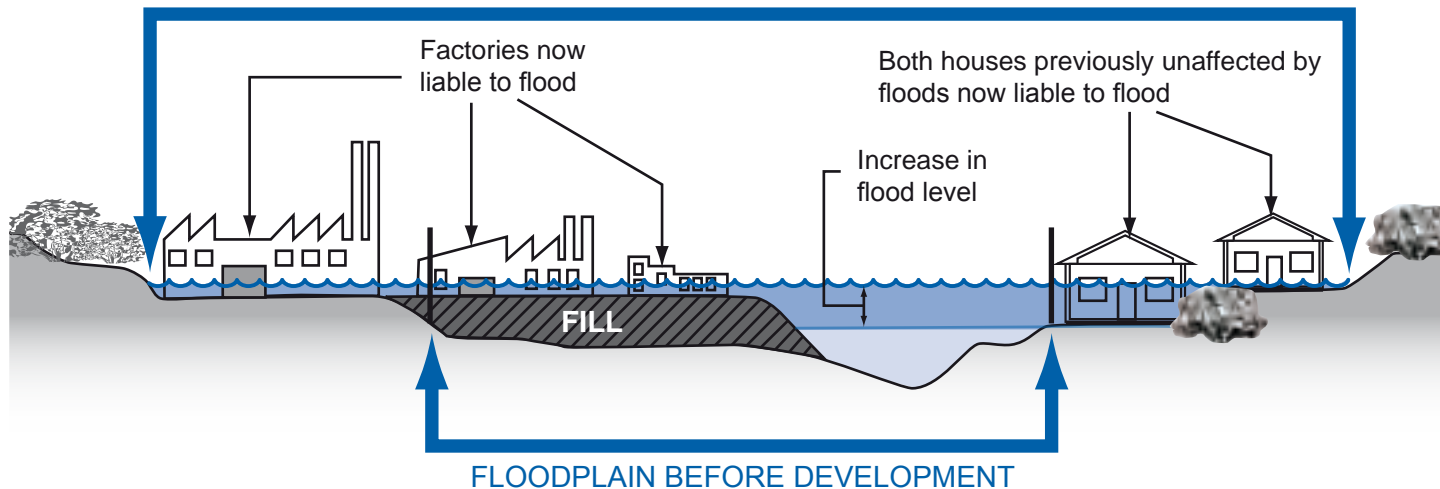
Review the variance provisions of your community flood damage prevention ordinance for specific guidance.

A variance that allows construction below the BFE does not waive your lender's flood insurance requirement. Flood insurance will be very expensive - perhaps more than \$4,300 per year (see page 61).

Review carefully before issuing a variance to build below the BFE. Not only will the property be more likely to get damaged, but insurance will be very costly. If your community has a pattern of granting variances inconsistent with the local ordinance, FEMA can impose sanctions - costing even more!

## Development Can Increase Flooding

### FLOODPLAIN AFTER FILLING OR WATERSHED DEVELOPMENT



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 page 32).

## Required Floodway “No Rise/No Impact ” Certification

- Floodways can be dangerous because water may flow very fast.
- Development is not allowed unless there is "no rise" in flood elevations, floodway elevations, and floodway widths are certified.
- An engineer must evaluate the hydraulic impact of proposed development.
- A "no rise/no impact" certification is required and must be signed, sealed, and dated by a Professional Engineer licensed in Kentucky.
- Check with your community for guidance before you decide to work in a floodway.

### ENGINEERING "NO IMPACT" CERTIFICATION (excerpts)

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

It is to further certify that the attached technical data supports the fact that the proposed (Name of Development) will not impact the 100-year flood elevations, floodway elevations and floodway widths on (Name of Stream) at published sections in the Flood Insurance Study (FIS) for (Name of Community) (Dated) and will not impact the 100-year flood elevations, floodway elevations, and floodway widths at unpublished cross-sections in the vicinity of the proposed development.

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Signature)

The engineering analysis must be based on technical data obtained from FEMA. **Reduce flood risk - don't build in the Floodway!**

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

- The Elevation Certificate (EC) is a FEMA form. Download a copy from <http://www.fema.gov/business/nfip/forms.shtm>.
- When the floodplain has BFEs, the EC must be completed and sealed by a surveyor, architect or Professional Engineer authorized by the Commonwealth of Kentucky to certify elevations.
- A community official may complete the EC for sites in approximate flood zones.
- The EC can be used to show that sites are located on natural ground above Base Flood Elevation (see page 35).
- The EC is used to verify that buildings are elevated properly (see page 36).
- Insurance agents use the EC to rate/write flood insurance policies.

By itself, the EC cannot be used to waive the requirements to get flood insurance. See page 21 for information about Letters of Map Amendment (LOMA).

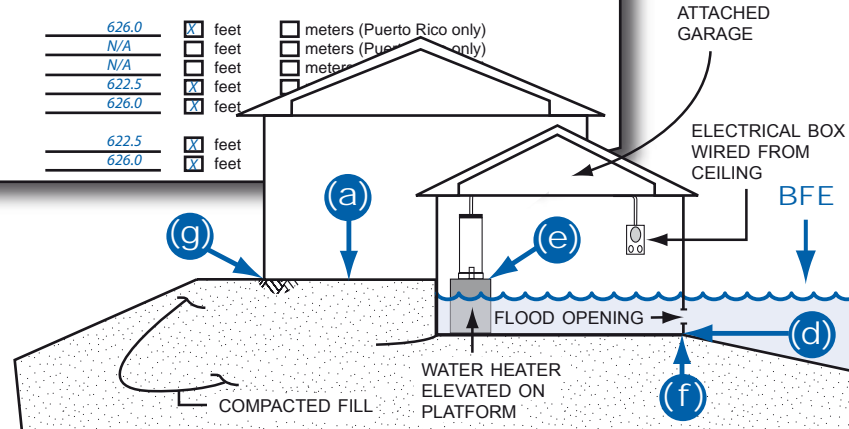


## Completing the Elevation Certificate

| ELEVATION CERTIFICATE (partial)   |                        |  |  |
|---|------------------------|--|--|
| SECTION C - BUILDING ELEVATION  |                        |  |  |
| 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 A1-30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/AO. Complete Items C2.a-g below according to the building diagram specified on Item A7. |                        |  |  |
| Benchmark Utilized <u>  N/A  </u> Vertical <u>  NAVD 88  </u>   |                        |  |  |
| Conversion/Comments _____   |                        |  |  |
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor)   | <u>  626.0  </u>       | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters (Puerto Rico only) |
| b) Top of the next higher floor   | <u>  N/A  </u>         | <input type="checkbox"/> feet            | <input type="checkbox"/> meters (Puerto Rico only) |
| c) Bottom of the lowest horizontal structural member (V Zones only)   | <u>  N/A  </u>         | <input type="checkbox"/> feet            | <input type="checkbox"/> meters                    |
| d) Attached garage (top of slab)  | <u>  622.5  </u>       | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters                    |
| e) Lowest elevation of machinery<br>(Describe type of equipment in Comments)  | <u>  626.0  </u>       | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters                    |
| f) Lowest adjacent (finished) grade (LAG)   | <u>  622.5  </u>       | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters                    |
| g) Highest adjacent (finished) grade (HAG)  | <u>  626.0  </u>       | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters                    |

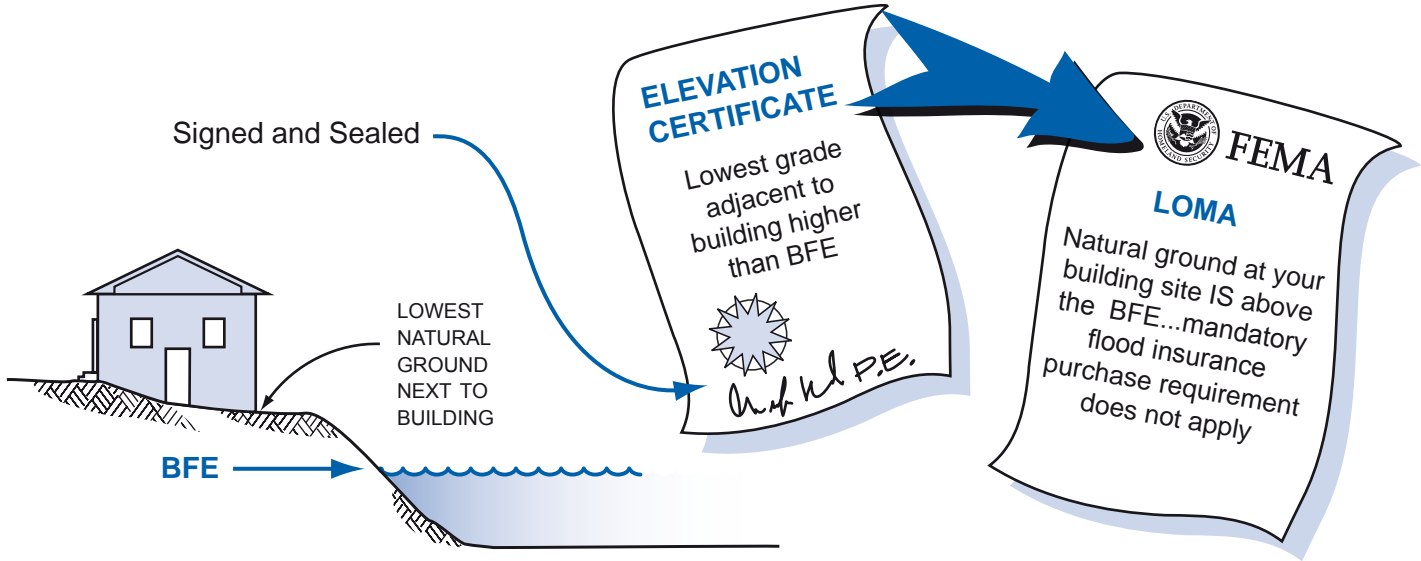
In this example, the BFE is 625.

