FLOODPLAIN MANAGEMENT IN ILLINOIS





Illinois Department of Natural Resources

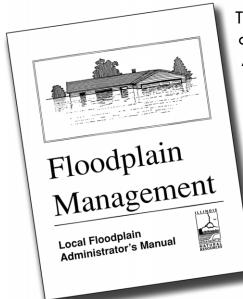
Office of Water Resources

524 South Second Street • Springfield, IL 62702 • (217) 782-3863 http://dnr.state.il.us/waterresources

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About This Guide



The Floodplain Management **Quick Guide** was originally prepared by our friends and neighbors at the Missouri State Emergency Management Agency. The State of Missouri has graciously allowed it to be edited and modified for use in Illinois. Copyright laws do not apply.

The development of this **Quick Guide** was supported by funding from our partners at the Federal Emergency Management Agency (FEMA). The contents may not necessarily reflect the views and policies of the Federal government.

Questions and comments can be directed to the Illinois Department of Natural Resources/Office of Water Resources (IDNR/OWR) at (217) 782-3862. We encourage any comments and suggestions for improvements to this Guide. For additional copies, please call IDNR/OWR.

The Illinois Floodplain Management: Local Floodplain Administrator's Manual and other publications on floodplain management are available from IDNR, and other documents are available from FEMA. Please contact us if you have questions or need further assistance.

1

Why Do We Regulate the Floodplain?

- To protect people and property. Floodplain management is about building smart. It makes good sense. If we know part of our land will flood from time to time, shouldn't we make reasonable decisions to help protect our families, homes, and businesses?
- To make sure that federal flood insurance and disaster assistance are available. If your home or business is in the floodplain, and federal flood insurance isn't available, then you can't get some types of federal financial assistance. Mortgages will be hard to find, and you won't be able to get some types of state and federal loans and grants.
- To save tax dollars. Every flood disaster affects the town's budget. If we build smarter, we'll have fewer problems the next time the river rises. Remember, federal disaster assistance doesn't kick in for all floods. And even when the President declares a disaster, your community still has to pay a lot to cover the costs of evacuation, temporary housing, repair, and clean-up.
- To avoid liability and law suits. If we know an area is mapped as floodplain and likely to flood if we know people could be in danger if we know that buildings could be damaged, doesn't it make sense to take reasonable protective steps when we develop and build?
- To reduce future flood losses in Illinois. The laws in Illinois are simply a "good neighbor" policy designed to protect our citizens from future flood losses. It is illegal to do any floodway activity that may increase or divert flood waters onto neighboring properties. These laws help keep flooding conditions from getting worse as more and more development takes place.

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Community Responsibilities

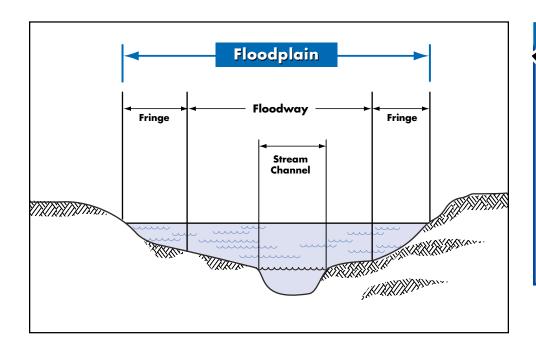
To participate in the National Flood Insurance Program, your community agrees to:

- Adopt and enforce a Floodplain management ordinance
- Require permits for all types of development in the Floodplain (see page 11)
- Assure that building sites are reasonably safe from flooding
- Require new or improved homes and manufactured homes to be elevated above the Base Flood Elevation (BFE)
- Require other buildings to be elevated or floodproofed
- Conduct field inspections and cite violations
- Require Elevation Certificates to document compliance (see pages 13 and 14)
- Carefully consider requests for variances
- Advise FEMA when updates to Flood maps are needed



NATIONAL FLOOD INSURANCE PROGRAM

Understanding the Riverine Floodplain



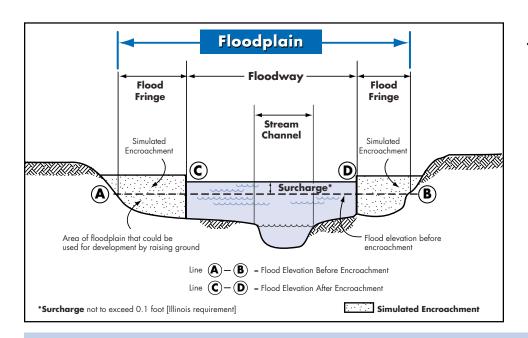


The Floodplain is the land that is subject to a 1%-annual-chance or greater chance of flooding in any given year. On FIRMs and Floodway maps, the Floodplain may be designated as Zones A, AO, AH, A1-30, AE, or A99.

