2010

FLOODPLAIN MANAGEMENT IN AMERICAN SAMOA

Quick Guide

American Samoa Department of Commerce
American Samoa Coastal Management Program
684-633-5155
Pago Pago, American Samoa

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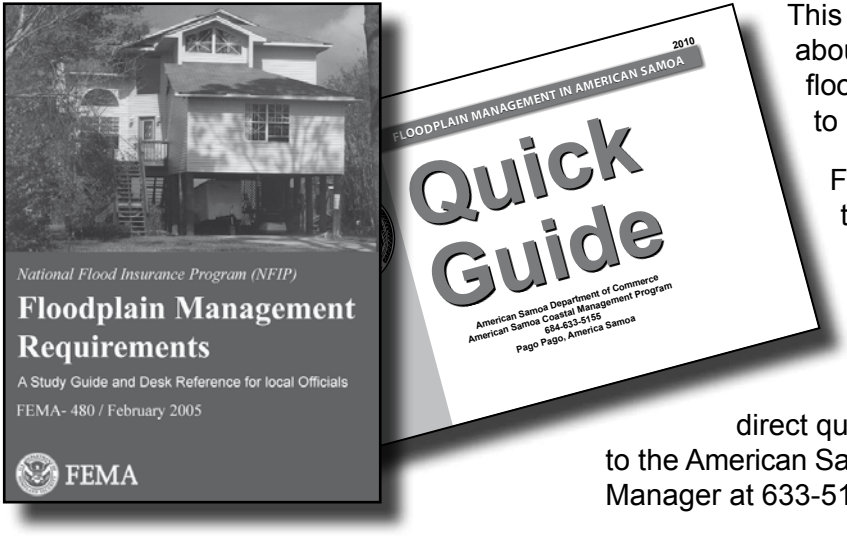
About this Guide



This ***Quick Guide*** will help you understand more about why and how American Samoa manages floodplains and regulates floodplain development to protect people and property.

Floodprone communities adopt ordinances that detail the rules and requirements for floodplain development. **In case of conflict, the *Executive Order No. 004-2006, The Territory of American Samoa Floodplain Management Regulations,* and not this publication, must be followed.** Please direct questions and comments on this ***Quick Guide*** to the American Samoa Coastal Management Program Manager at 633-5155.

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

Development of the ***Quick Guide*** was taxpayer funded through the Federal Emergency Management Agency.

Useful Resources

Common Acronyms

ASCMP – American Samoa Coastal Management Program
ASVD – American Samoa Vertical Datum of 2002
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
DFIRM – Digital Flood Insurance Rate Map
DOC – Department of Commerce
DPW – Department of Public Works
EC – Elevation Certificate
ERA – Environmental Review Application
FEMA – Federal Emergency Management Agency
FIS – Flood Insurance Study
ICC – Increased Cost of Compliance
LOMA – Letter of Map Amendment
LOMR – Letter of Map Revision
LOMR-F – Letter of Map Revision based on Fill
NFIP – National Flood Insurance Program
PNRS – Permit Notification and Review System
SFHA – Special Flood Hazard Area

Internet Links

American Samoa Department of Commerce
http://www.doc.as

American Samoa Department of Homeland Security
Emergency Management
http://americansamoa.gov/asdhs/index.htm

American Samoa Department of Public Works
http://americansamoa.gov/departments/depts/works.htm

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.fema.gov/plan/prevent/floodplain/fm_sg.shtm

NFIP Publications
http://www.fema.gov/business/nfip/libfacts.shtm

FEMA Elevation Certificate
http://www.fema.gov/business/nfip/forms.shtm

NFIP Technical Bulletins
http://www.fema.gov/plan/prevent/floodplain/techbul.shtm

Selected Definitions

American Samoa Vertical Datum of 2002 – The vertical control datum established for surveying in American Samoa landward of 0.0' mean sea level.

Area of Special Flood-Related Erosion Hazard – The land within a community which is most likely to be subject to severe flood-related erosion losses. After a detailed evaluation of the special flood-related erosion hazard area in preparation for publication of the DFIRM, Zone E may be further refined.

Base Flood – A term used in the FEMA National Flood Insurance Program to indicate the minimum size flood to be used by a community as a basis for its floodplain management regulations; presently required by regulation to be that flood which has a 1-percent annual chance of being equaled or exceeded in any given year. Also known as a 100-year flood or 1-percent annual chance flood.

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

Breakaway Wall – In V Zones, a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to

the elevated portion of the building or supporting foundation system.

Coastal High Hazard Area – An area of special flood hazard extending along an open coast and any other area subject to high velocity wave action from storms or seismic sources.

Community – American Samoa Territory which has the authority to adopt and enforce floodplain management regulations for all the areas within its jurisdiction.

Critical Facility – Any governmental or private nonprofit educational, utility, emergency, medical, or custodial care facility, including a facility for the aged or disabled, and any facility providing emergency shelter to the general public. These facilities must be located outside Zones A, AE, V, and VE flood boundaries. If they are located within a Shaded Zone X, its lowest floor and access must be at or above the 0.2-percent annual chance (500-year) flood level.

Development – Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

Flood – (a) A general and temporary condition of partial or complete inundation of normally dry land areas from:
(1) The overflow of inland or tidal waters;
(2) The unusual and rapid accumulation or runoff of surface waters from any source;
(3) Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in paragraph (a)(2) of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when

earth is carried by a current of water and deposited along the path of the current.

(b) The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph (a)(1) of this definition.

Flood Insurance Rate Map (FIRM) – The official map of a community on which FEMA has delineated both the special hazard areas and the risk premium zones applicable to the community. The FIRMs are the basis for the establishment of premium rates for flood coverage offered through the NFIP. All FIRMs for American Samoa are Digital Flood Insurance Rate Maps (DFIRMs).

Flood Insurance Study (FIS) – A compilation and presentation of flood risk data for specific watercourses, lakes, and coastal flood hazard areas within a community. When a flood study is completed for a community, the information and maps are assembled into an FIS. The FIS report contains detailed flood elevation data in flood profiles and data tables.

Floodplain Management – means the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and flood plain management regulations.

Floodproofing – means any combination of structural and non-structural additions, changes, or adjustments

to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

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

Highest Adjacent Grade – means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

Lowest Adjacent Grade – means the lowest natural elevation of the ground surface next to the structure.

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.

Lowest Horizontal Structural Member – In an elevated building, the lowest beam, joist, or other horizontal member that supports the building is the lowest horizontal structural member. Grade beams installed to support vertical foundation members where they enter the ground are not considered lowest horizontal members.

Mean Sea Level (MSL) – For purposes of the NFIP, the National Geodetic Vertical Datum (NGVD) of 1929, North American Vertical Datum of 1988 (NAVD 88) or other datum, to which Base Flood Elevations shown

on a community's DFIRM are referenced. The American Samoa Vertical Datum of 2002 is referenced on all American Samoa DFIRMs.

National Geodetic Vertical Datum (NGVD) – The vertical control datum established for vertical control surveying in the United States of America based upon the General Adjustment of 1929.

North American Vertical Datum of 1988 (NAVD 88) – The vertical control datum established for vertical control surveying in the United States of America based upon the General Adjustment of the North American Datum of 1988.

Special Flood Hazard Area (SFHA) – Area of special flood hazard is the land in the flood plain within a community subject to a one-percent or greater chance of flooding in any given year.

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

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

1. Any project for improvement of a structure to correct existing violations of American Samoa health, sanitary, or safety code specifications which have been identified by the code enforcement official and which are the minimum necessary to assure safe living conditions, or

2. Any alterations of a "historic structure," provided that the alteration will not preclude the structure's continued designation as a "historic structure."

Floodplain management requirements for new construction apply to substantial damage/improvements. NFIP Increased Cost of Compliance (ICC) coverage applies only when a structure is substantially damaged due to flooding.

Variance – A grant of relief by a community from the terms of a floodplain management regulation. Because a variance can create an increased risk to life and property, variances from flood elevation or other requirements in the flood ordinance should be rare. Insurance premium rates are required by statute to be based on actuarial risk and will not be modified by the granting of a variance. Specific criteria for granting a variance is described in the supplemental information.

FEMA may review a community's findings justifying the granting of variances, and if that review indicates a

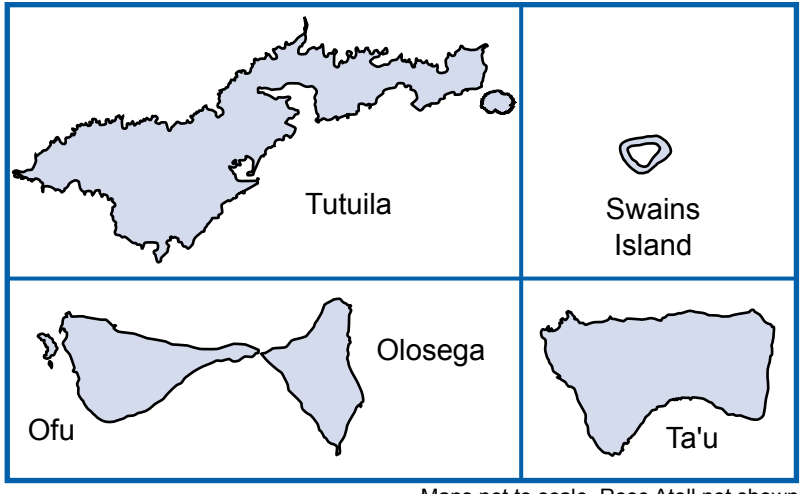
pattern inconsistent with the objectives of sound floodplain management, FEMA may take appropriate action including probation and suspending the community from the NFIP.

Violation – means the failure of a structure or other development to be fully compliant with the community's flood plain management regulations. A structure or other development without the Elevation Certificate, other certifications, or other evidence of compliance required in 44 Code of Federal Regulations Sec. 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is presumed to be in violation until such time as that documentation is provided.

Definitions are taken from 44 Code of Federal Regulations, NFIP Policy Index and other Federal and State regulatory documents. For additional definitions, see those resources.

Presidential Disaster Declarations

Date	Event
9/29/2009	Earthquake, Tsunami, and Flooding
2/18/2005	Tropical Cyclone Olaf
1/13/2004	Tropical Cyclone Heta
6/6/2003	Flooding, Landslides, and Mudslides
12/13/1991	Hurricane Val
2/9/1990	Hurricane Ofa
1/24/1987	Hurricane Tusi
3/24/1981	Hurricane Esau
11/9/1979	Flooding, Landslides, and Mudslides
9/30/1974	Drought
2/10/1966	Hurricane



Maps not to scale, Rose Atoll not shown

Since 1966 there have been 11 Presidential Disaster Declarations in American Samoa. The Tsunami and Hurricane Val were catastrophic events with wide impact and devastating losses. While losses from other events were not as high, to anyone who lost homes or had damage the event was significant. Flooding, both major and minor was associated with most declarations. Not all flood events are declared major disasters. Many floods are local, affecting only small areas such as a few homes, or villages. Implementing sound flloodplain management practices has proven to reduce damages whether in major events or localized flooding.

National Flood Insurance Program

The National Flood Insurance Program 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 and over 20,000 communities participate in the NFIP. **American Samoa has been a NFIP participating community since 1991.**

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, various partners produce flood maps in accordance with FEMA standards. The maps are used by communities, insurance agents and others.
- **Regulations** – Communities must adopt and enforce minimum floodplain management regulations so that development, including buildings, is undertaken in ways that reduce exposure to flooding.