The slab-on-grade house was elevated on fill 1' above the BFE, and the attached garage is 2.5' below BFE.



You must have a surveyor, architect or Professional Engineer authorized by the Commonwealth of Kentucky to certify elevations, complete the Elevation Certificate and seal it. The Elevation Certificate includes diagrams for eight building types. Several points must be surveyed.

## Is Your Building Site Higher than the BFE?



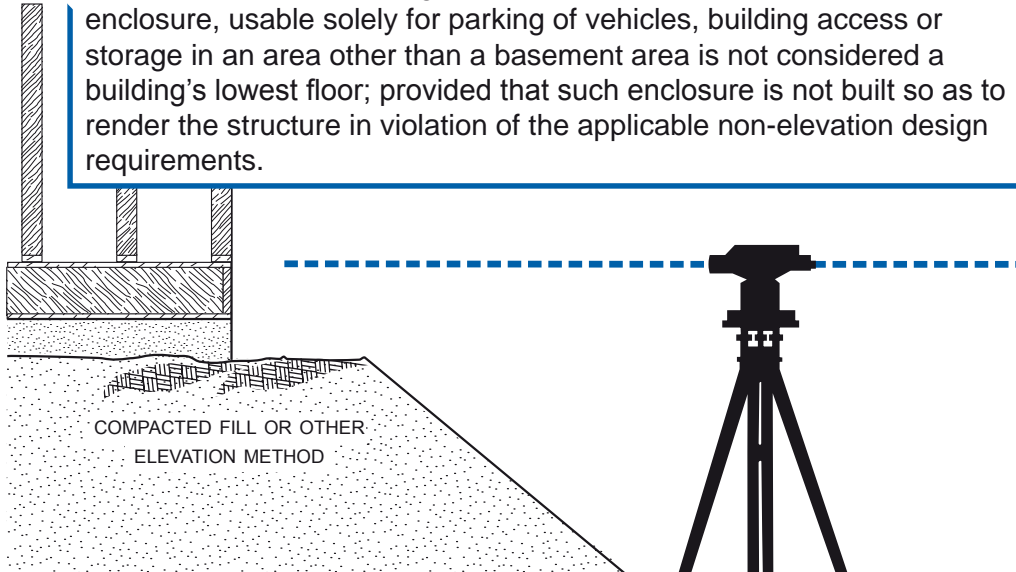
If your land is shown on the maps as “in” the floodplain but your building site is higher than the BFE, get a surveyor, architect or Professional Engineer authorized by the Commonwealth of Kentucky to certify elevations, complete the Elevation Certificate and seal it. Submit the EC with an application to FEMA and a LOMA may be issued (See page 21). This is the **ONLY** way to remove the requirement to purchase flood insurance. Keep the certificate and the LOMA with your deed, it will help future buyers.

## The Lowest Floor



### Terms and Definitions

**Lowest Floor** - the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements.



**ELEVATION  
CERTIFICATE**

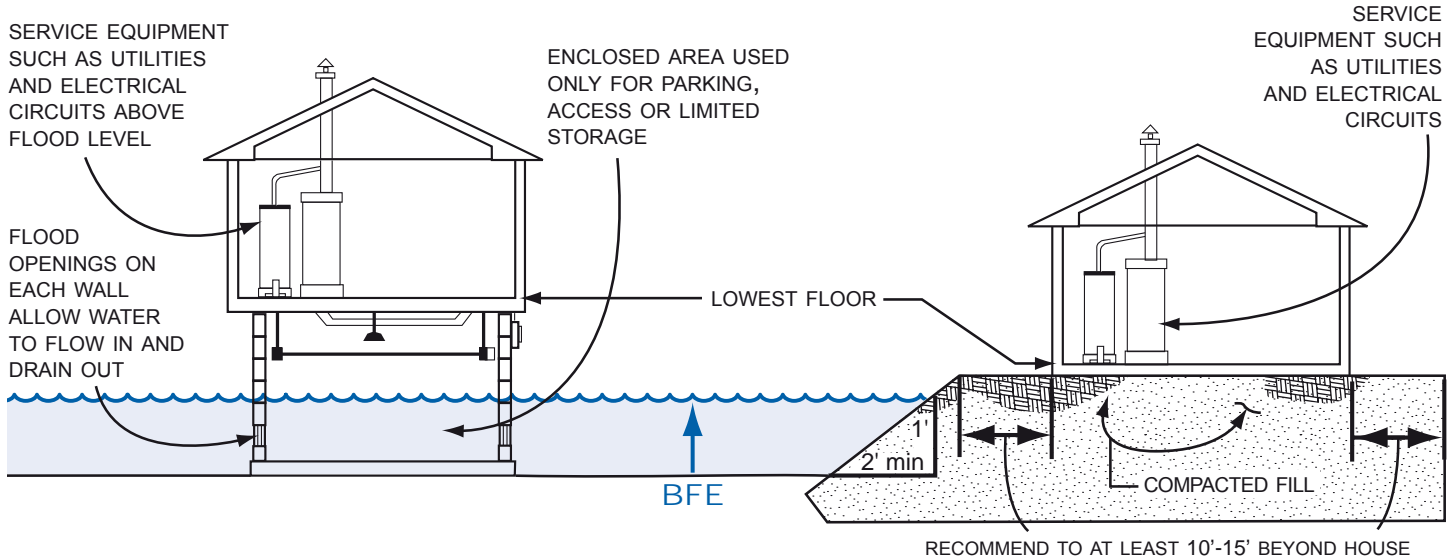
Compliant  
Lowest Floor at  
or above BFE



*W. H. P. E.*

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 (see page 61).

## How to Elevate Your Floodplain Structure



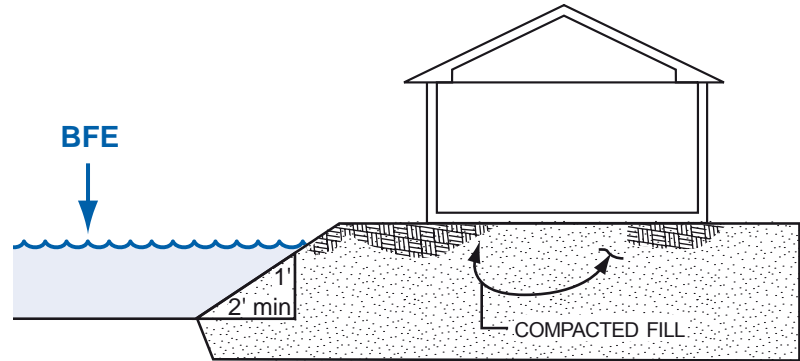
**CAUTION!** Enclosures (including crawlspaces) must meet special design requirements (see pages 40 and 41). NOTE: When the walking surface of the lowest floor is at the minimum elevation, under floor utilities are not allowed.



## Compaction of Floodplain Fill

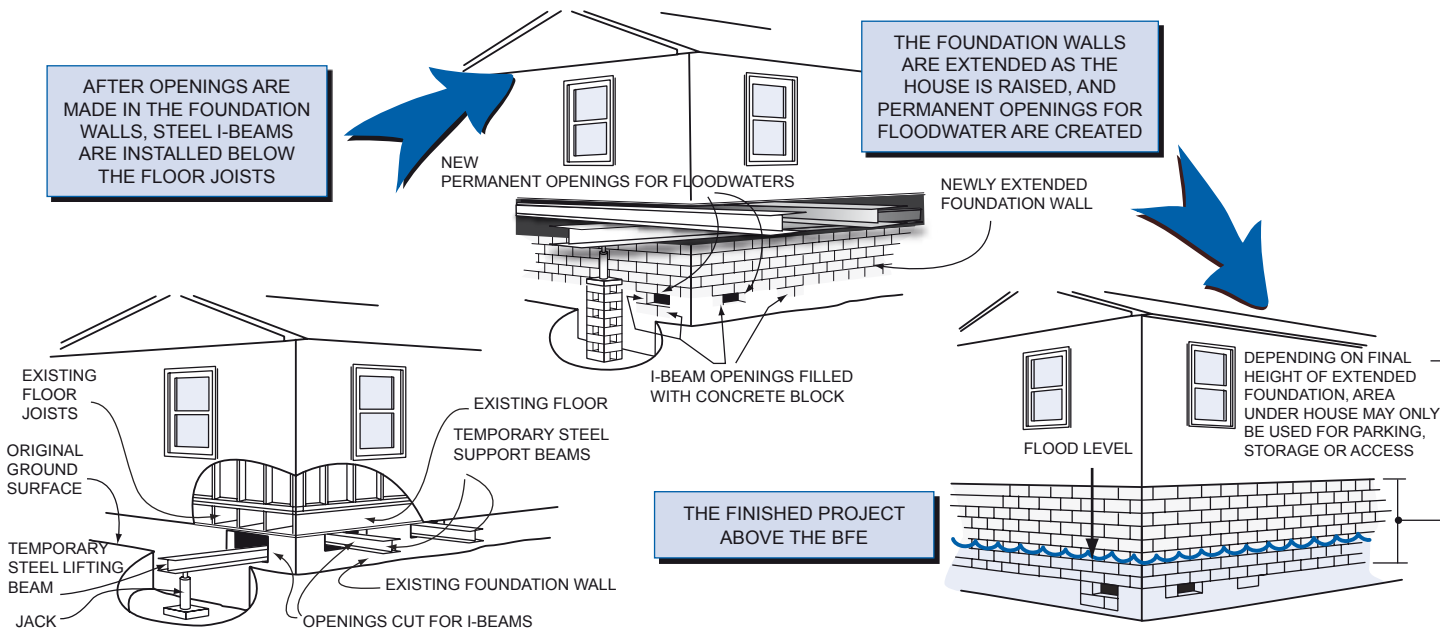
Earthen fill used to raise the ground above the flood elevation must be placed properly so that it does not erode or slump when water rises. For safety and to meet floodplain requirements, floodplain fill should:

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



Your community may ask for certification of the elevation, compaction, slope and slope protection materials. Your engineer or design professional can find more information in FEMA's technical guidance for Letters of Map Revision based on Fill (FEMA Form MT-1) and in NFIP Technical Bulletin #10.

## Elevating an Existing Structure



This is one way to elevate an existing building to comply with floodplain regulations. See *Above the Flood: Elevating Your Floodprone House* (FEMA 347) for additional information. If your insured building is damaged by flood and your community determines it is substantially damaged, you may be eligible for an **Increased Cost of Compliance** payment (see page 59).

## Enclosures Below the Lowest Floor



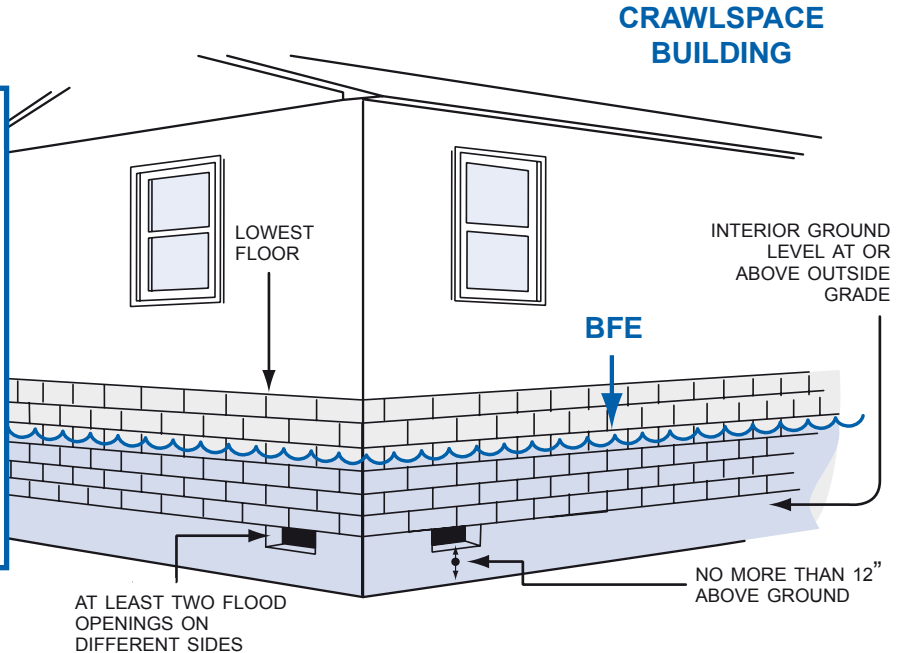
Important

### Information

#### NOTE:

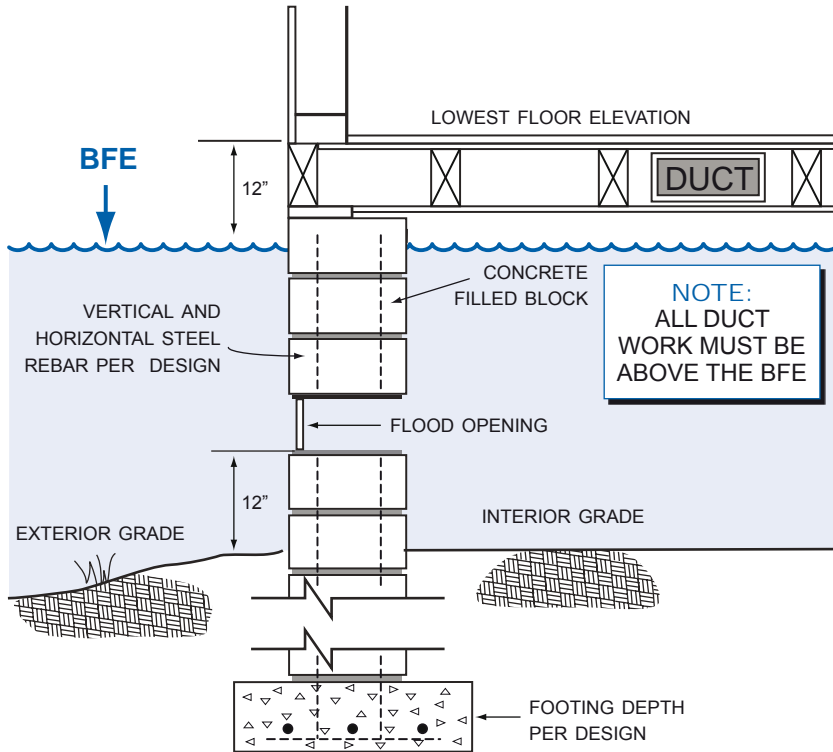
- Total net area of all total openings is 1 sq. in. per sq. ft. of enclosed area.
- A 25' x 45' building needs 1,125 sq. inches of openings.
- Standard ventilation units used in foundation walls must be disabled in the open position to allow water to flow in and out.
- A standard ventilation unit with screen, provides 42 to 65 sq. inches of opening.

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



Solid perimeter walls can enclose floodprone areas. A crawlspace is a good way to elevate just a couple of feet. In all cases the following are required: flood openings, utilities elevated to or 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.

## Crawspace Details



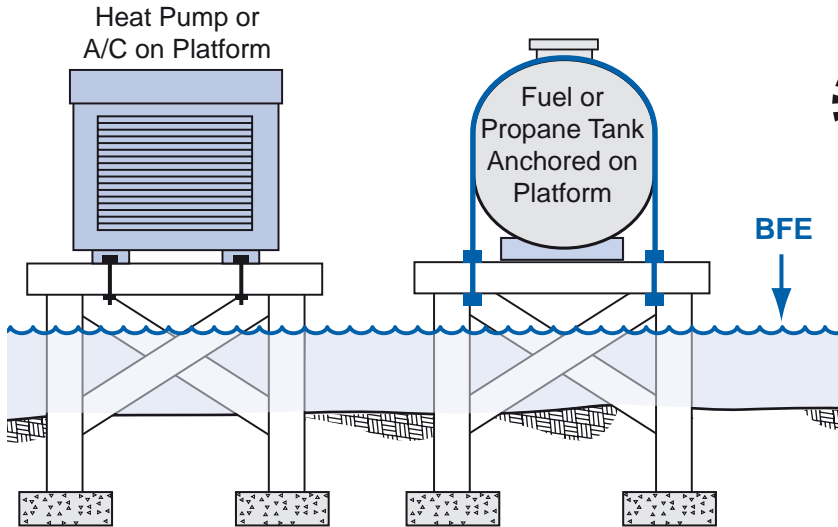
- The Lowest Floor Elevation must be at or above the BFE.
- The bottom of flood openings must be no more than 1 foot above the grade.
- Standard ventilation units must be permanently disabled in the “open” position to allow water to flow in and out.
- Interior and exterior grades should be equal on at least one side.

### Calculate Net Flood Opening:

A building that measures 25' x 45' has 1,125 square feet of enclosed crawspace. Flood vents must provide 1,125 sq. in. of net open area (or have certified engineered openings). If a standard air vent unit provides 60 sq. in. of net open area, then to satisfy the flood opening requirement 19 vent units are required (1,125 divided by 60).

## Utility Service / Fuel Tanks

All utilities, appliances, and equipment must be elevated to or above the BFE. Utilities include plumbing, electrical, gas lines, fuel tanks, and heating, ventilating and air conditioning equipment.