See page 5, Understanding the Floodway, to learn about the area of the floodplain where floodwaters usually flow faster and deeper.

For Floodplains with Base Flood Elevations, check the Flood Insurance Study to find the Flood Profile which shows water surface elevations for different frequency floods (see page 8).

Understanding the Floodway





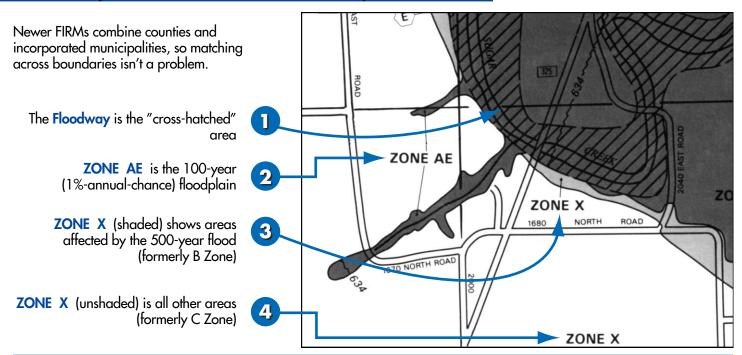
The Floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to pass the base flood without increasing the water surface elevation more than a designated height.

Computer models of the floodplain are used to simulate "encroachment" or fill in the flood fringe in order to predict where and how much the base flood elevation would increase if the floodplain is allowed to be filled.

In Illinois, the Floodway boundary is drawn where the computer model indicates that the water surface will increase 0.1' due to the simulated encroachment.

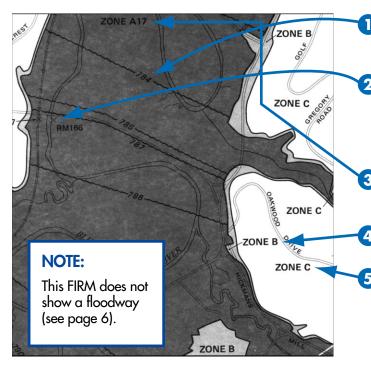
For Floodway proposals, before a local floodplain permit can be issued a State of Illinois Permit must be obtained. You may need a qualified engineer to make sure your proposed project won't increase flooding on others.

The Countywide Flood Insurance Rate Map



The Floodway is the area where most conveyance and velocity flows occur. In Illinois, very specific laws govern the use of Floodways (see page 5).

The Flood Insurance Rate Map



BASE FLOOD ELEVATION (BFE).

Water surface elevation (in feet above datum) of the base flood at specific locations (cross-sections).

ELEVATION REFERENCE MARKS (RM).

Points for which ground elevation data have been established and recorded on the FIRM or in the Flood Insurance Study.

FLOOD HAZARD ZONES.

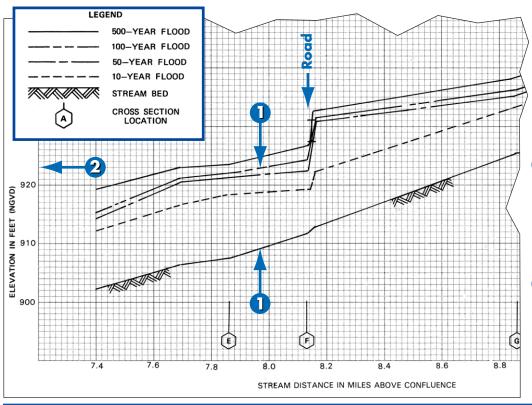
Zone A, Zones A1-A30, and **Zone AE** are subject to flooding by the base or 100-year flood (1% annual chance).

Zone B is subject to flooding by the 500-year flood (0.2% annual chance).

Zone C is all other areas.

FEMA prepares Flood Insurance Rate Maps to show areas that are predicted to flood after intense or major storms. The FIRMs estimate how high the water may rise, called the Base Flood Elevation.

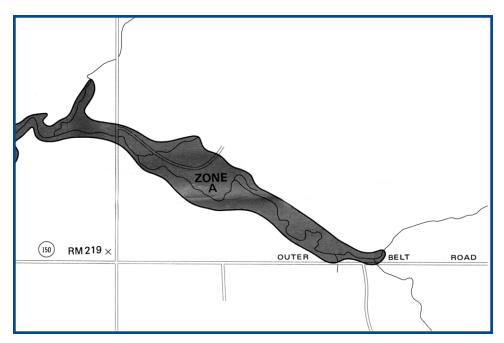
Use the Flood Profile to Determine BFEs



Flood profiles can be used to determine the BFE at a specific site. Profiles also show predicted water surface elevations for floods other than the 100-year flood.