To learn more about the NFIP, floodplain management and flood insurance go to: http://www.fema.gov/hazard/flood/info.shtm. To learn more about the effects of not participating in the NFIP see the next page.

Effects of Non-Participation in the NFIP

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

Federal flood insurance is not available. This also applies to communities without SFHAs that don't participate.

Federal grants or loans are not available for any reconstruction, repair, construction, rehabilitation or additions of structures in SFHAs. This includes grants and loans from the Federal Housing Administration, Farmer's Home Administration, Housing and Urban Development, Environmental Protection Agency, Small Business Administration, Veterans Administration and Health and Human Services. Federally backed mortgages are not available for buildings in SFHAs.

Federal disaster assistance is not provided for permanent restorative construction of insurable buildings in SFHAs. This means that homes and public buildings damaged by flood are not eligible for Federal disaster assistance. Eligible applicants may receive those forms of disaster assistance that are not related to permanent repair and reconstruction of buildings.

Lenders must notify borrowers. Lenders may make conventional loans but they must notify the buyer or lessee that their property is in a SFHA, that NFIP flood insurance is not available and that the property in a SFHA is not eligible for Federal disaster relief in a flood-related declared disaster.

Discounted flood insurance for older buildings is no longer available. The Flood Insurance Rate Map and appropriate actuarial rates go into effect regardless of whether the community participates. Buildings in SFHAs will be actuarially rated if the community later decides to join the NFIP. This could lead to extremely expensive insurance.

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

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.

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 American Samoa – 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 – Communities must join the NFIP before its residents can purchase flood insurance. If not, the community can be ineligible for some types of Federal assistance. In addition, 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 community'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 there is a Presidential Disaster Declaration, your community will very likely still incur some costs.

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?

Natural and Beneficial Floodplain Functions

Undeveloped floodplains serve natural and beneficial functions. They can:

- 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.

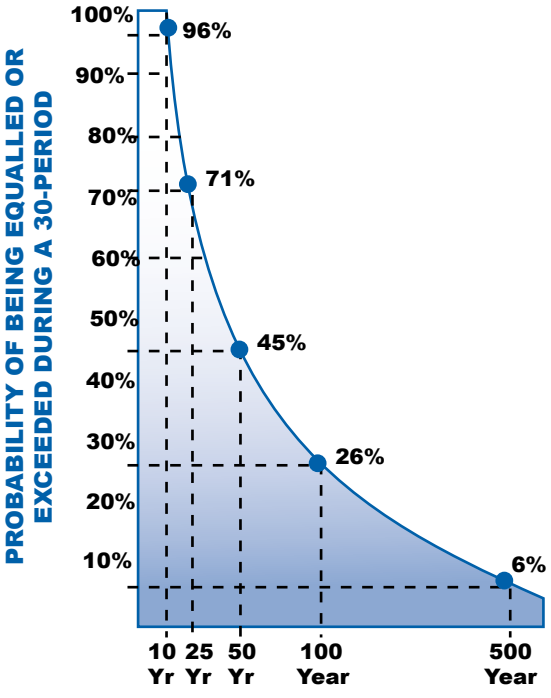
The Association of State Floodplain Managers, Inc. developed the NAI concept in response to rising flood damages, even though communities administer floodplain management ordinances. At http://www.floods.org, click on the NAI tab to download publications, the NAI Tool Kit and PowerPoint as well as several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

Community Responsibilities

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

- **Appoint** a Floodplain Manager.
- **Require** Elevation Certificates to document compliance.
- **Require** new and substantially damaged/improved residential structures to be elevated to or above the BFE. (At least, one foot above BFE is required in American Samoa).
- **Conduct** field inspections and cite any violations to the community's floodplain management regulations.
- **Require** non-residential structures to be elevated or floodproofed to or above the BFE (At least, one foot above BFE is required in American Samoa).
- **Ensure** that building sites are reasonably safe from flooding.
- **Carefully** consider requests for variance.
- **Advise** FEMA when updates to flood maps are needed.

Annual Chance Floods



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

The boundary of the floodplain delineated for the 0.2-percent 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-percent annual chance flood (commonly called the 100-year flood). The 1-percent annual chance flood has a 26% chance of occurring during a 30 year period. The 0.2-percent annual chance flood (or 500-year flood) has a 6% chance of occurring during a 30-year period.

Flood Zones in American Samoa

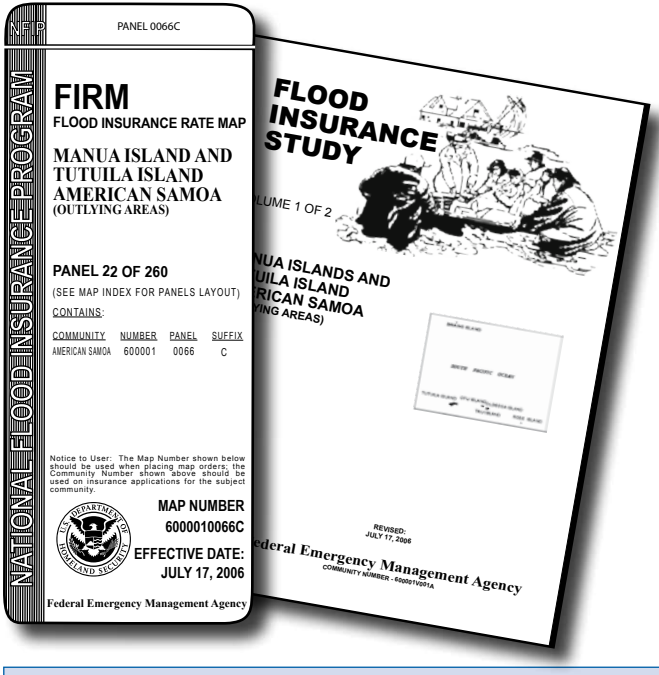
Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk. These zones are depicted on the American Samoa Digital Flood Insurance Rate Maps (DFIRMs). Each zone reflects the severity or type of flooding in the area.

High Risk Areas: All A and V Zones – The area located within the one-percent annual chance floodplain (100-year floodplain) identified as a Special Flood Hazard Areas (SFHAs) on DFIRMs. Flood insurance is available to all property owners and renters located either inside or outside SFHAs. Lenders require mandatory purchase of flood insurance for property located within the SFHA (see page 76).

Moderate to Low Risk Areas: Shaded Zone X (moderate) and Unshaded Zone X (low) – Areas located outside the one-percent annual chance floodplain (100-year floodplain). Area is higher than the Base Flood Elevation. Lower-cost 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, which includes communities that have been suspended from the NFIP for not complying with its minimum standards.

Looking for Floodplain Information?



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

FEMA publishes Digital Flood Insurance Rate Maps (DFIRMs) and a Flood Insurance Study for American Samoa.

All DFIRMs show Special Flood Hazard Areas. The flood hazard may be determined by approximate or detailed methods.

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.

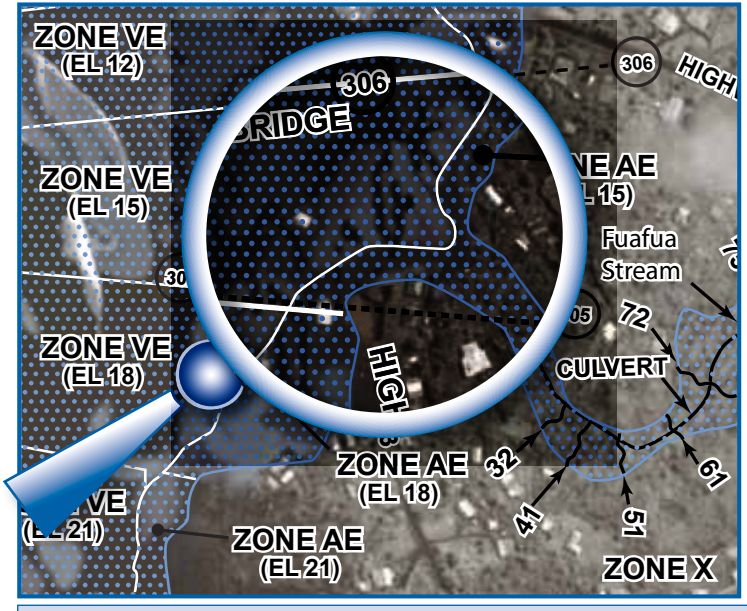
To revise the DFIRM, studies may be submitted as a Letter of Map Revision (LOMR). FEMA will review the data and revise the DFIRMs as appropriate.

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 the Flood Insurance Study are available for viewing at the American Samoa Department of Commerce and Department of Public Works.

FEMA Online Flood Map Tools

You can view Digital Flood Insurance Rate Maps (DFIRMs) and print clips from DFIRMs 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 for free:

- Locate a DFIRM by district/island, community (American Samoa) and DFIRM panel.
- Zoom in or out to view a specific area of a DFIRM.
- Create a FIRMette showing a specific area of the DFIRM, the DFIRM Title Block, north arrow and DFIRM 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 purchase DFIRMs on compact disks and related information. You can also download electronic DFIRMs, the American Samoa FIS and other materials for a lower cost.