Important

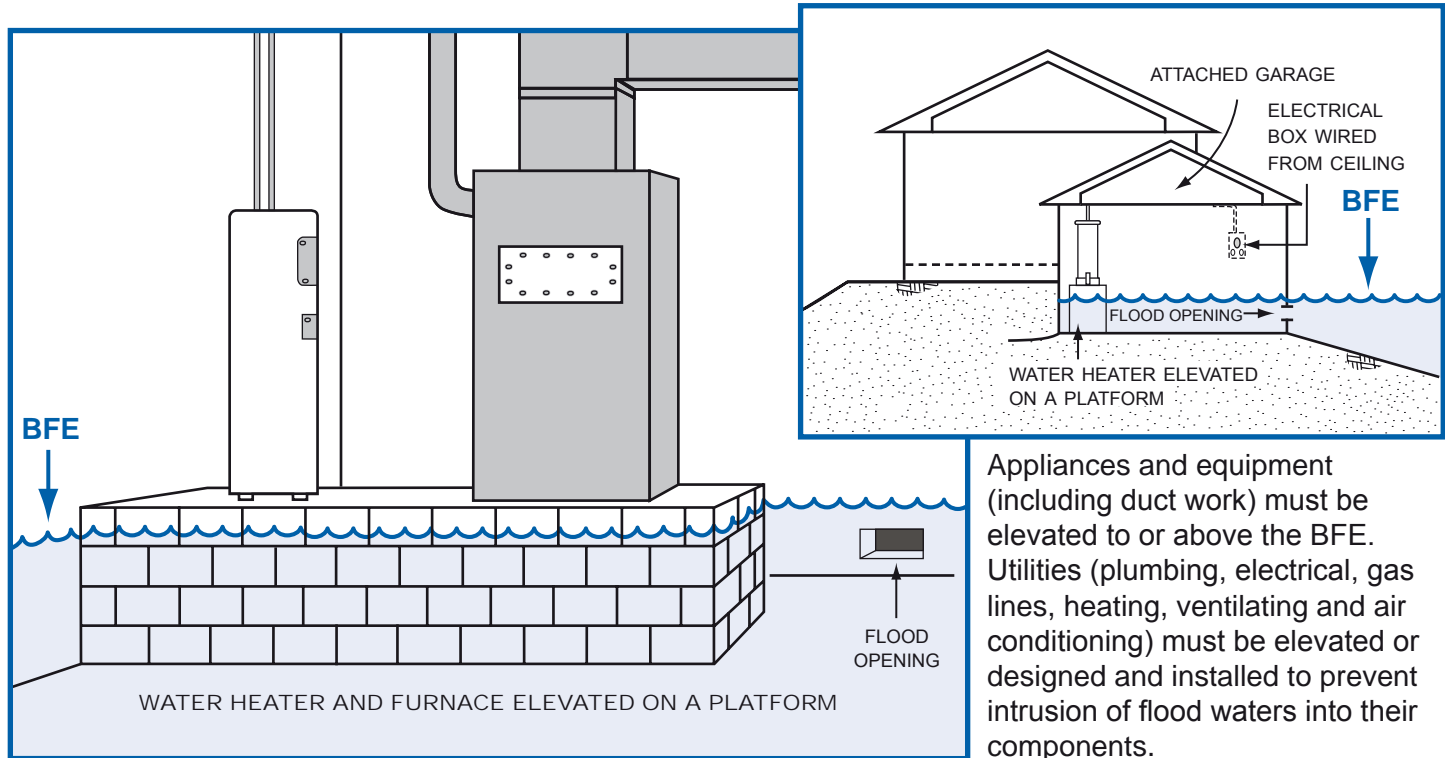
### Information

For floodplain management purposes, a gas or a liquid storage tank that is principally above ground is considered a structure and must be elevated to or above the BFE.

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

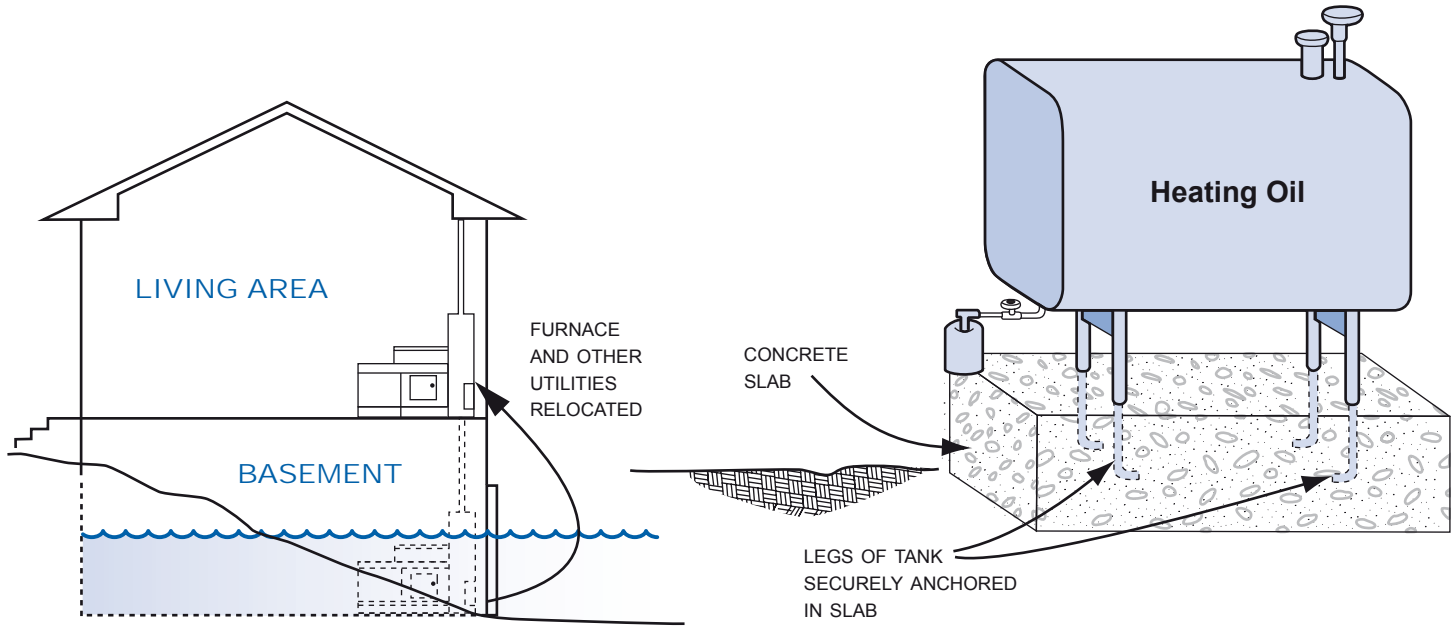
Fuel and propane tanks can pose serious threats to people, property, and the environment during flood conditions. Even shallow water can create a large buoyant force on tanks. Videos on “Fuel Tank Flood Hazards” and “How to Anchor Home Fuel Tanks” are available from FEMA Publications at 1-800-480-2520 and “How-To Guides” on anchoring fuel tanks and other flood damage reduction techniques are available at: <http://www.fema.gov/library/viewRecord.do?id=3262>.

## Utility Service Inside Enclosures



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

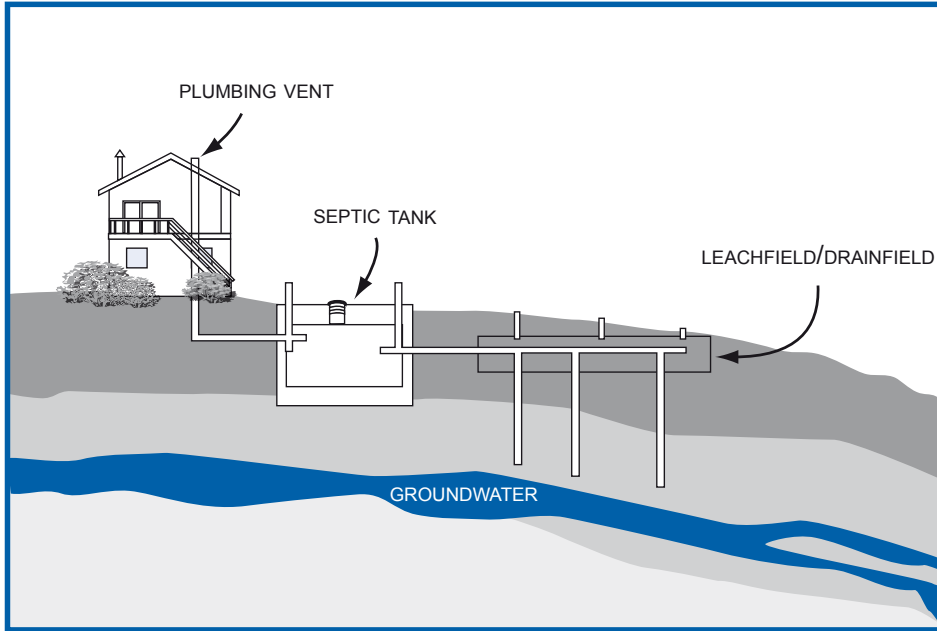
## Low Cost Flood Protection for Older Homes



Move your water heater and furnace out of the basement, or build small elevated platforms for them. If the flood depth is less than two feet, build flood walls or anchor the tanks. **Do not** store valuables in a floodprone basement. Use flood resistant materials when you repair.

## Septic Tanks

Post-disaster assessments show that buried septic systems and mounded septic systems in Special Flood Hazard Areas are frequently exposed and/or displaced. In addition to compromising their subsequent use, damage to these systems can release their contents. Consequently, they should be located either outside areas subject to erosion during a base flood, or below the depth of expected erosion.