- On the Flood Insurance
 Rate Map, locate your site
 by measuring the distance,
 along the stream channel,
 from a cross section,
 for example, (E) or (F).
- Scale that distance on the Flood Profile and read up to the profile of interest, then across to determine the elevation.

Approximate Flood Zones



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

Approximate flood 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 officials, and sources of historic records. When existing information was lacking, an approximation analysis was performed.

If you need help determining the BFE, check with your community permit office, FEMA or IDNR/OWR. FEMA publication Managing Floodplain Development in Approximate Zone A Areas (FEMA 265) is useful for engineers. The Illinois State Water Survey may be able to determine a BFE for a minimal fee, (217) 333-0447.

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Flood Map Revisions

There Are Three Primary Types of Flood Map Revisions

- Letter of Map Amendment (LOMA) issued when a property owner demonstrates that the natural ground is higher than the BFE (see page 15). Lenders may waive the flood insurance requirement if the LOMA documents that a home is not in the mapped floodplain.
- **Letter of Map Revision Based on Fill (LOMR-F)** issued when fill has been placed to raise the land above the BFE. For multiple lots, the applicant must certify compaction of the fill. Lenders can waive the insurance requirement if the LOMR-F demonstrates that homes on fill are above the BFE.
- Physical Map Revision (LOMR PMR) issued for floodplain changes that require engineering analyses, such as bridges, culverts, channel changes, flood control measures, and large fills that change the BFE or Floodway. Physical map revisions are also issued when a new study updates or improves the FIRM.



Check FEMA's Flood Hazard Mapping Web Site for more information about map revisions concerning Homeowners



and Engineers/Surveyors.



www.fema.gov/mit/tsd

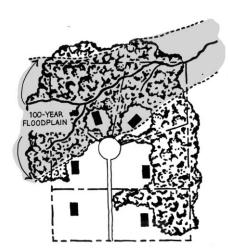
Floodplain Development Includes:

- Construction of new buildings
- Additions to existing buildings
- Substantial improvement of existing buildings
- Placement of manufactured (mobile) homes
- Subdivision of land
- Temporary buildings and accessory structures.
- Agricultural buildings
- Recreational vehicles
- Storage of materials, including gas/liquid tanks
- Roads, bridges, and culverts
- Fill, grading, excavation, mining, and dredging
- Altering stream channels



YOU NEED PERMITS FOR ALL OF THESE ACTIVITIES.

Safe Uses of the Floodplain

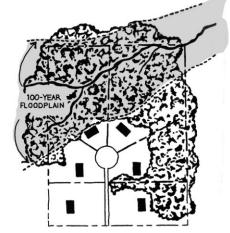


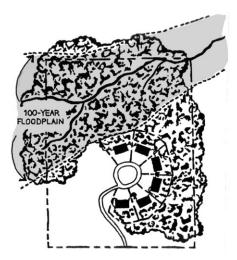
All land subdivided into lots, some homesites and lots partially or entirely in the Floodplain.

NOT RECOMMENDED

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

RECOMMENDED





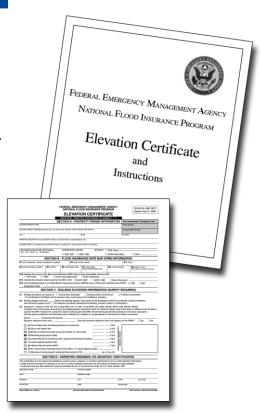
Floodplain land put into public/ common open space, net density remains, lot sizes reduced and setbacks modified to keep homesites on high ground.

RECOMMENDED

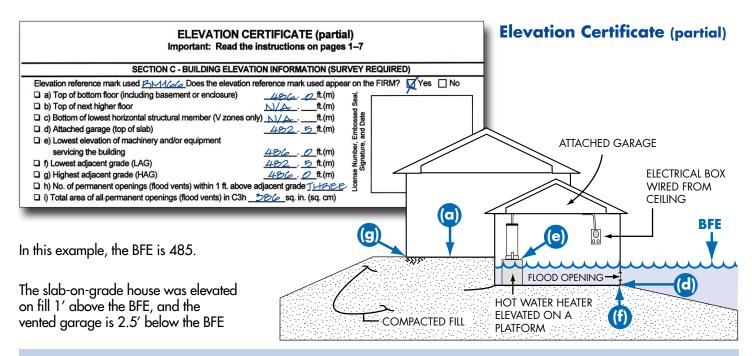
If possible, keep it natural open space – let the floodplain do its job. Other low damage uses: recreational areas, playgrounds, reforestation, parking, gardens, pasture, accessory structures, created wetlands.