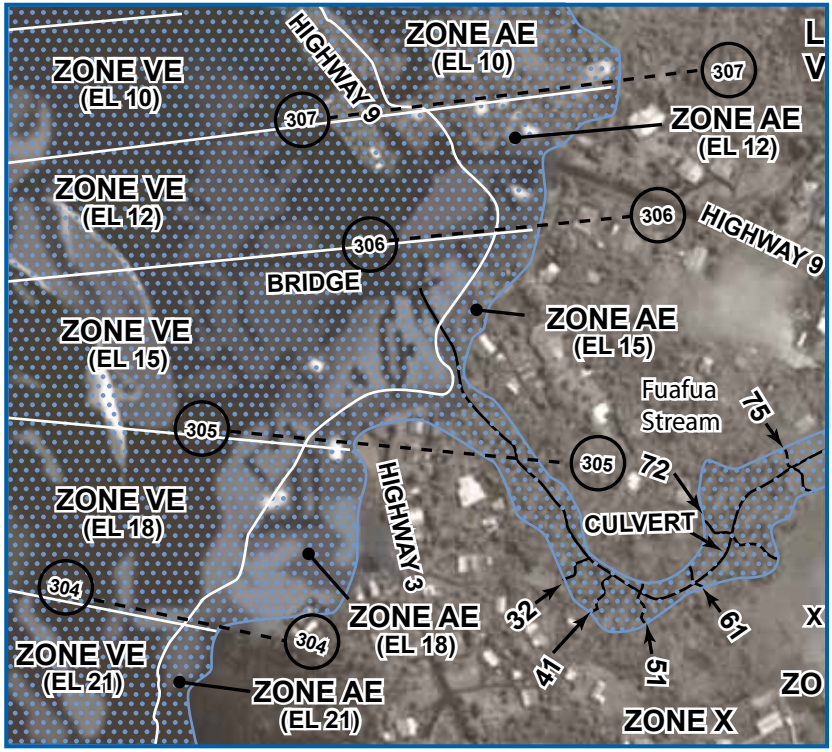
The Digital FIRM

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

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

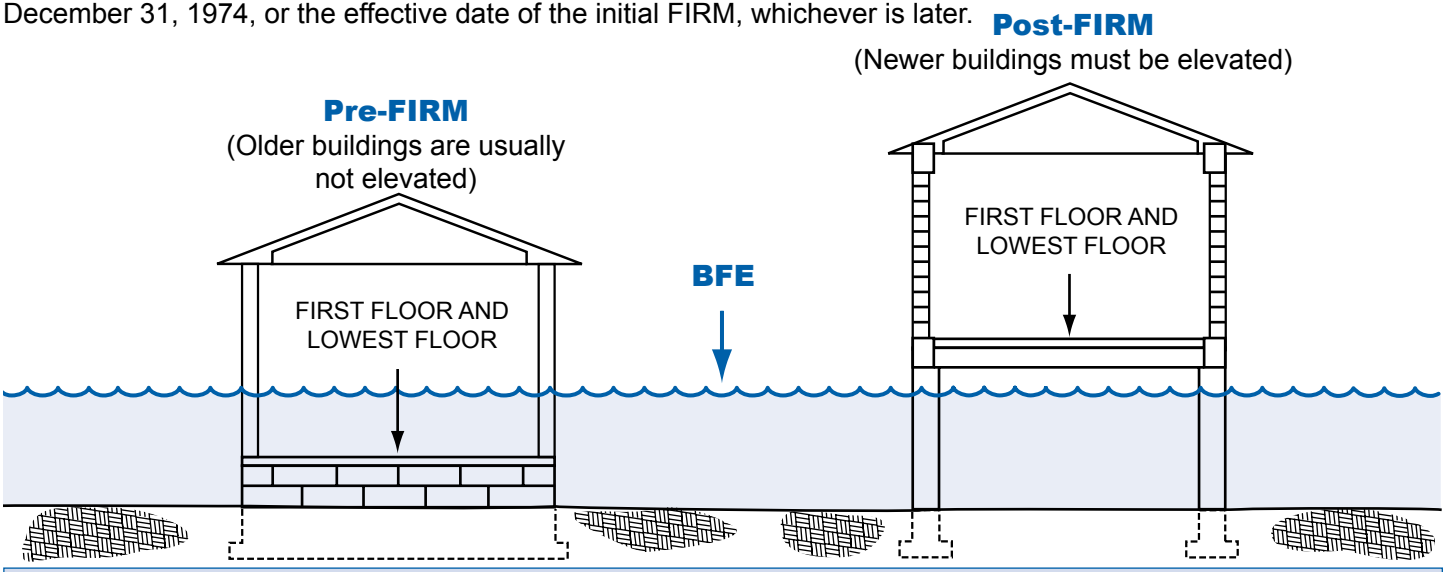
The high risk Special Flood Hazard Areas, (A, AE, V and VE Zones), low risk X Zones, road names jurisdictional boundaries and other data can be overlaid on aerial photographs. The new map format enables more efficient and accurate flood risk determinations.

All current American Samoa flood maps are DFIRMs. They became effective on July 17, 2006.



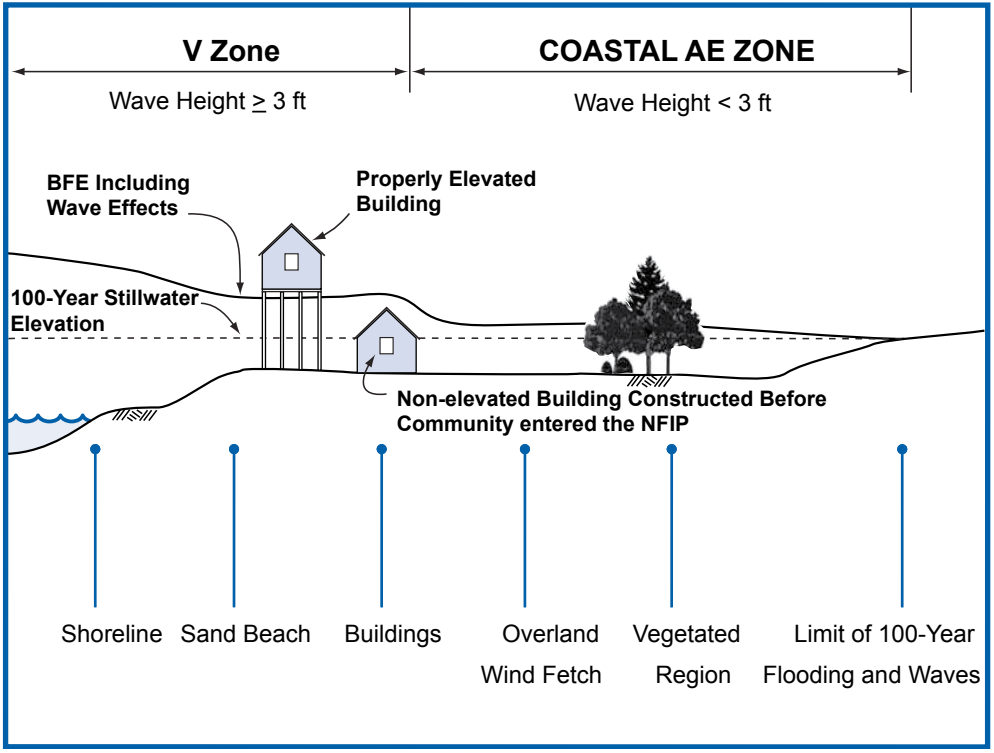
What is Meant by Pre-FIRM and Post-FIRM?

A building is Pre-FIRM if the "start of construction" was 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" was on or after December 31, 1974, or the effective date of the initial FIRM, whichever is later.



Pre-FIRM buildings can be insured using discounted rates. These rates are designed to help people afford flood insurance even though their buildings were not built with flood protection in mind. Insurance rates for Post-FIRM buildings are tied to the elevation of the lowest floor in relation to the BFE (see pages 74 and 75).

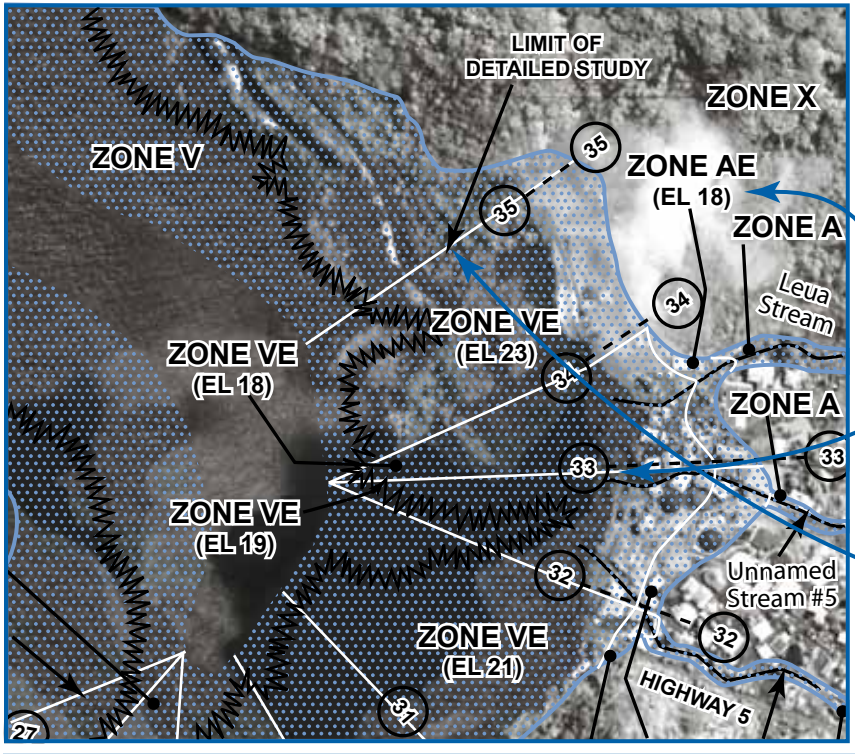
Understanding the Coastal Floodplain



Terms and Definitions

The Coastal High Hazard Area (V Zone) is the area of the special flood hazard that extends from off-shore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on the DFIRM as Zone V or VE.

The term Coastal AE Zone means the portion of the SFHA landward of the V Zone or landward of a shoreline that is not riverine, but is associated with astronomical tides, storm surges, seiches, or tsunamis. Coastal AE Zones may be subject to wave effects, velocity flows, erosion, scour, or combinations of these forces. Communities may choose to apply V Zone regulatory standards to Coastal AE Zones.



Zones A and AE are subject to flooding by 1-percent annual chance flood and waves less than three feet.

Zones V and VE are where waves are expected to be three feet or higher.

Zone X is all other areas.

Base Flood Elevation the water surface elevation in feet above mean sea level of the base (1-percent annual chance) flood at specific locations.

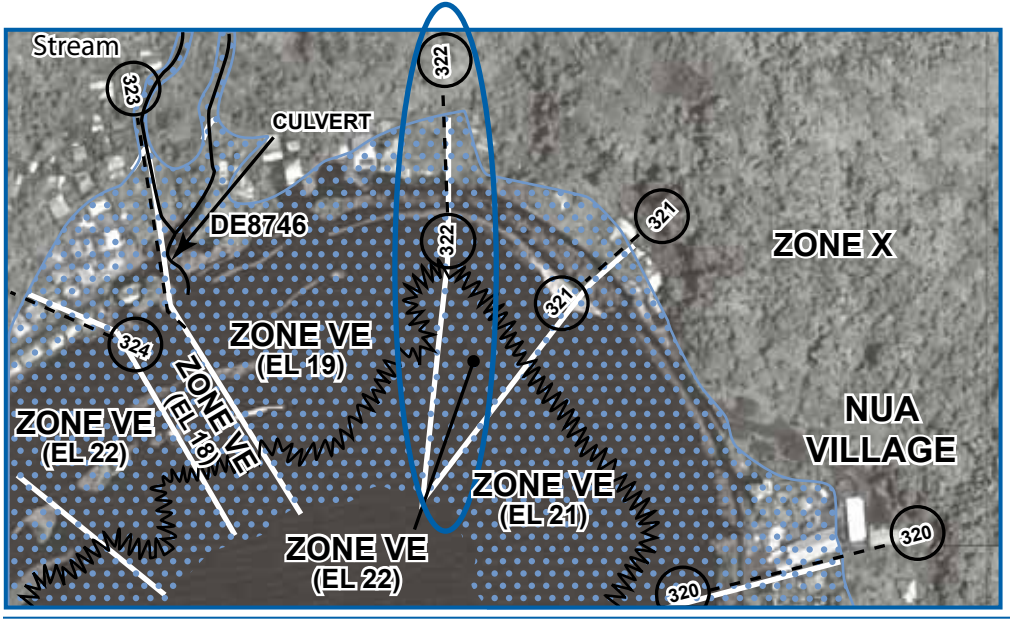
Transects where surveys were completed perpendicular to the mean shoreline to represent a segment of coast with similar characteristics.

Limit of Detailed Study is the line marking the end of detailed study required to determine Base Flood Elevations. Zones A and V are outside of the detailed study area. Zones AE and VE are within it.

Use the Transect Data Table to Determine Coastal BFEs

The FEMA Flood Insurance Study (FIS) contains Transect Data Tables with stillwater elevations for three different flood frequencies and the maximum wave crest for the 1-percent annual chance flood.