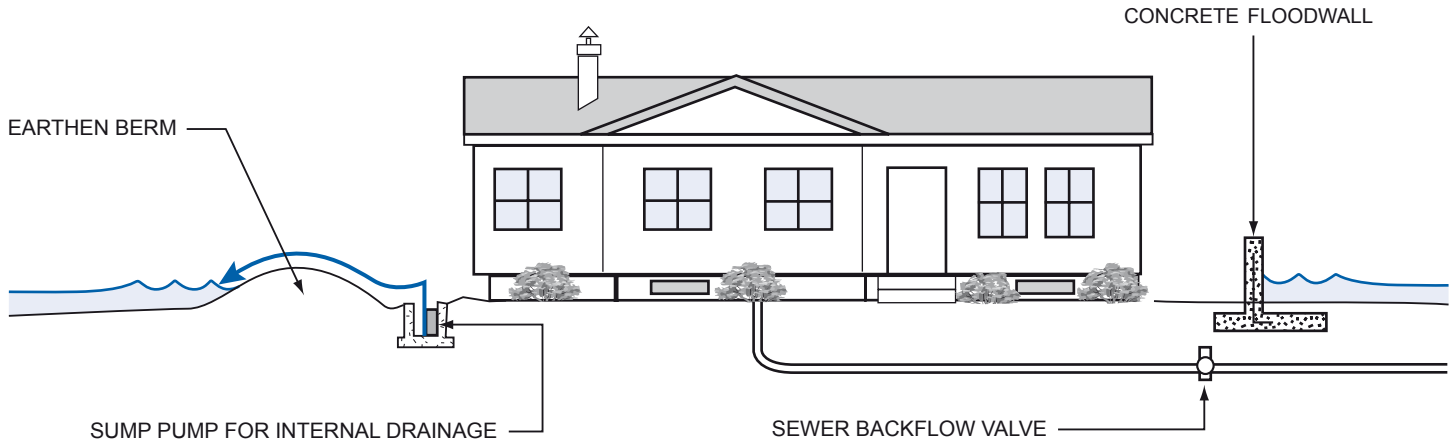
Elevated/mounded septic systems can require significant volumes of fill, which, if placed under or immediately adjacent to buildings, are likely to deflect velocity waters to nearby properties during a storm event.

Septic tanks are regulated by the Kentucky Health Department.



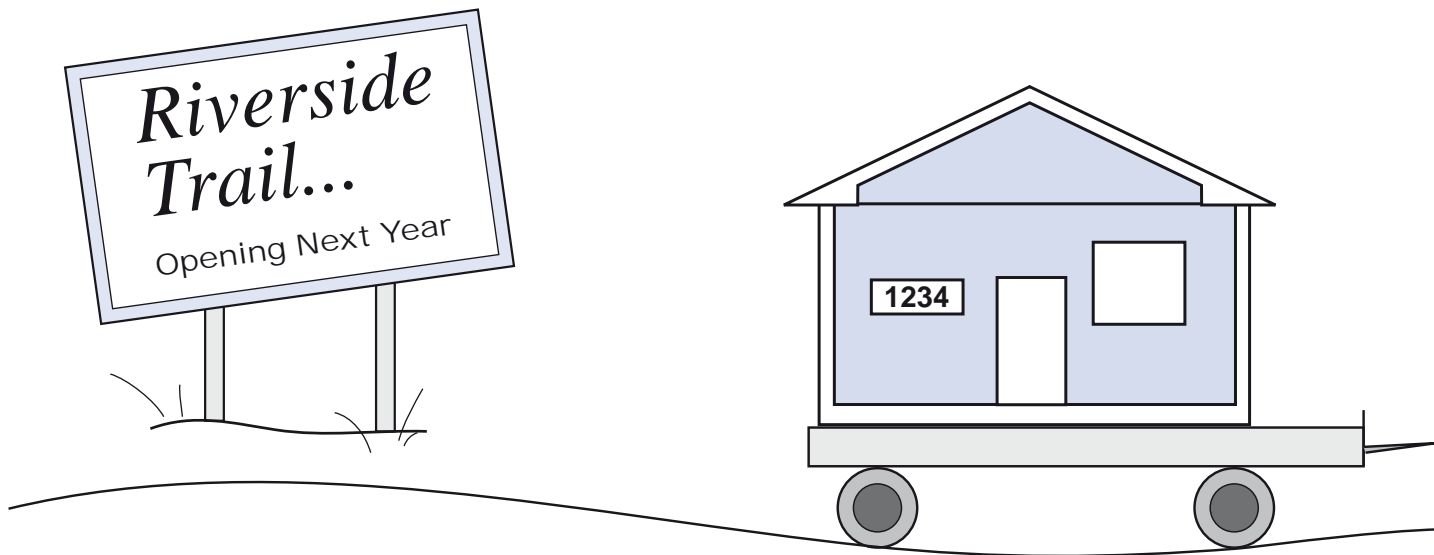
## Small Berms and Floodwalls Can Protect Pre-FIRM Structures

In areas where flood waters are not expected to be deep, sometimes individual buildings can be protected by earthen berms or concrete floodwalls. Permits are required for those protection measures, and extra care must be taken if the site is in a floodway (see pages 31 and 32). A berm or floodwall does not remove building elevation requirements and cannot be used to protect a new and substantially improved structure, or one that is repaired after substantial damage.



**IMPORTANT!** These protective measures **WILL NOT** reduce your flood insurance premiums!

## Acquisition/Demolition and Relocation



After floods, some communities acquire and demolish homes that were severely damaged. The acquired land is dedicated to open space and can be used for recreation, to help preserve wildlife habitat, wetlands or other approved open space uses. Homes may also be relocated to safer high ground.

## Floodprone Property Acquisition Projects

Authorized under Section 404 of the Stafford Act, the Hazard Mitigation Grant Program (HMGP), administered by the Federal Emergency Management Agency (FEMA), provides grants to states, and states provide subgrants to eligible applicants, to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.

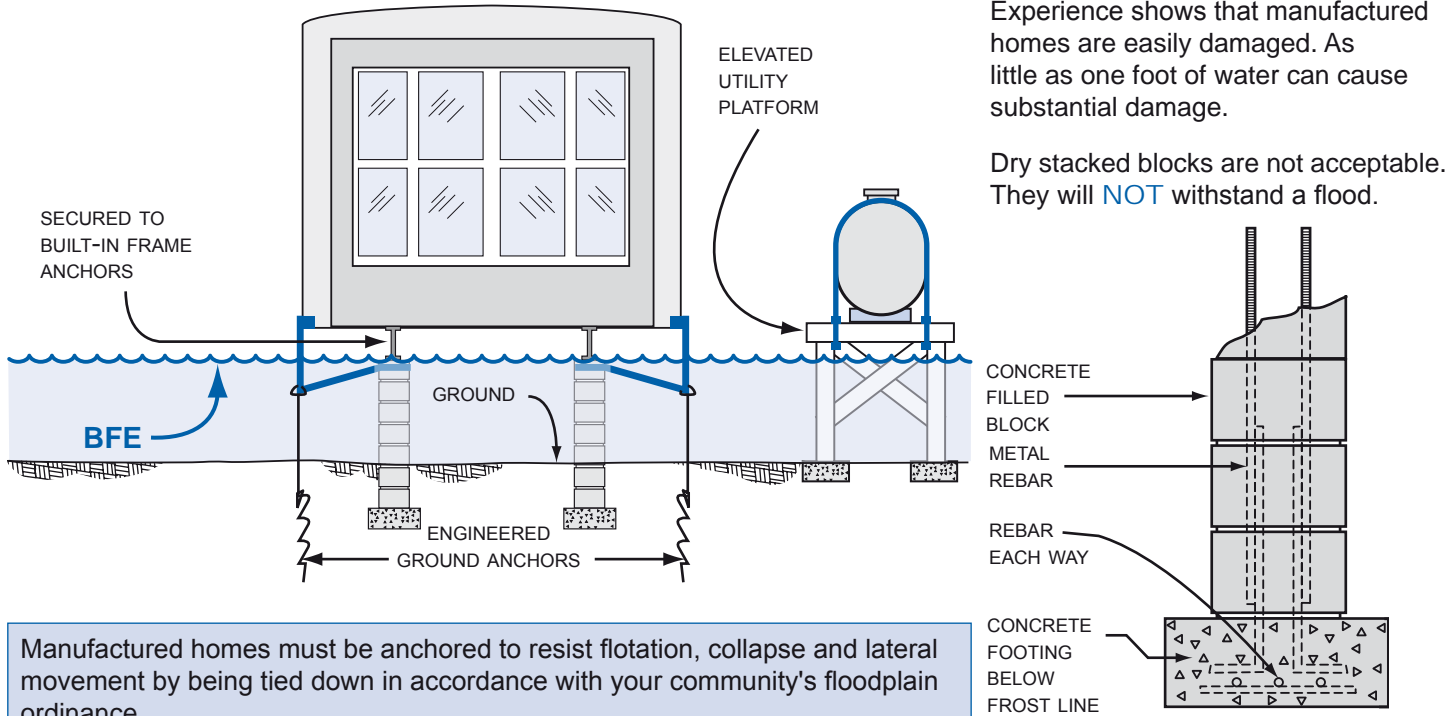
Participation in HMGP acquisition projects is totally voluntary: jurisdictions are not required to apply for funds and homeowners are not required to sell. Funding is 75% federal share, 25% non-federal share. The program is administered by the Kentucky Division of Emergency Management. Eligible HMGP project applicants include state agencies, county and city governments, certain private non-profit organizations and Indian tribes or authorized tribal organizations. Individuals must work through their local government.