What is the Elevation Certificate and How is it Used?

- The Elevation Certificate (EC) is a FEMA form.
- The EC must be completed by a registered surveyor or engineer when the floodplain has BFEs.
- A community official may complete the EC for sites in approximate flood zones.
- It can be used to show that sites are natural ground above the base flood elevation (see page 15).
- It is used to verify that buildings are elevated properly (see page 20).
- Insurance agents use the EC to write flood insurance policies (see page 35).
- By itself, the EC <u>cannot</u> be used to waive the requirement to get flood insurance. See page 10 to learn about Letters of Map Amendment.

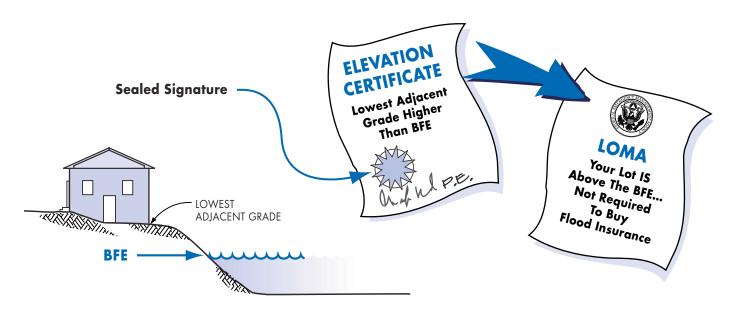


Completing the Elevation Certificate



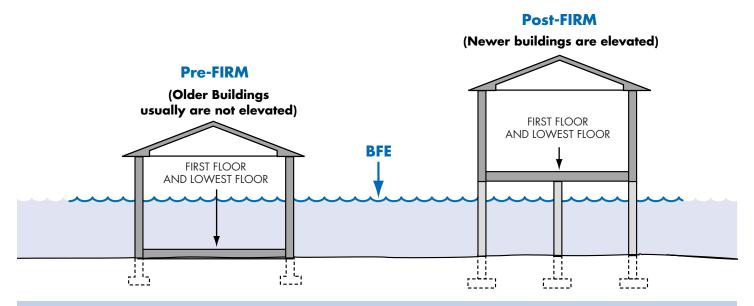
You will get a blank Elevation Certificate form when you get your permit. You **must** have a surveyor or engineer fill it out and seal it. The Elevation Certificate includes diagrams for eight buildings types. Several points must be surveyed.

Is Your Land Higher than the BFE?



If your land is shown on the map as "in" the Floodplain, but your building site is higher than the BFE... get a surveyor to fill in the FEMA Elevation Certificate. FEMA may issue a Letter of Map Amendment. This is the **ONLY** way to remove the requirement to buy flood insurance. Keep the EC with your deed, it will help future buyers.

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

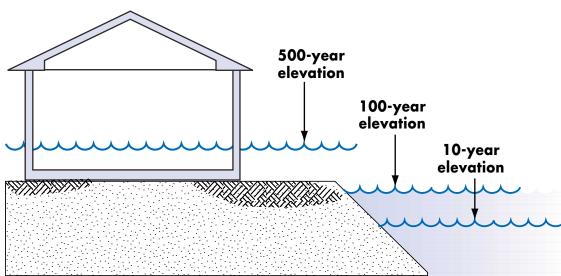


A building is **Pre-FIRM** if it was built <u>before</u> your community adopted the flood ordinance and Flood Insurance Rate Map.

If is was built <u>after</u> adoption, it is **Post-FIRM**.

Improvements or repairs to Pre-FIRM buildings may require permits (see pages 31 and 32).

Nature Doesn't Read Maps





Many people don't understand just how risky the floodplain can be. There is a 26% chance that a home in the Floodplain will flood during a 30-year mortgage period. The chance that a major fire will occur during the same period is only 1%!