Example: Verify the BFE for a site approximately 1,950 feet northwest of Vaisigano Point



1 Identify the transect on the DFIRM. In this case transect 322.

The FIS contains Transect Maps, small maps of the coastal areas that show transect locations. These maps may also be used to identify transects.

2 Locate the transect on the Transect Data Table in the FIS

TABLE 5 - TRANSECT DATA

		STILLWATER ELEVATION (feet NGVD)				
TRANSECT	LOCATION	10% ANNUAL CHANCE	2% ANNUAL CHANCE	1% ANNUAL CHANCE	.2% ANNUAL CHANCE	MAXIMUM 1% ANNUAL WAVECREST
320	Approximately 750 feet northwest Vaisigano Point	3.5	7.9	10.3	*	19.1
321	Approximately 1,100 feet northwest Vaisigano Point	3.5	8	10.3	*	23.3
322	Approximately 1,950 feet northwest Vaisigano Point	3.5	7.8	9.9	*	20
323	Approximately .43 mile northwest Vaisigano Point	3.5	7.8	9.9	*	18.2
324	Approximately .43 mile northwest Vaisigano Point	3.5	7.8	9.9	*	17.8

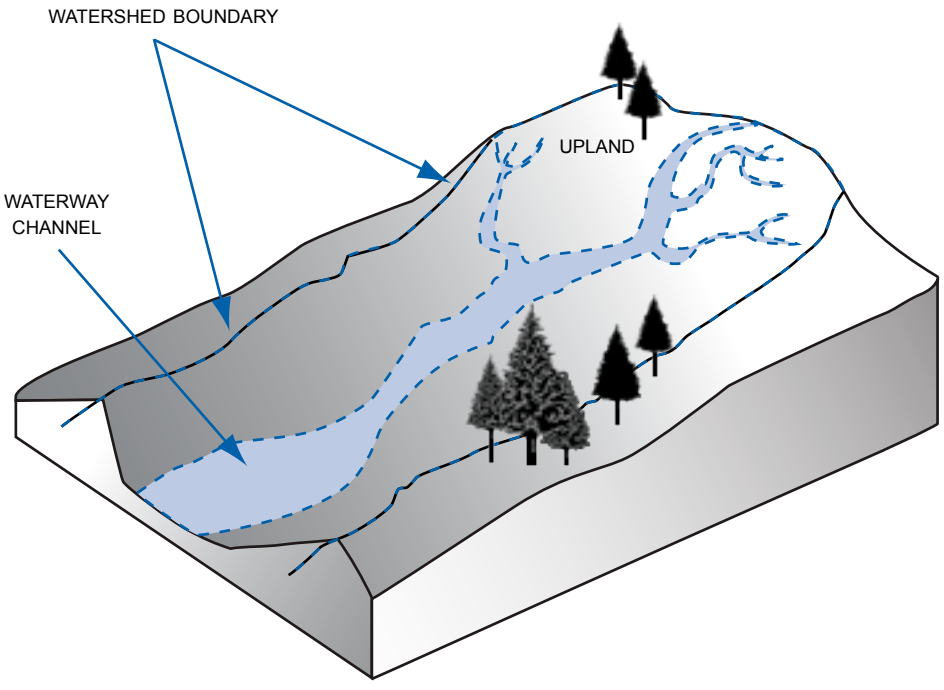
The Maximum 1-Percent Annual Wavecrest column number is the BFE. The BFE at the point where the transect line intersects the coastline is 20 feet above mean sea level.

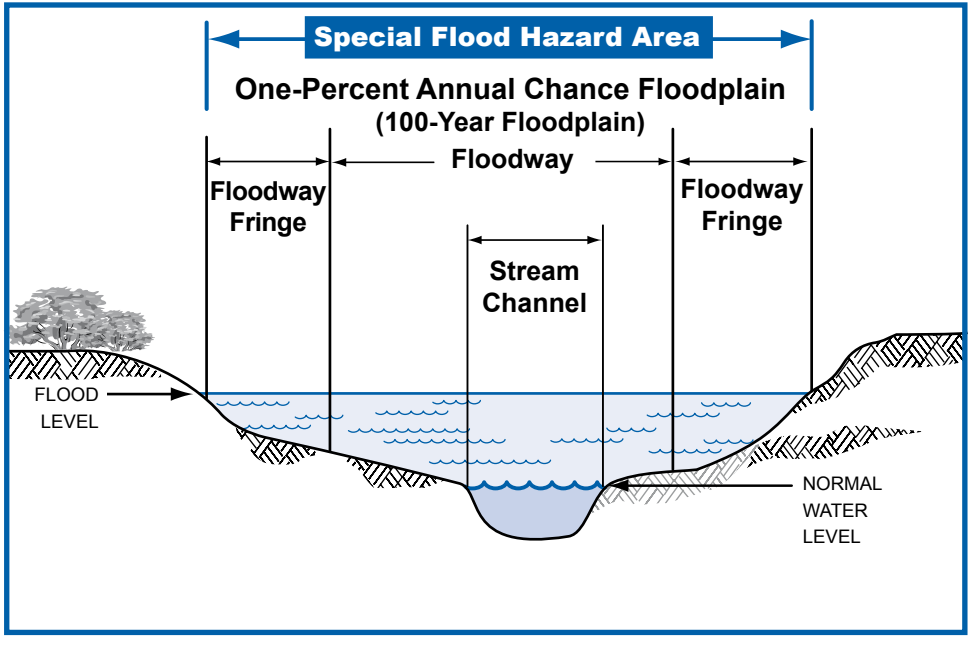
NOTE: The Transect Data table also lists 10% (10-year), 2% (50-year) annual chance stillwater elevations but not the 0.2-percent (500-year) annual chance stillwater elevation. In Special Flood Hazard Areas where BFEs have been determined, always consult the FIS for the most accurate BFE at specific locations.

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.

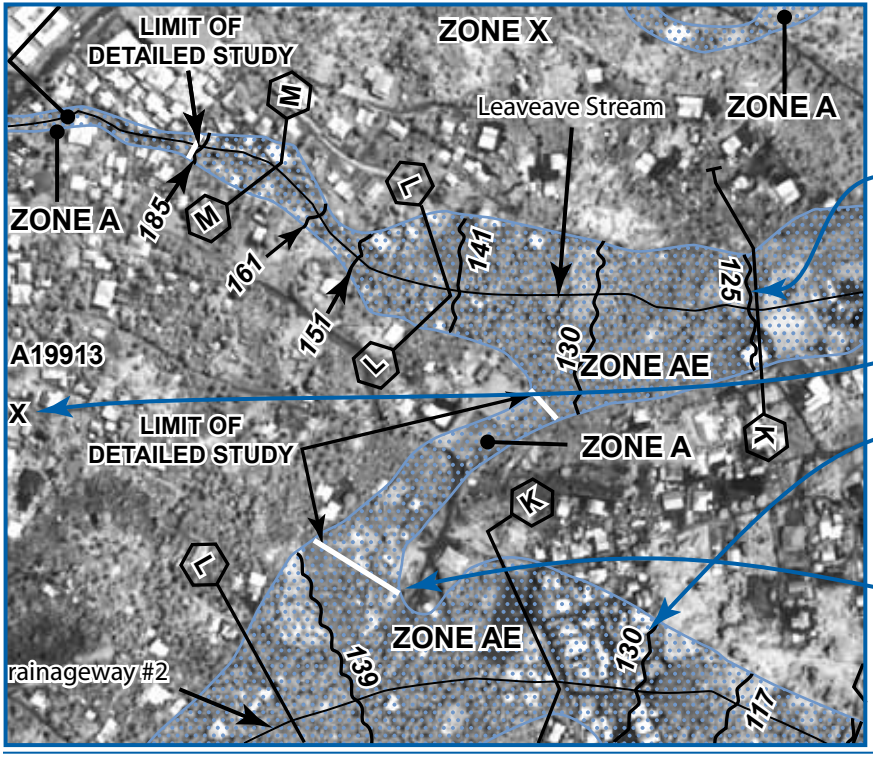




Terms and Definitions

The **Special Flood Hazard Area** is that portion of the floodplain subject to inundation by the base flood (1-percent annual chance) and/or flood-related erosion hazards. SFHAs are shown on American Samoa DFIRMs as Zones A, AE, V and VE.

For floodplains with Base Flood Elevations, check the Flood Insurance Study to find the Flood Profile which shows water surface elevations for the different frequency floods (see page 30).



Zone A and Zone AE are subject to flooding by 1-percent annual chance flood, and waves less than three feet.

Zone X is all other areas.

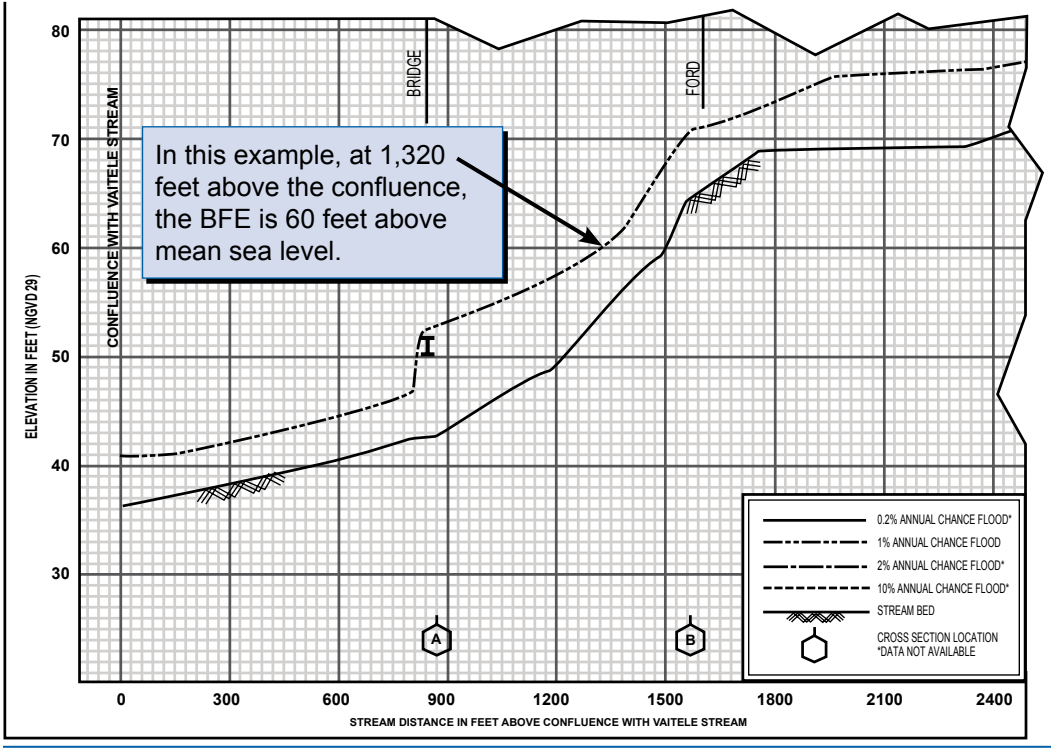
Cross Section location, where ground surveys determined the shape of the land and how constrictions such as bridges and culverts affect the flow of floodwater

Reference Marks location of surveyed elevation markers

Base Flood Elevation (BFE) the water surface elevation in feet above mean sea level of the base (1-percent annual chance) flood at specific locations.