Acquisition and demolition of substantially damaged buildings located in the Special Flood Hazard Area (SFHA) is the first priority for HMGP project funding in Kentucky because it is a permanent mitigation solution to the potential future risk of damage from the 1% or greater annual chance flood. HMGP is the primary funding source to purchase substantially damaged property in the SFHAs.

Communities offer to buy private property at pre-disaster fair market value and clear the land. Properties that have been damaged or even completely destroyed can still be purchased at pre-disaster fair market value. All structures purchased are demolished and the deed to HMGP acquired land must contain a restriction ensuring that the community owned land remains in perpetuity as open space.

Limited funding for acquisitions is also available in other FEMA Mitigation Grant programs. For more information go to: [http://www.fema.gov/government/grant/fs\\_mit\\_grant\\_prog.shtm](http://www.fema.gov/government/grant/fs_mit_grant_prog.shtm).

## Manufactured Homes Deserve Special Attention

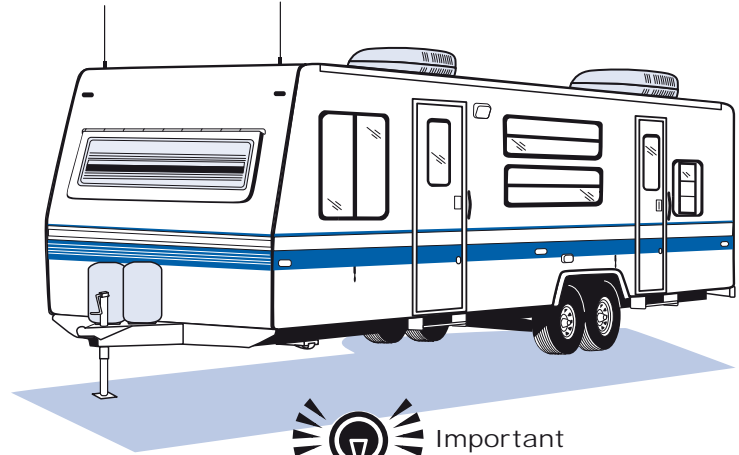


## Recreational Vehicles

### In a Special Flood Hazard Area, a Recreational Vehicle (RV) must:

- Remain on site for fewer than 180 consecutive days, **or**
- Be fully licensed and ready for highway use; **or**
- Meet the permitting, elevation, and anchoring requirements for manufactured homes of the community's Flood Damage Prevention Ordinance.

A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick-disconnect type utilities and security devices, and has no permanently attached additions.



Important

### Information

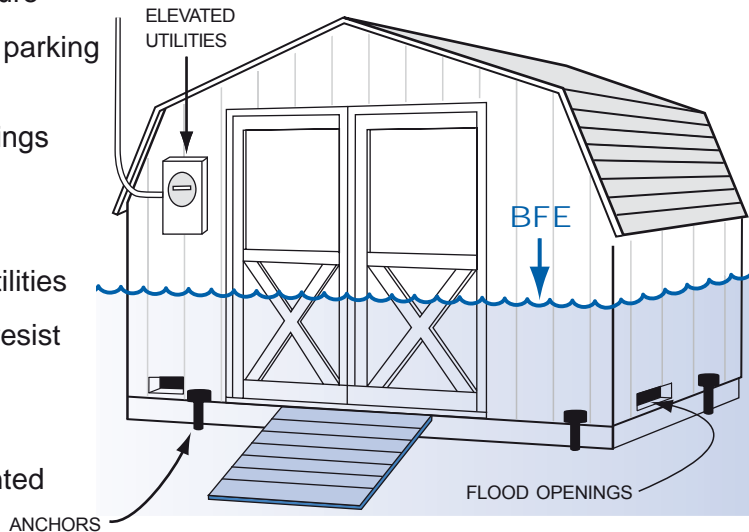
Camping near the water? Ask the campground or RV Park operator about flood warnings and plans for safe evacuations.

RVs that do not meet these conditions must be installed and elevated like a manufactured home, including a permanent foundation and tie-down (See page 49).

## Accessory Structures

### Accessory Structures in a Special Flood Hazard Area:

- Cannot be modified for a different use in the future
- Must be used only for parking or storage
- Must have flood openings
- Must be built of flood resistant materials
- Must have elevated utilities
- Must be anchored to resist floating
- Must not be inhabited
- Must have a documented floor elevation



## Terms and Definitions

**Accessory (Appurtenant) Structure** means a structure that is located on the same parcel of land as a principle structure and whose use is incidental to the use of the principal structure. Accessory structures should be no more than a minimal initial investment, may not be used for human habitation, and must be designed to minimize flood damage. Examples include: detached garages, carports, storage sheds, pole barns, and hay sheds.

Even small buildings are considered “development” and permits or variances with noted conditions are required. **CAUTION!** Remember...everything inside is likely to get wet when flooding occurs.

## Planning to Improve Your Floodplain Building?

To obtain a permit to improve an existing building:

- You must provide a copy of your construction contract or a cost estimate (including estimated market value of your own or donated labor and materials).
- Your community will compare the cost of the proposed work to the market value of your building and check the cumulative value of improvements in the previous year.
- You may submit an independent assessment of the market value of the building, if performed by a qualified professional.
- If the cost of the improvement (or if the proposed work plus improvements in the past year) equals or exceeds 50% of the market value of the building, you must comply with the Substantial Improvement requirements.
- If the costs do not trigger Substantial Improvement requirements, then you should still consider ways to reduce future damage (see page 56).



Terms and

### Definitions

Substantial improvement means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred substantial damage, regardless of the actual repair work performed (see page 57).



Important

### Information

Improvements include:

- Renovation/rehabilitation of the interior of the existing building (see page 53).
- Lateral addition, without renovation or structural alteration of the existing building (see page 54).
- Lateral addition, with renovation or structural alteration of the existing building (see page 55).
- Vertical addition (add new story).

## Substantial Improvement: Renovation Only



Important

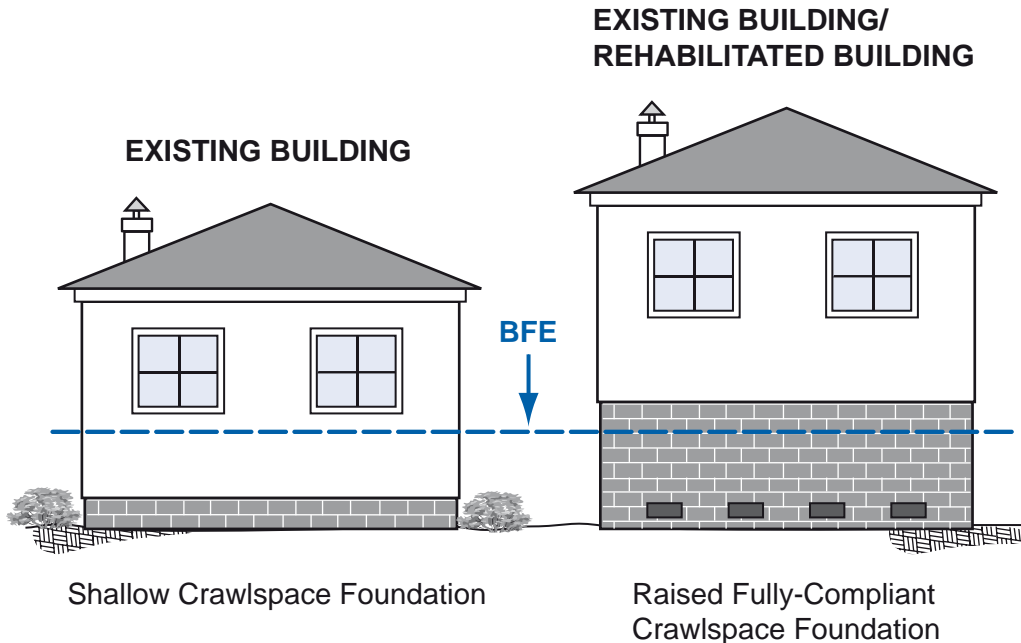
### Information

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

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

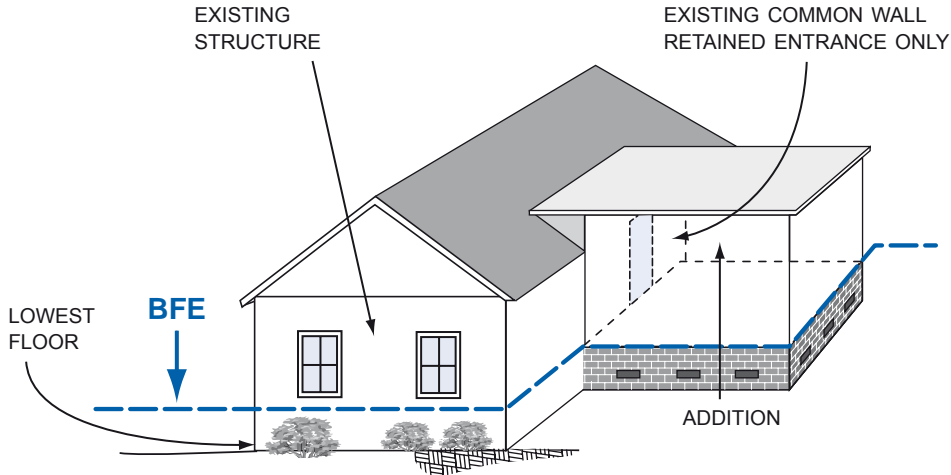
The cost to correct previously cited violations of state or local health, sanitary, or safety codes to provide safe living conditions can be excluded from the cost of renovations.