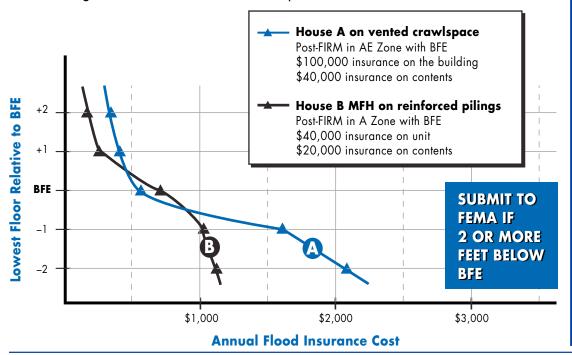
CAUTION! Nature doesn't read the flood map! Rare major storms cause flooding that rises higher than the BFE.

Consider safety – protect your home or business by building higher.

See page 18 to see how this will save you money on insurance.

Go the Extra Foot!

Want to save some money and have peace of mind at the same time? Then build higher than the minimum elevation requirement!





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. But more impressive is how the cost of insurance nearly doubles if the building is only one foot below the BFE.

Remember! The community may be able to grant a variance, but the owner may still have to buy insurance. Imagine trying to sell a house if the bank requires insurance that costs over \$2,000 a year!

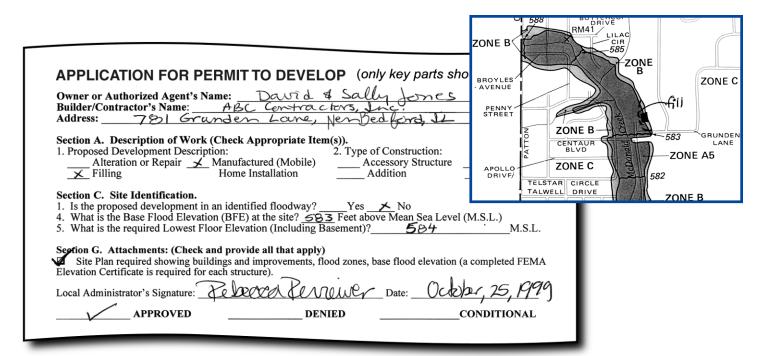
Some Key Permit Review Steps

The Permit Reviewer has to Check Many Things. Some of the Key Questions are:

- Is the site in the mapped Floodplain?
- Is the site in the mapped Floodway?
- Has an IDNR/OWR permit been obtained?
- Have other State and Federal permits been obtained?
- Does the site plan show the Base Flood Elevation?
- Is improvement of an older building proposed?
- Will new buildings and utilities be elevated properly?
- Will manufactured homes be properly elevated and anchored?
- Has the owner submitted an Elevation Certificate?

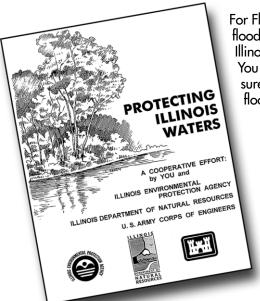


Carefully Complete the Permit Application

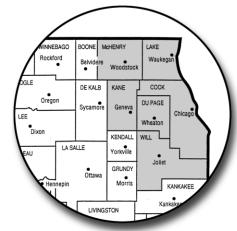


Good information will lead to better construction and less exposure to future flood damage.

Floodway Development Proposals



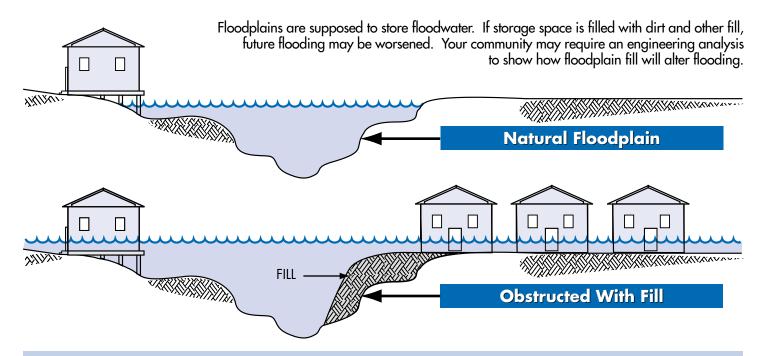
For Floodway proposals, before a local floodplain permit can be issued a State of Illinois Joint Permit must be obtained.
You may need a qualified engineer to make sure your proposed project won't increase flooding on others.





In the six-county area around Chicago, only specific open-space or water dependent appropriate uses are allowed in the Floodway. Be sure to contact IDNR/OWR before ANY Floodway development.