Limit of Detailed Study is the line marking the end of detailed study required to determine BFEs. Zone A is outside of the detailed study area. Zone AE is within it.

Use the Stream Flood Profile to Determine BFEs

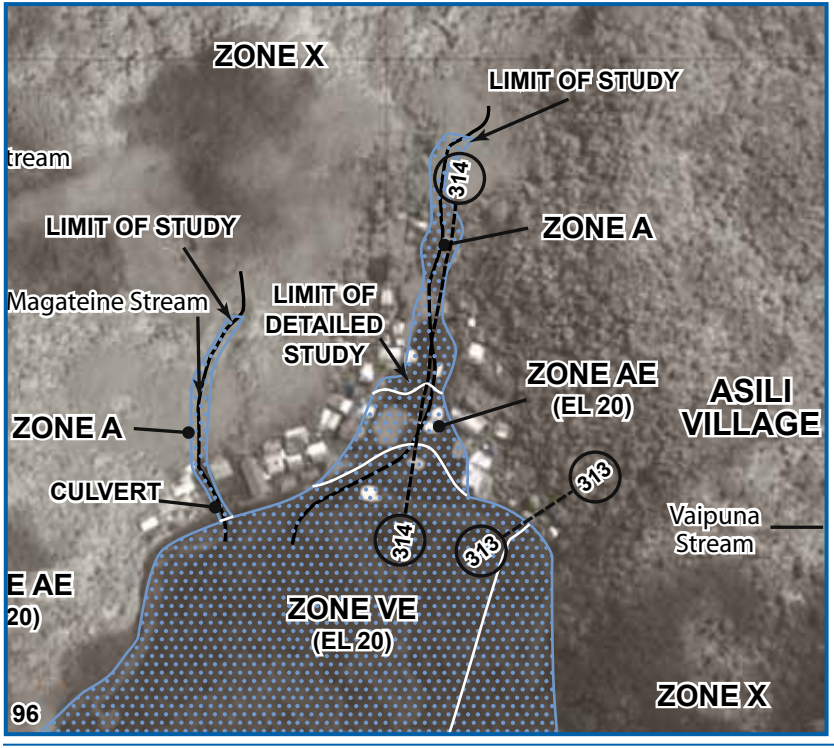


Flood profiles can be used to determine the BFE at a specific site. Profiles also show estimated water surface elevations for floods other than the 1-percent annual chance flood.

On the DFIRM, locate your site by measuring the distance along the centerline of the stream channel from a cross section or bridge.

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

Approximate Zone A



Approximate A Zones are drawn based on existing information, not engineering studies. FEMA checked with the U. S. Army Corps of Engineers, the U. S. Geological Survey, the Territory, local offices, and historic records. When existing information was lacking, an approximate delineation was performed. The limit of study is the end of the area studied using approximate delineation methods.

The American Samoa Flood Insurance Study (FIS) identifies Approximate A Zones as those A Zone areas on the DFIRM included in the FIS for which no BFEs are provided. See next page for information on determining if structures sited within Approximate A Zones will be reasonably safe from flooding.

Approximate Zone A Procedures

FEMA Minimum requirements for floodplain management in Approximate A Zones require communities to determine whether a proposed building site will be "reasonably safe from flooding".

Within Approximate A Zones, communities must “reasonably utilize” any existing flood study produced by an authoritative source such as the Unitied States Army Corps of Engineers, Unitied States Department of Agriculture/Natural Resources Conservation Service, or the Unitied States Geological Survey.

The FEMA publication *Managing Floodplain Development in Approximate Zone A Areas: A Guide for Obtaining and Developing Base (100-Year) Flood Elevations* provides information on a number of methodologies for developing BFEs in Approximate A Zones. These methodologies range from detailed to simplified methods that can be used in isolated areas.

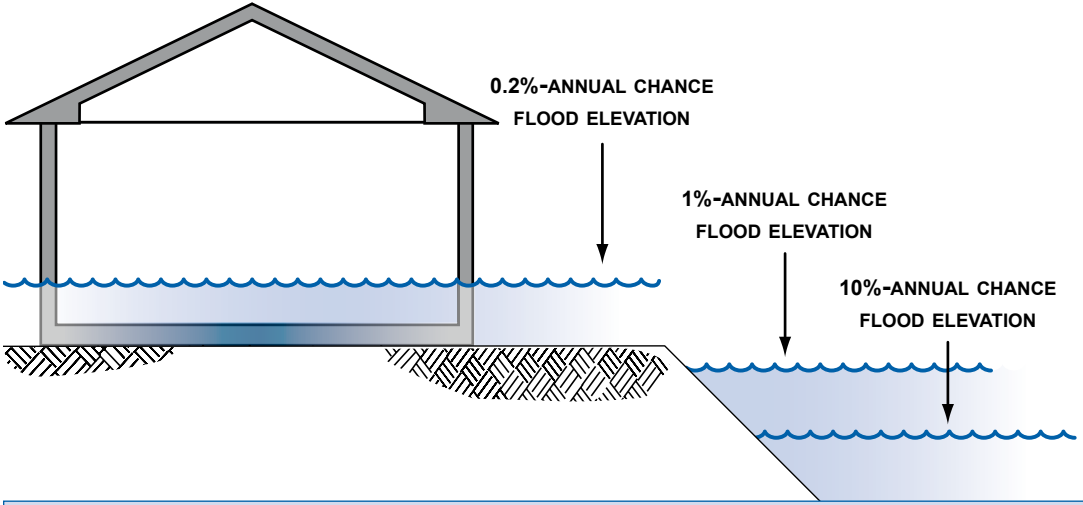
Some simplified methods include:

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

Managing Floodplain Development in Approximate Zone A Areas: A Guide for Obtaining and Developing Base (100-Year) Flood Elevations is available for download at http://www.fema.gov/pdf/fhm/frm_zna.pdf

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 pages 74 and 75 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 greater than 1 in 4 chance (26%) 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%!

If your property is in a 0.2-percent floodplain (500-year) or near a small stream without FEMA mapped flood zones, you are strongly urged to consider buying a Preferred Risk flood insurance policy. The policy starts at around $119 a year.

Letters of Map Change

1. **Letter of Map Amendment (LOMA)** is an official change to an effective DFIRM 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 that is above the mapped floodplain.
2. **Letter of Map Revision (LOMR)** is an official change to an effective DFIRM 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 DFIRM 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. (Fill is not allowed in V Zones.)
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 DFIRM.

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 800-358-9616.

Information:
http://www.fema.gov/hazard/map/lomc

Forms:
http://www.fema.gov/business/nfip/forms

Requests for map amendments and revisions must be submitted to FEMA for review. FEMA must approve the revision before the map change is final.

Some Activities Requiring Floodplain Development Permits

- New construction
- Additions to existing structures
- Substantially improved structures
- Subdivision development, including infrastructure
- Temporary buildings and accessory structures
- Agricultural buildings
- 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
- Parking or storage of recreational vehicles

Permits are required 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 "reasonably safe from flooding"?
- Has the Base Flood Elevation been determined?
- 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?
- Do the plans show an appropriate and safe foundation?
- Has the owner submitted an Elevation Certificate?
- Have all Territory and Federal permits been obtained?

Go to the Department of Commerce, 2nd Floor Executive Office Building in Utulei to begin the permit process.

Department of Commerce (DOC) Process: Environmental Review Application (ERA)

- Applicant gets application from the Department of Commerce – American Samoa Coastal Management Program (ASCMP)
- Applicant completes pages 1 and 2 of the ERA along with: Sa'o and/or Matai signatures if communally owned land, site plan of project location and construction cost estimate. ASCMP reviews the application to determine if project is classified as MINOR or MAJOR and if it is located in a high hazard area.

1. MINOR Project – Activities with no significant adverse environmental impact
2. MAJOR Project* – All commercial activities and activities deemed to potentially have adverse environmental impact

   * Projects in flood hazard areas, such as in Zones A, AE, V, and VE, require an Elevation Certificate, must meet regulations required in the *Executive Order No. 004-2006, The Territory of American Samoa Floodplain Management Regulations*, and may be routed as a Major Project.

- Permit Notification and Review System (PNRS) committee do site visits for land use feasibility
- PNRS completes page 3 when application is approved and attaches ERA conditions for floodplain development. Applicant signs permit and pays fees
- Initial Elevation Certificate is issued, when applicable, with flood zone determination, required "build-to" elevation and recommended foundation design

Department of Public Works (DPW) Process: Building Permit

- Applicant applies for the Building Permit at DPW office with the following documents:
  1. Approved ERA packet
  2. Three sets of construction drawings
  3. Name of person/construction company doing work
- Applicant pays the fees (including fee for Elevation Certificate if applicable)
- DPW Engineering Department reviews construction plans for code compliance – currently using the 2006 International Building Code – and upon plan approval issues Building Permit
- DPW Office of Surveyors does initial elevation surveys
- DPW Building Inspection Division performs all site building inspections
- DPW Office of Surveyors completes final surveys, signs and seals Elevation Certificate
- Upon completion of construction, DPW issues Certificate of Occupancy and final Elevation Certificate to applicant and provides copy of the final Elevation Certificate to ASCMP

(excerpts) **ENVIRONMENTAL REVIEW APPLICATION** (excerpts)

Check Type of Permit/License Application Requested:

ERA ☐ Zoning ☐ Business ☐ ABC ☐ GPA ☐

Proposed Use:

_____ RESIDENTIAL
_____ COMMERCIAL BUSINESS
____ Existing
____ New

Proposed Use:

Construction:
____ New
____ Repair
____ Extension

Variance:
____ Use Variance
____ Standard Variance
____ Change of Use

Business

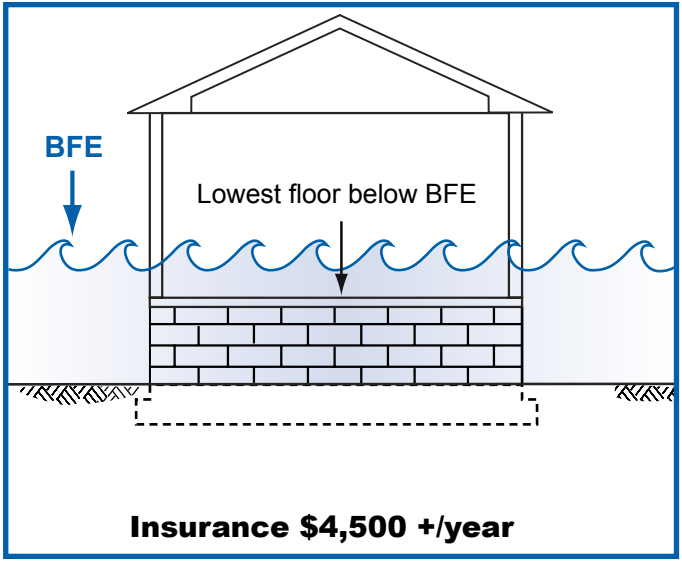
AUTHORITY TO USE AND OCCUPY LAND

Is the land registered? ____ YES ____ NO (If YES, atach a copy of the Certificate of Regisration and Survey).
Is the land leased? ____ YES ____ NO (If YES, atach a copy of the Lease Agreement and Survey).