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





## Substantial Improvement: Lateral Addition Only



Important

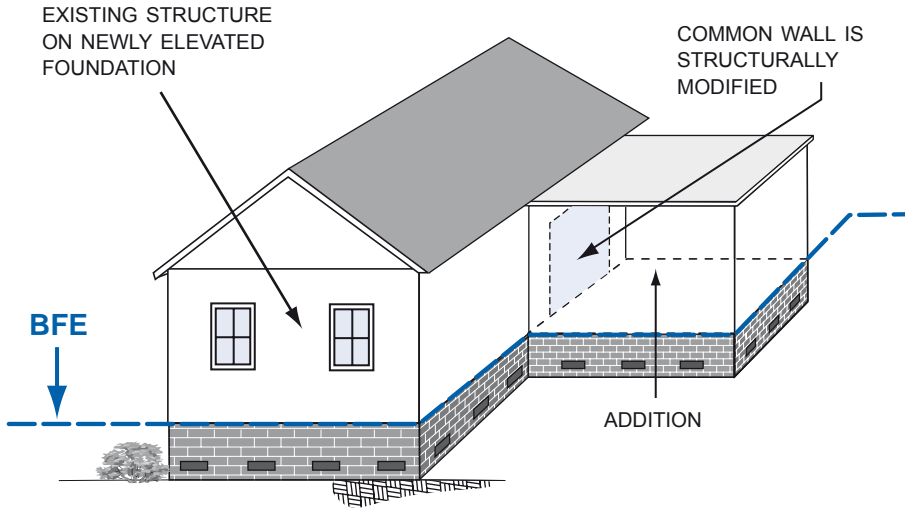
### Information

See page 55 if your project to add a lateral addition also includes modifying the interior of the existing building or making structural modifications to the existing common wall.

You must get a permit from the Kentucky Division of Water and your community to build an addition to your floodplain building. If the existing building is not already properly elevated, then only the addition must be built with the lowest floor at or above the Base Flood Elevation provided:

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

## Substantial Improvement: Addition Plus Other Work



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

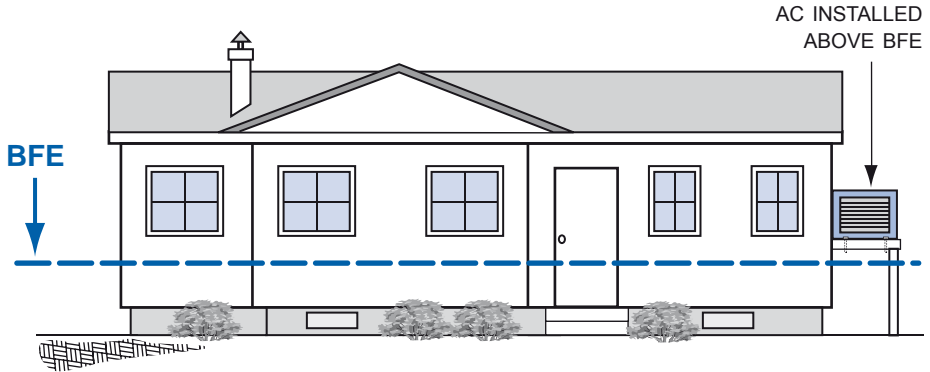
- The work involves adding a new top floor, modifying the interior of the existing building, or structural modifications to the existing common wall (for lateral addition); and
- The cost of all proposed work plus the cost of improvements in the past year equals or exceeds 50% of the market value of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

Your community's permit office and the Kentucky Division of Water 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.

## Non-Substantial Improvements

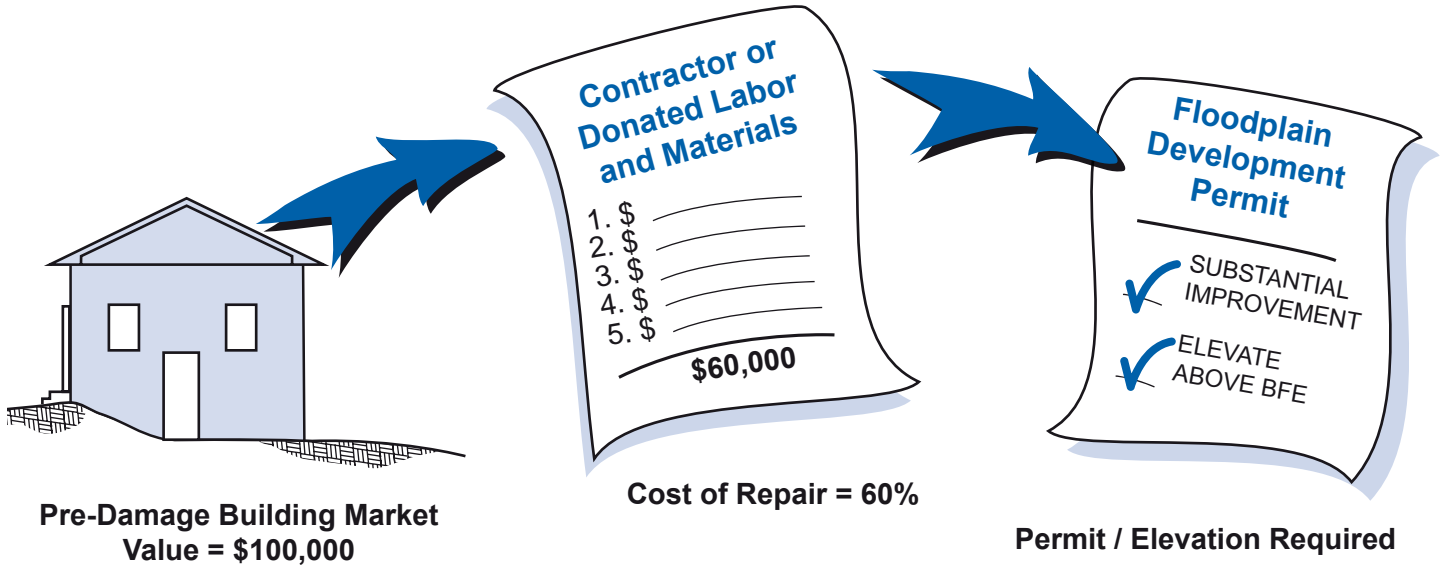
Your proposed improvements are "non-substantial" if the cumulative costs of all improvements in the past year are less than 50% of the market value of the building. Although you are not required to bring the existing building into compliance, there are many things you can do to reduce future flood damage.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

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



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

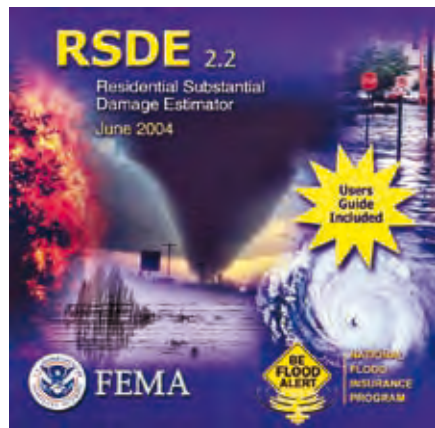
## What About After Damage?



A permit is required to repair substantial damage from any cause - fire, flood, wind, or even a truck running into a building. Check with your permit office to be sure. You will be asked to provide a detailed cost estimate for repairs. The value of donated labor and materials, estimated at current market value, is considered as a cost of the repair.

## Residential 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/improved, must be brought into compliance with the minimum requirements of the community's NFIP compliant floodplain management laws or ordinances. The regulations may require a residential building to be elevated, resulting in additional repair/reconstruction costs for the homeowner.



FEMA has developed a computer program, called the Residential Substantial Damage Estimator (RSDE), to assist state and local officials in estimating building value and damage costs for both single family and manufactured homes. This computer application is based on regulatory requirements of the NFIP and is intended to be used in conjunction with an industry accepted residential cost estimating guide.

The program consists of step-by-step directions, with accompanying illustrations showing where data regarding the pre-disaster fair market value of a structure, the cost of repair and percentage of damage to components of a structure can be entered. Based on the information entered, the program computes the overall damage percentage.

A new version of the software called the Substantial Damage Estimator, which includes estimating tools for non-residential and residential buildings is scheduled for release in June 2009.

Call FEMA Publications at 1-800-480-2520 to order your free copy of the RSDE software.

## Paying for Post Flood Compliance - ICC



Increased Cost of Compliance, or ICC, coverage is part of most Standard 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 current flood damage prevention ordinances.