Floodplain Fill Can Make Things Worse

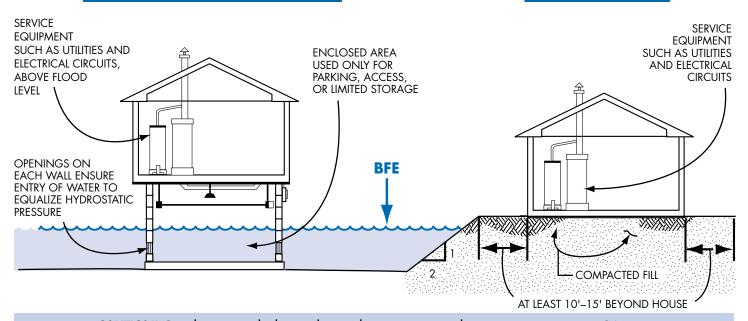


Make sure your floodplain fill project won't harm your neighbors. In Illinois, very specific laws govern the use of Floodways (see page 5 and 21).

How to Elevate Your Floodplain Building

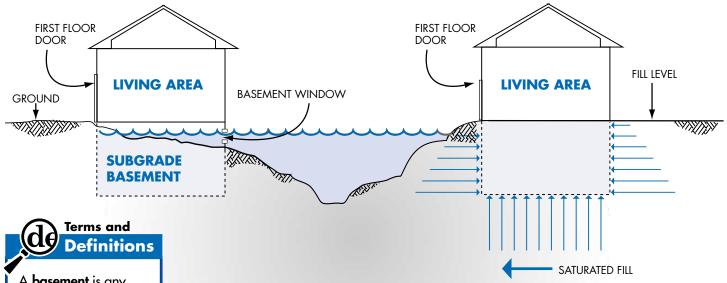
Elevate on Foundation Walls

Elevate on Fill



CAUTION! Crawlspaces and other enclosures have some special requirements, see page 26. Note: When a building is at the minimum elevation, under-floor utilities are not allowed.

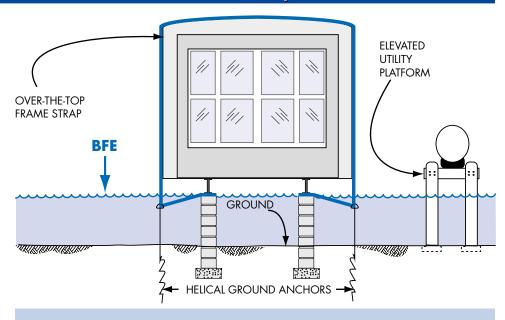
A Basement is NOT a Good Idea



A basement is any area that is below grade on all sides. A crawl space is a basement if the interior grade is lower than the exterior grade.

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

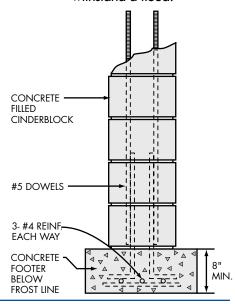
Manufactured Homes Deserve Special Attention



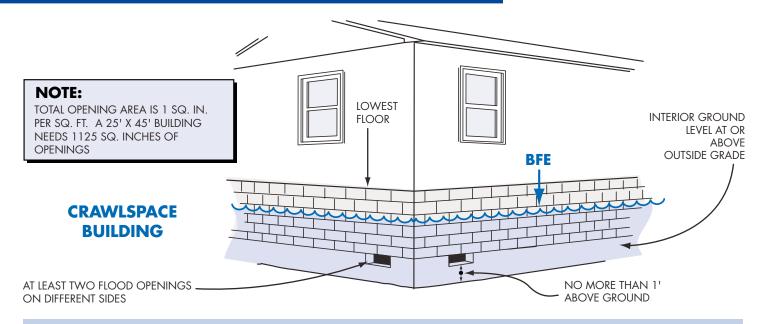
Manufactured homes must be anchored to resist flotation, collapse, or lateral movement by being tied down in accordance with the Rules and Regulations for the Illinois Mobile Home Tie-Down Act (77 IL Administrative Code 870, IL Dept. of Public Health).

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

Dry stacked blocks are not acceptable — they will NOT withstand a flood.

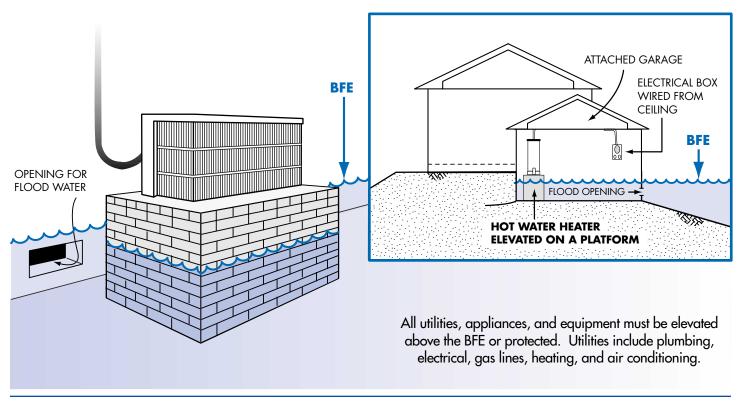


Enclosures Below the BFE



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

Utility Service for Buildings



Accessory Structures

Not habitable

Anchored

Flood openings/vents

Limited investment value (less than \$5,000)

Less than 500 square feet

Built of flood resistant materials

Elevated utilities

Used only for storage or parking

Cannot be modified for different use in the future

Document floor elevation



Even small buildings are "development" and permits or variances with noted conditions are required.