If a legal description and survey are available, please attach a copy. If not, please provide a detailed description of the land to be used in your project:

You must get all permits **before** you do work in a floodplain or elsewhere within American Samoa. Permits and assistance in completing permits are available at the Department of Commerce.

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 57) and agricultural structures.

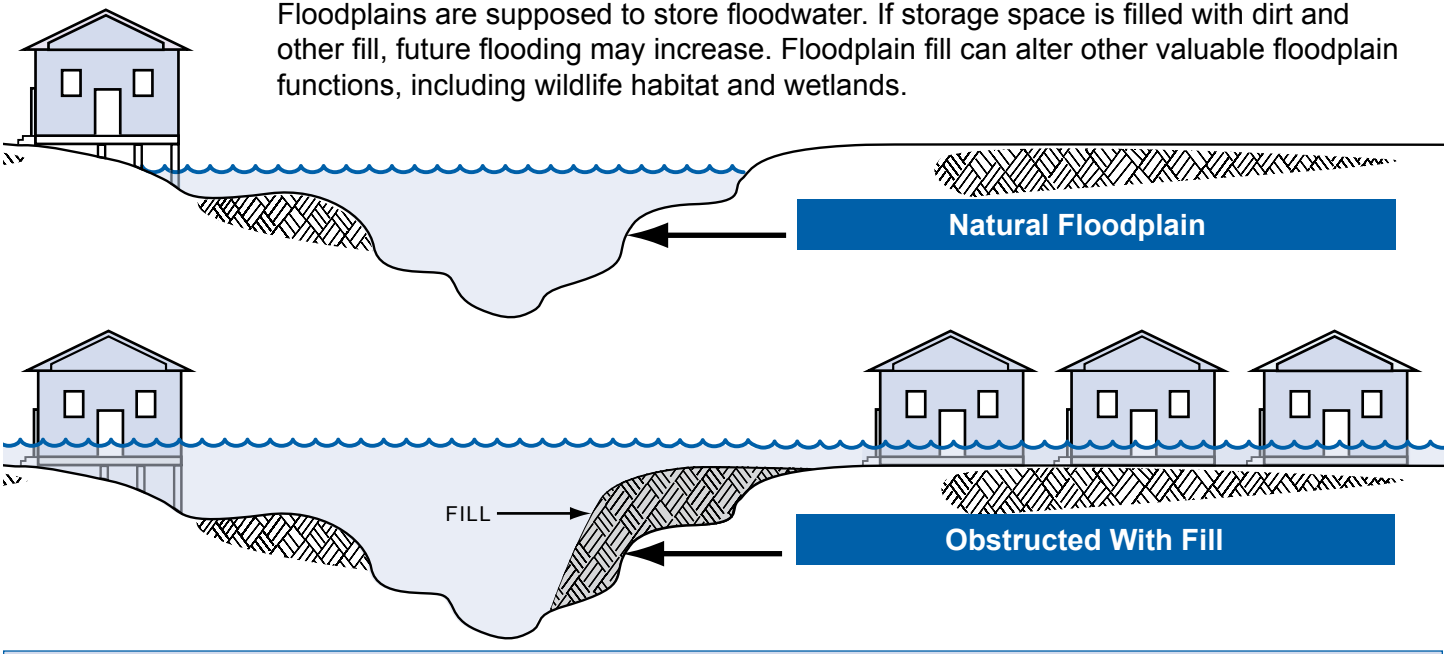
Review the variance provisions of the *Executive Order No. 004-2006, The Territory of American Samoa Floodplain Management Regulations*, for specific guidance.

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 $4,500 per year (see pages 74 and 75).

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 a community has a pattern of granting variances inconsistent with the local ordinance, FEMA can impose sanctions – costing even more!**

Floodplain Fill Can Make Things Worse

Floodplains are supposed to store floodwater. If storage space is filled with dirt and other fill, future flooding may increase. Floodplain fill can alter other valuable floodplain functions, including wildlife habitat and wetlands.

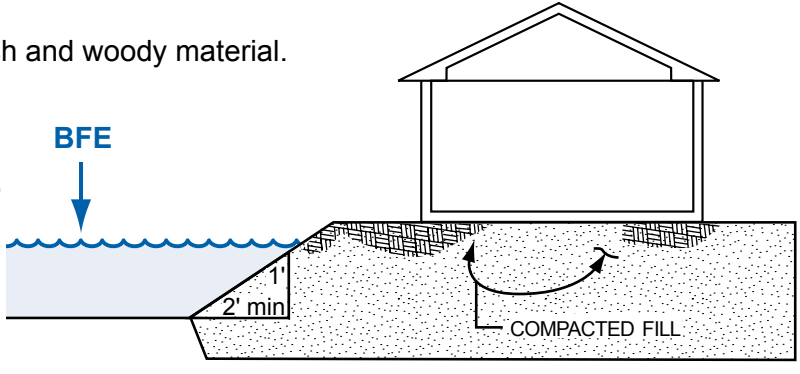


Make sure your floodplain fill project won't harm your neighbors. **Fill is not allowed in V Zones and not recommended in Coastal A Zones.**

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:

- Have no adverse impact on adjacent properties, the capacity of channels or any other drainage system.
- Be contoured to drain properly and extend beyond the structure enough to provide acceptable access.
- Be good clean soil or rock material free of trash and woody material.
- Be compacted to provide necessary stability and resistance to erosion, scouring or settling.
- Have graded side slopes not steeper than 2:1, (flatter slopes are recommended). If steeper than 2:1 engineering analysis is required.
- Fill slopes exposed to flood waters during a base flood must be protected from erosion by vegetation or stone armor depending upon anticipated water velocity.



Fill is not allowed in V Zones

Prior to fill placement, a community may request FEMA's comments on whether the proposed project would justify a map revision. FEMA's comments will be issued in a Conditional Letter of Map Revision Based on Fill (CLOMR-F) letter.

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 or Professional Engineer licensed to practice in American Samoa.
- A community official may complete the EC or portions (Section G) for sites in approximate flood zones.
- The EC can be used to show that sites are located on natural ground above BFE (see page 45).
- The EC is used to verify that buildings are elevated properly (see next page).
- 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 34 for information about Letters of Map Amendment (LOMA).

Important

Information

Remember, when a new structure is built in the floodplain a **final construction** Elevation Certificate is required to satisfy floodplain management regulations, obtain flood insurance and/or to obtain a LOMA.

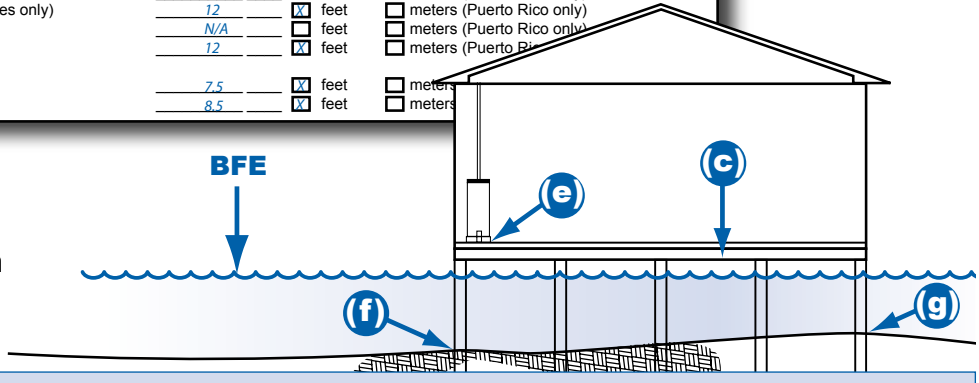
ELEVATION CERTIFICATE (partial)

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 N/A Vertical ASVD 2002
Conversion/Comments

a)	Top of bottom floor (including basement, crawlspace, or enclosure floor)	N/A	☐	feet	☐ meters (Puerto Rico only)
b)	Top of the next higher floor	N/A	☐	feet	☐ meters (Puerto Rico only)
c)	Bottom of the lowest horizontal structural member (V Zones only)	12	☒	feet	☐ meters (Puerto Rico only)
d)	Attached garage (top of slab)	N/A	☐	feet	☐ meters (Puerto Rico only)
e)	Lowest elevation of machinery (Describe type of equipment in Comments)	12	☒	feet	☐ meters (Puerto Ri
f)	Lowest adjacent (finished) grade (LAG)	7.5	☒	feet	☐ meters
g)	Highest adjacent (finished) grade (HAG)	8.5	☒	feet	☐ meters



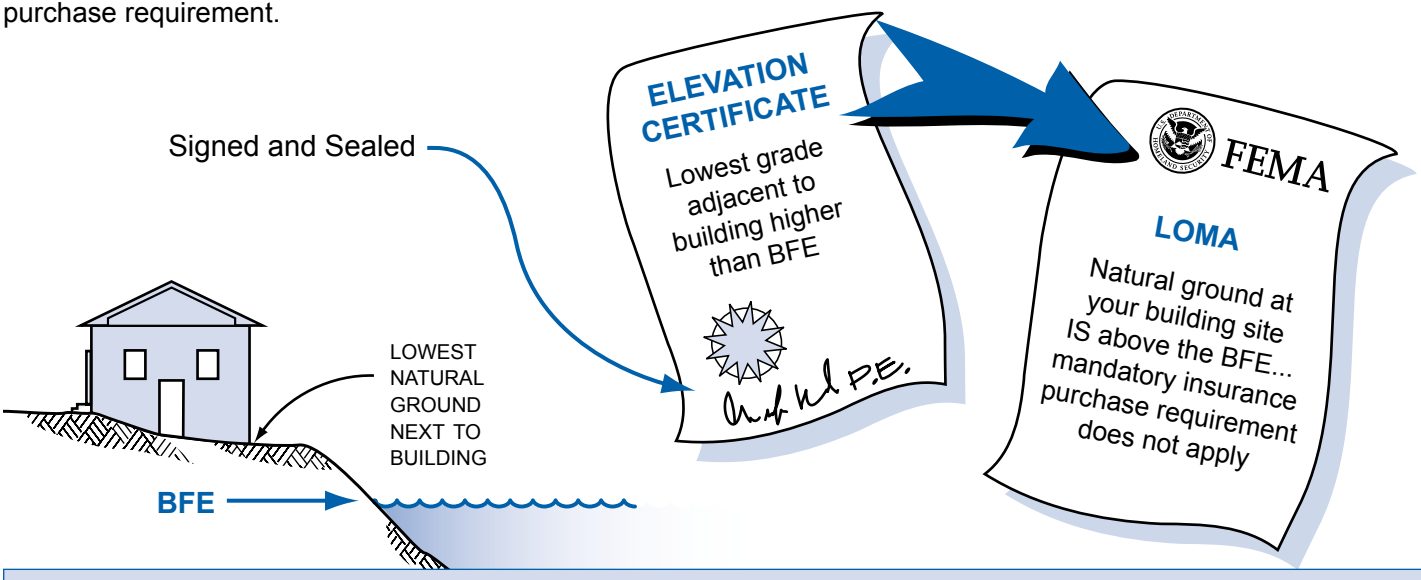
In this example, the BFE is 11.

This V Zone house was elevated on columns one foot above the BFE

You must have a DPW surveyor or Professional Engineer licensed to practice in American Samoa, complete the Elevation Certificate and seal it. The Elevation Certificate includes diagrams for ten building types. Several points must be surveyed.