You are eligible to file for ICC if your property is in a SFHA and if your community Floodplain Administrator determines one of the following:



Your property is “substantially damaged” by flooding. This means that your community says the cost to repair your flooded building is 50 percent or more of its pre-disaster market value.

Your property sustained “repetitive damage.” This term applies to homes or businesses that were damaged by flooding twice in the past 10 years, where the cost of repairing the flood damage, on average, equaled or exceeded 25 percent of the property market value at the time of each flood. Also, there must have been flood insurance claim payments for each of the two flood losses, and the community’s flood damage prevention ordinance must have a repetitive loss provision.

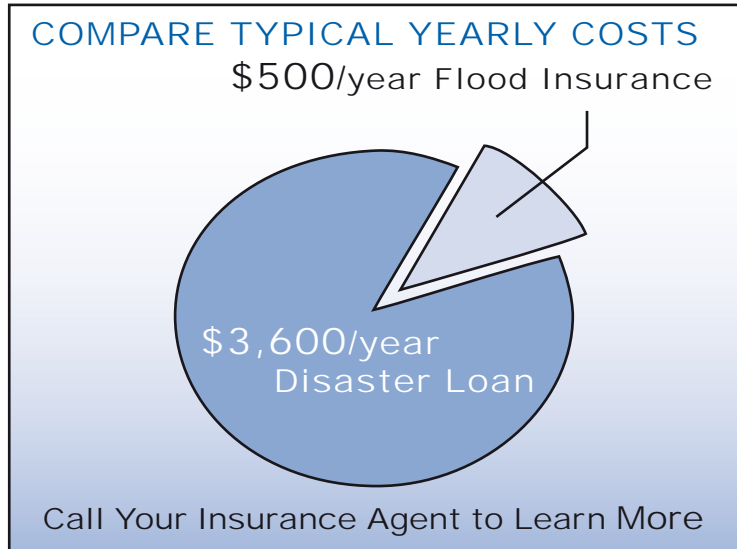


ICC funding can be used to elevate or demolish homes, relocate them to higher ground, or floodproofing of non-residential structures. Also, when participating in a community sponsored, FEMA funded mitigation project, the policyholder may assign ICC benefits to the community to integrate into the project. The community then becomes responsible for submitting all of the appropriate paperwork.

Detailed information on ICC is available at <http://www.fema.gov/plan/prevent/floodplain/ICC.shtm> and in the FEMA publication *Interim Guidance for State and Local Officials - Increased Cost of Compliance Coverage* (FEMA 301).

## Flood Insurance: Property Owner's Best Protection

Who needs flood insurance? Every homeowner, business owner, and renter in Kentucky communities that participate in the National Flood Insurance Program (NFIP) may purchase a flood insurance policy — regardless of the location of the building. Federal disaster grants may not cover all losses and repayment of a disaster loan can cost many times more than what you'll pay for a flood insurance policy.



Unfortunately, it's often after a flood that many people discover that their homeowner or business property insurance policies do not cover flood damages. Approximately 25% of all flood damages occur in low risk zones, commonly described as being "outside the mapped flood zone."

The Kentucky Division of Water and Kentucky Division of Emergency Management Agency urge **YOU** to protect your financial future by getting a flood insurance policy. Learn more at <http://www.floodsmart.gov>. To purchase a policy, call your insurance agent. To get the name of an agent in your community, call the NFIP's toll free number **1-888-356-6329**.

## 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 Kentucky new construction and substantially improved structures must be built to or above the BFE (1' above BFE recommended). Additional Freeboard will add safety and reduce flood insurance costs.

Annual Flood Insurance Premium\* Example  
 Flood Zone A-AE, Post-FIRM, One-Story Single-Family Residence, No Basement  
 Lowest floor elevation compared to the Base Flood Elevation (BFE)

| Lowest Floor Elevation | Structure \$150,000 | Contents \$50,000 | Federal Policy Fee | ICC Fee | Total Annual Premium | 30-Yr. Mortgage Total Flood Insurance Cost |
|------------------------|---------------------|-------------------|--------------------|---------|----------------------|--|
| 3' above               | \$200               | \$112             | \$35               | \$6     | \$353                | \$10,590                                   |
| 2' above               | \$275               | \$112             | \$35               | \$6     | \$428                | \$12,840                                   |
| 1' above               | \$450               | \$140             | \$35               | \$6     | \$631                | \$18,930                                   |
| At BFE                 | \$830               | \$284             | \$35               | \$6     | \$1155               | \$34,650                                   |
| 1' below               | \$3280              | \$973             | \$35               | \$6     | \$4304               | \$129,120                                  |

\*October 1, 2008 Rate Tables

Though other factors affect flood insurance rates, the most significant is the relationship of the lowest floor elevation to the BFE. The lower the structure relative to BFE the higher the cost of insurance. This is true in all types of A Zones and for all insurable structures.



### Important Information

**NOTE:** Building owners will save insurance money if they elevate above BFE. But more impressive is how the cost of insurance can more than triple if the building is even only one foot below BFE.

### REMEMBER!

A community may be able to grant a variance, but the owner will probably still be required to buy flood insurance. Imagine trying to sell a house if the bank requires insurance that costs over \$4,300 a year!



## Flood Zones

Flood zones are geographic areas that the Federal Emergency Management Agency (FEMA) has defined according to varying levels of flood risk. These zones are depicted on a community's Flood Hazard Boundary Map (FHBM) or FIRM and Digital FIRMs (DFIRMs) if the DFIRM is available. Each zone reflects the severity or type of flooding in the area.

**High Risk Areas:** All A Zones – The area that located within the one-percent annual chance floodplain (100-year floodplain) identified as a Special Flood Hazard Areas on Flood Insurance Rate Maps. Flood insurance is available to all property owners and renters. Lenders require mandatory purchase of flood insurance.

**Moderate to Low Risk Areas:** Zones B (moderate), C and X (low) – Areas located outside the one-percent annual chance floodplain (100-year floodplain). Includes areas protected from flood by certified levees. Area is higher than base flood elevation. Lower-cost flood insurance is available to all property owners and renters. Mandatory flood insurance purchase requirements do not apply.

**Undetermined Risk Areas:** Zone D – Unstudied areas of undetermined but possible flood hazards. Base flood elevations not available. Flood insurance is available to all property owners and renters. Mandatory flood insurance purchase requirements do not apply.

NFIP Flood Insurance is not available to residents of communities that do not participate in the NFIP.

## 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  
KDEM – Kentucky Division of Emergency Management  
FEMA – Federal Emergency Management Agency  
KAMM – Kentucky Association of Mitigation Managers  
FHBM – Flood Hazard Boundary Map  
FIRM – Flood Insurance Rate 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  
RSDE – Residential Substantial Damage Estimator  
SFHA – Special Flood Hazard Area

### Internet Links

Kentucky Division of Water  
<http://www.water.ky.gov>

Kentucky Division of Emergency Management  
<http://kyem.ky.gov/>

Kentucky Association of Mitigation Managers  
<http://www.kymitigation.org>

Family Disaster Planning  
<http://www.redcross.org/>  
<http://www.fema.gov/areyouready/>

Repairing Your Flooded Home, ARC and FEMA  
<http://www.fema.gov/library/viewRecord.do?id=1418>

NFIP Floodplain Management Requirements  
A Study Guide and Desk Reference for Local Officials  
[http://www.floods.org/Certification/FEMA\\_480.asp](http://www.floods.org/Certification/FEMA_480.asp)

NFIP Publications  
<http://www.fema.gov/business/nfip/libfacts.shtml>

FEMA Elevation Certificate  
<http://www.fema.gov/business/nfip/forms.shtml>

NFIP Technical Bulletins  
<http://www.fema.gov/plan/prevent/floodplain/techbul.shtml>

## Want to Learn More?

- For information and advice on permits, call your community's building permit office or planning department.
- For advice on permitting and managing floodplains, contact the State NFIP Coordinator at 1-502-564-3410.
- For information about workshops, training and conferences, contact the State NFIP Coordinator at 1-502-564-3410.
- To order FEMA flood maps, call FEMA's Map Service Center at 1-800-358-9616 or order online at <http://www.msc.fema.gov/>.
- To check the status of map change requests, learn more about flood maps, map modernization, and other aspects of flood hazard mapping go to <http://www.fema.gov/plan/prevent/fhm/index.shtm>.
- FEMA's on-line publications can be found in the FEMA Virtual Library. Many are posted in the Portable Document Format (PDF). Go to <http://www.fema.gov/library/> for more information. You can order printed copies of FEMA publications from FEMA Publications at 1-800-480-2520.
- To learn about flood risk and the importance of taking steps to financially protect homes and businesses from flood damage go to <http://www.floodsmart.gov>.
- To learn about flood insurance, call your insurance agent. Most insurance companies can write an NFIP policy for you. Call the National Flood Insurance Program's toll free number, 1-888-356-6329, to get the name of an agent in your area who writes flood insurance.
- Online training in completing the Elevation Certificate is available at: <http://training.nfipstat.com/ecsurveyor/>.

This *Quick Guide* may be downloaded from the  
Kentucky Division of Water website at:  
<http://www.water.ky.gov>

or

the Kentucky Association of Mitigation Managers at website at:  
<http://www.kymitigation.org>