They must be elevated or anchored and built to withstand flood damage.

Caution! Remember, everything inside is likely to get wet when flooding occurs.

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Recreational Vehicles

In a flood hazard area, an RV must:

- Be licensed and titled as an RV or park model (not as a permanent residence)
- Have inflated wheels and be self-propelled or towable by light truck
- Have no attached deck, porch, shed
- Not be used as a permanent dwelling
- Be less than 400 sq ft in area
- Have quick-disconnect propane tank
- Have elevated, quick-disconnect sewer service
- Have elevated electrical service and air conditioning unit





Camping near the water?
Ask the campground or RV park operator

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

RVs that do not meet these conditions must be installed and elevated like Manufactured Homes, including permanent foundations and tie-downs (see page 25)

Agricultural Structures

Variances are allowed for:

Pole frame buildings

Steel grain bins

Steel frame corn cribs

General purpose feeding barns open on one side



Farm houses are not agricultural structures.

Contact IDNR/OWR for additional guidance on variances for agricultural structures.

Variances are not allowed for:

Livestock confinement buildings

Poultry houses

Dairy operations

Similar livestock operations

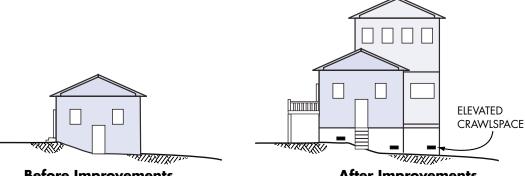


Non-elevated agricultural structures must be considered on a site-specific basis and may be permitted only by a variance. Applicants must show that sites are in "wide, expansive floodplain areas" and no other alternative location outside of the Floodplain exists.

The best flood protection is to elevate agricultural buildings, but certain types can be approved by variance if they are "wet floodproofed."

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Planning to Improve Your Floodplain Building?



Before Improvements
Building Market Value = \$40,500

After Improvements

Cost of Improvements = \$38,000



Substantial improvement means 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 (see page 32).



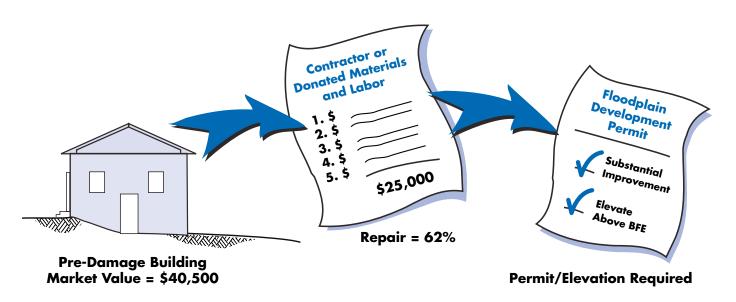
Floodplain buildings can be improved or altered, but special rules may apply!

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.

Check your community's floodplain ordinance – an increase in square footage or a lower percent of market value to trigger substantial improvement and substantial damage may apply.

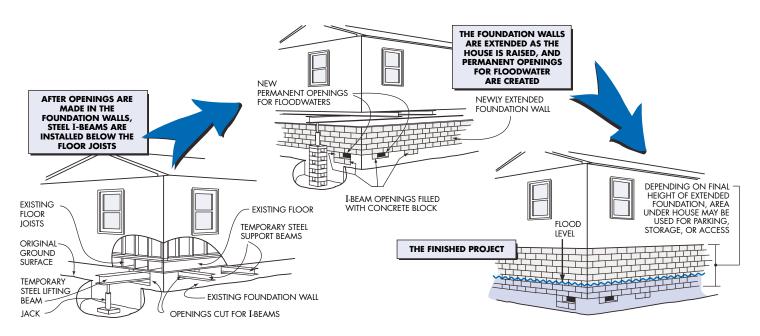
What About After Damages?



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 how much it will cost to repair.

See page 33 for more information about elevating an existing building.