Is Your Building Site Higher than the BFE?

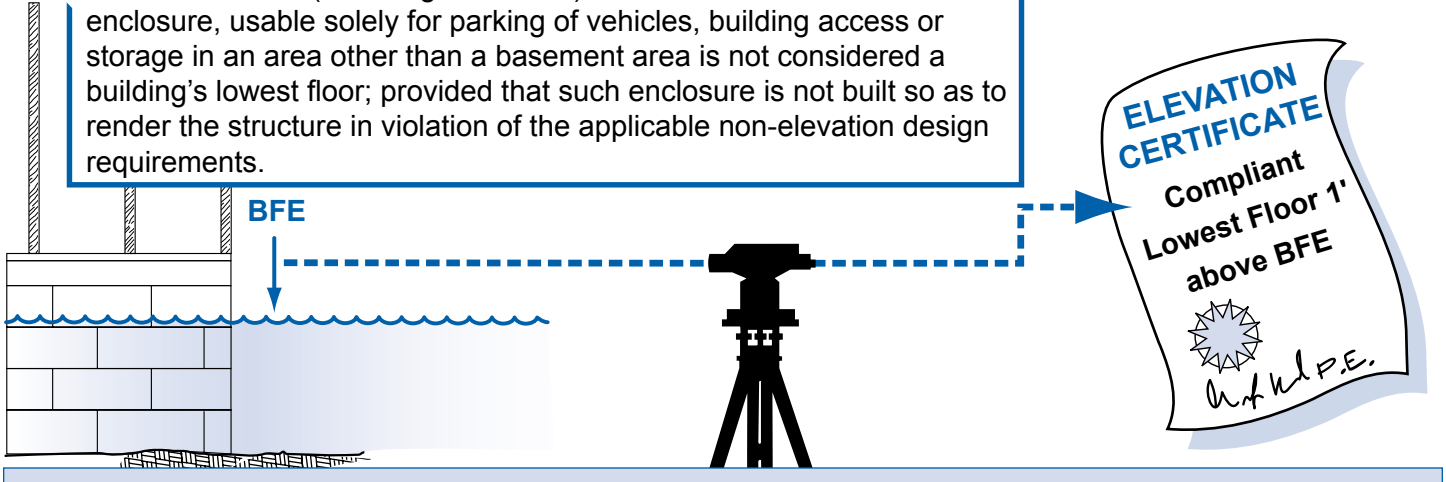
If your land is shown on the maps as “in” the SFHA but the Lowest Adjacent Grade (LAG) of your building site is higher than the BFE, FEMA may issue a LOMA that can be used to exempt you from the mandatory flood insurance purchase requirement.



Getting a LOMA is the **only** way to remove the requirement to purchase flood insurance. Keep the Elevation Certificate (if applicable) and the LOMA with your deed, it will help future buyers. For more information about the mandatory purchase requirement see page 76.

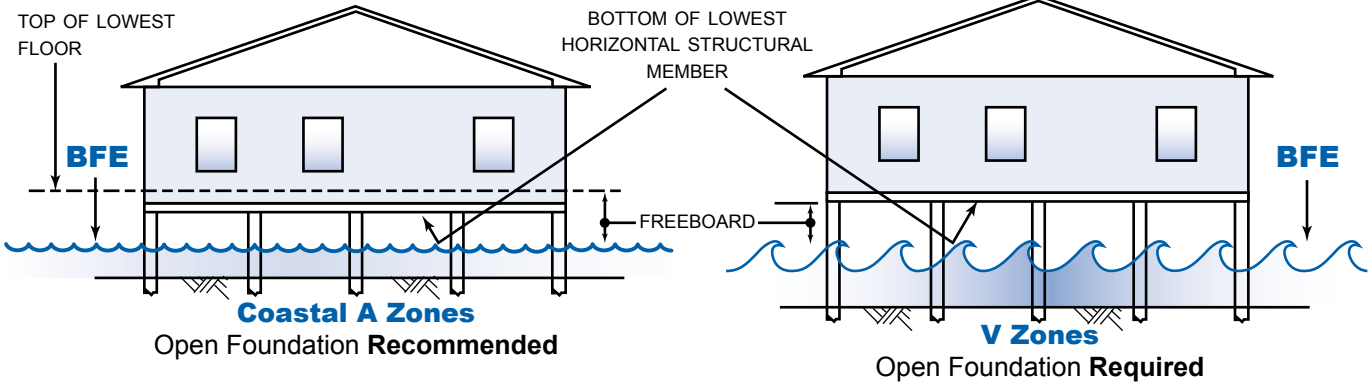
Terms and Definitions

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.



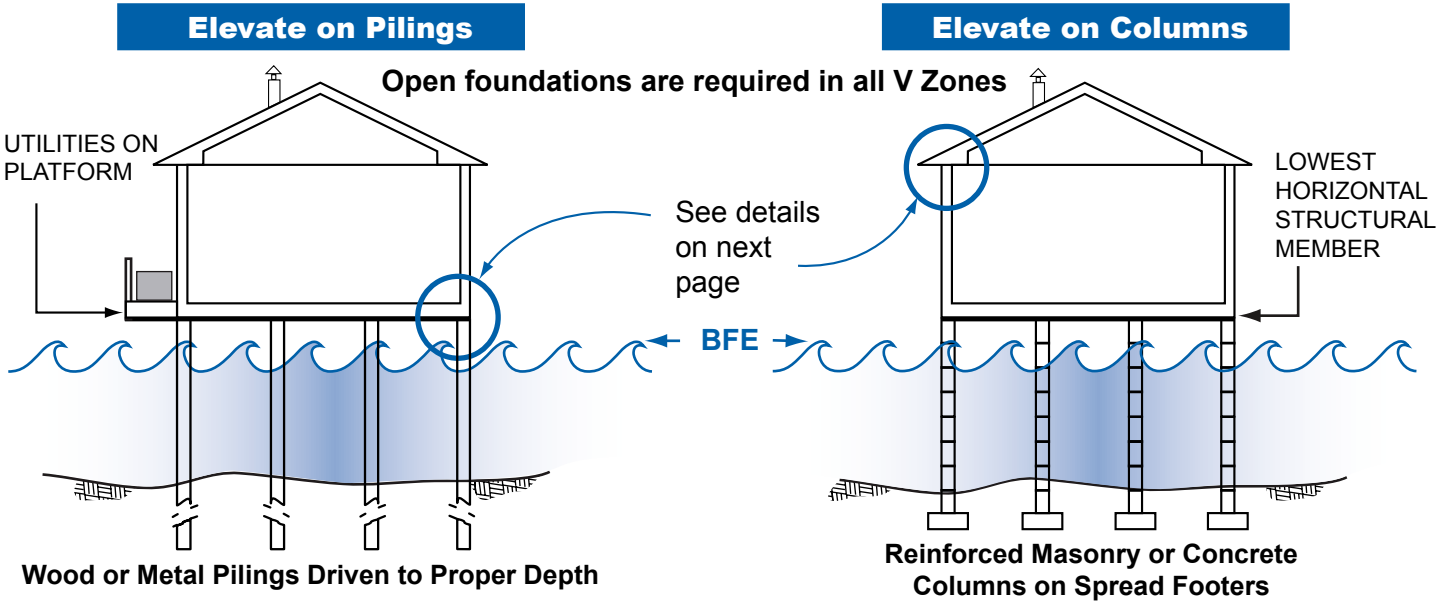
In A Zones, including Coastal A Zones, the lowest floor of a building and its relationship to the BFE is used to determine flood insurance rates. The lowest adjacent grade and its relationship to the BFE is used to determine if flood insurance is mandatory (previous page). If the lowest floor of a structure is at or above the BFE, a completed Elevation Certificate can be used to get lower cost flood insurance (see page 74 and 75). At least one foot above BFE is required in American Samoa for all new construction and substantial improvements.

The Lowest Horizontal Structural Member



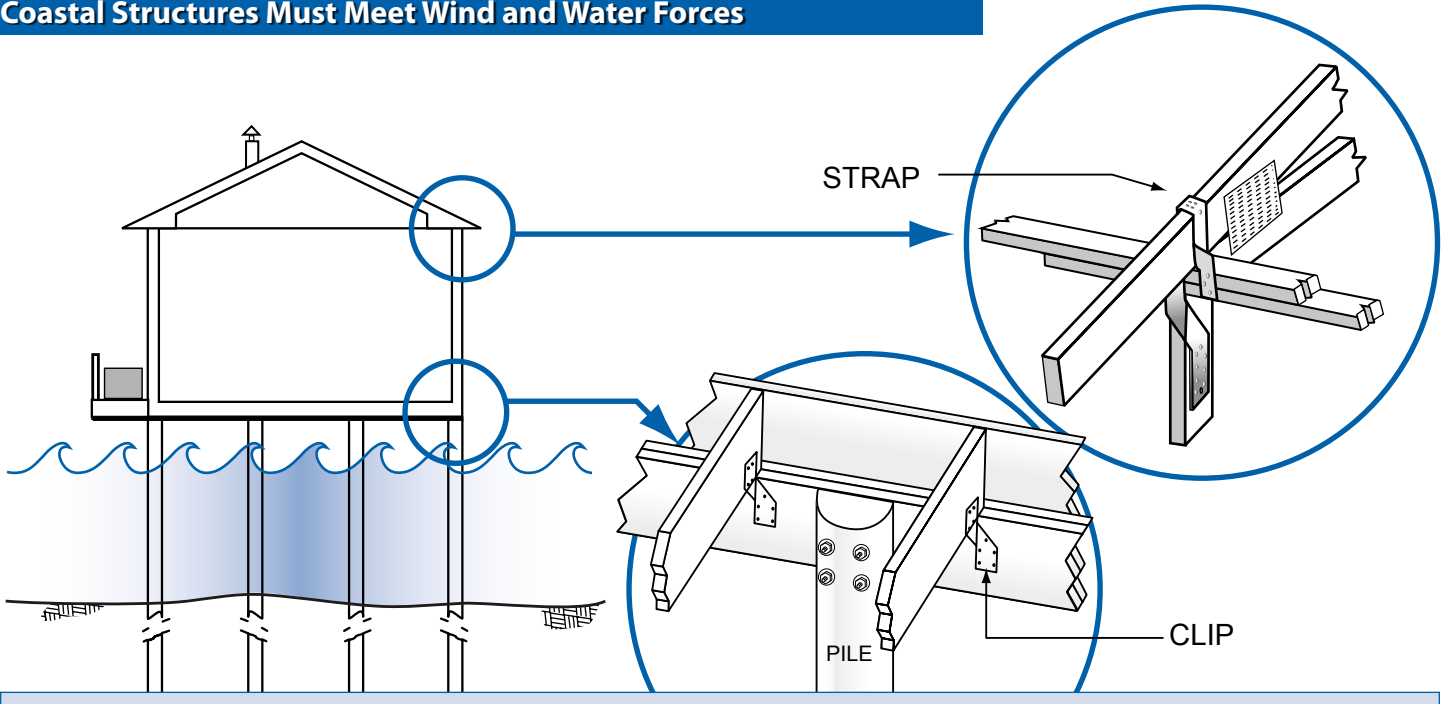
In V Zones, the lowest horizontal structural member of a building and its relationship to the BFE is used to determine flood insurance rates. The lowest adjacent grade and its relationship to the BFE is used to determine if flood insurance is mandatory (see page 45). If the lowest horizontal structural member of a building is at or above the BFE, a completed Elevation Certificate can be used to get lower cost flood insurance (see pages 74-75). At least one foot above BFE is required in American Samoa for all new construction and substantial improvements.