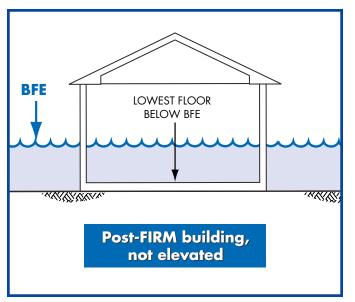
Elevating a Pre-FIRM Building



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

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

Think Carefully About Variances



Your community must assure that some very specific conditions are satisfied in order for a proposal to qualify for a variance.

A variance to build below the BFE may be granted, but flood insurance will be <u>very</u> expensive – perhaps more than \$1,500 per year (see page 18)!

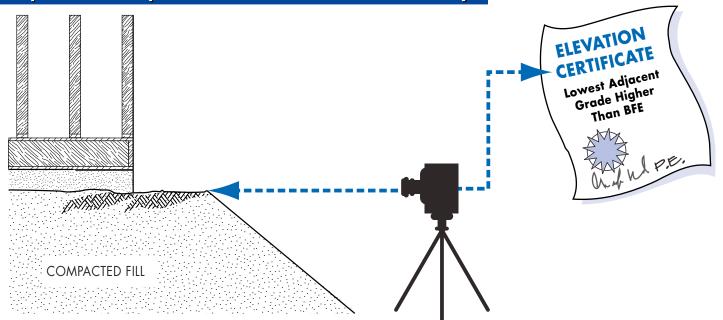
A variance to build below the base flood elevation could expose your family and future owners to more damage and unsafe conditions.

Some variances are issued with special conditions. You must comply or you could be cited for a violation.

Think carefully about seeking a variance to build below the base flood elevation.

Not only will your property be more likely to get damaged, but insurance will be very costly.

Paperwork is Important – for You and Your Community



If you get a permit to build in the floodplain, you will be given an Elevation Certificate form. As soon as your lowest floor is set, get the form filled out by a surveyor or engineer.

This form is important!

It proves that you built correctly, and it can be used to get the lowest cost flood insurance.

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Some Flood Protection for Older Homes is Easy and Low Cost **Heating Oil FURNACE LIVING AREA** AND OTHER UTILITIES CONCRETE **RELOCATED** SLAB **BASEMENT**

Move hot water heater and furnace out of the basement, or build small platforms for them.

If the flood depth is less than 2 feet, build floodwalls or anchor the tanks.

Do not store valuables in a flood-prone basement.

Use water-resistant materials when you repair.

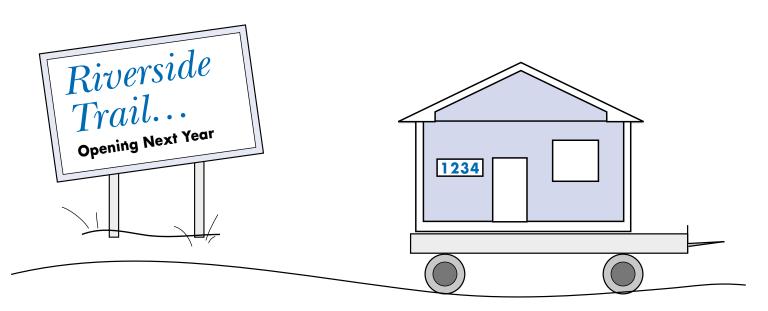
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LEGS OF TANK

SECURELY ANCHORED IN SLAB

Some Mitigation Projects are More Costly

But Give You More Protection



After floods, some communities buy out and demolish homes that were severely damaged. Homes have been lifted up on higher foundations, and others have been moved to safer high ground.

Want to Learn More?

- For advice on flood information and permits, call the State NFIP Coordinator (217) 782-3863
- For information about flood reduction programs, call the State Hazard Mitigation Officer (217) 782-8719
- To order Flood maps, call FEMA's Map Service Center 1 (800) 358-9616 or order on-line at http://www.fema.gov/msc/ordrinfo.htm
- Learn more about Flood maps and check the Status of Map Change Requests at http://www.fema.gov/mit/tsd
- You can order printed copies of FEMA publications from the FEMA Distribution Center. To place an order, call 1(800) 480-2520.
- 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/publicat.htm for more information.
- To learn about flood insurance, call your insurance agent. Most insurance companies can write an NFIP policy for you. If you need more help, call the National Flood Insurance Program's toll free number to get the name of an agent in your area who does write flood insurance. The number is 1(888) CALL FLOOD, ext. 445.
- To get the best rates for flood insurance, call a local surveyor to complete an Elevation Certificate.