Typical Elevation Methods for Coastal Construction



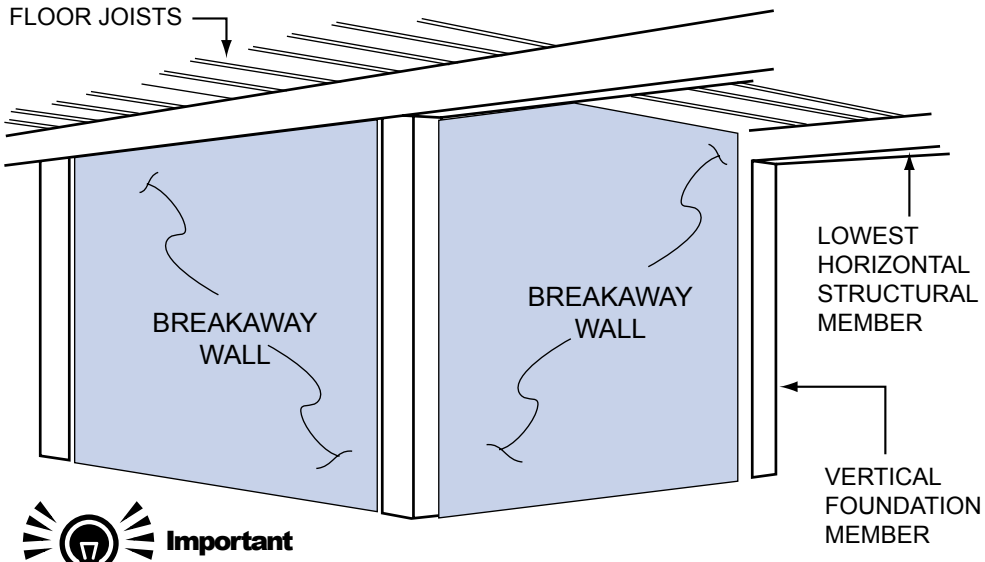
In V Zones, design requirements will be determined by an architect or engineer based on the site, including how their structure will be elevated and how deep the foundation elements will extend. See the *The Homebuilder's Guide to Coastal Construction (FEMA 499)* and the *Coastal Construction Manual* (FEMA 55) for additional information on coastal construction. The books are available at no cost from FEMA Publications at 800-480-2520.

Coastal Structures Must Meet Wind and Water Forces



Coastal buildings may be exposed to both hurricane winds, earthquakes and floodwaters. Structural building components should be connected together to transfer forces in a continuous load path from the roof to the foundation. The details above are some examples of wind, earthquake and water resistant construction. An architect or engineer should determine the types of connections required for the roof, building, and foundations.

Breakaway Walls



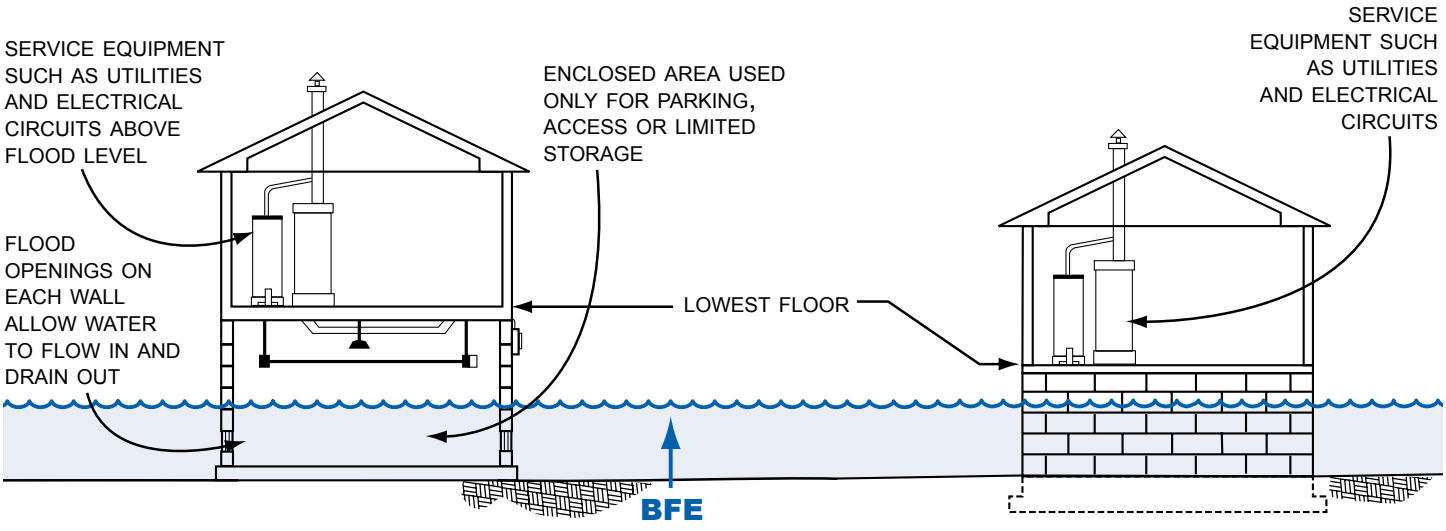
Avoid building an enclosure under a V Zone structure. If you must enclose a small area, the American Samoa floodplain management regulations require:

- Walls to be designed to collapse or "break away" under storm and flood conditions
- Flood resistant materials
- Utility wires and pipes not go through or be attached to breakaway walls
- Enclosed area be used only for parking, building access or storage
- There be no bathrooms, utility rooms or electric service below BFE

Important Information

Do not modify an enclosure below an elevated V Zone building! Not only is it a violation of American Samoa regulations, but flood insurance will be very expensive. The floor of the enclosure will become the "bottom floor" or "lowest floor" for insurance and floodplain management purposes.

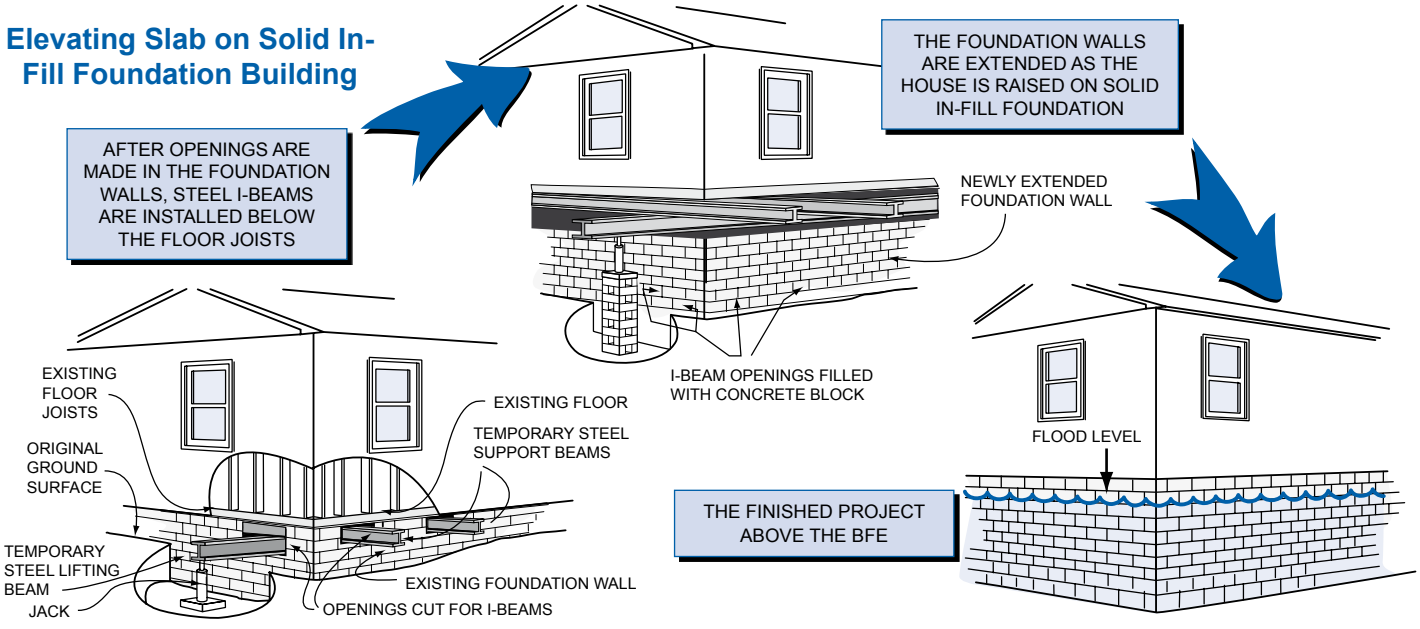
Elevated Floodplain Structure (A-Zones)



Caution! Enclosures (including crawlspaces) must meet special design requirements (see pages 54 and 55). All under floor utilities must be at least one foot above the BFE.

Elevating an Existing Structure (A Zones)

Elevating Slab on Solid In-Fill Foundation Building



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 72).

Enclosures Below the Lowest Floor (A Zones)

Important

Information

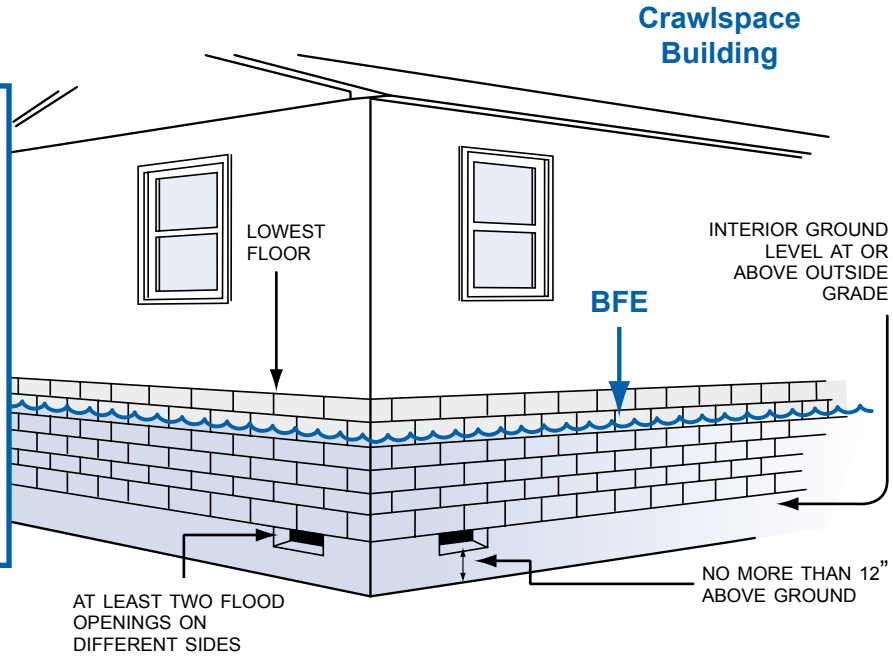
Note:

Total net area of all total openings is 1 square inch per square foot of enclosed area.

A 30 foot x 50 foot building, 1500 square feet, needs 1,500 square inches of openings.

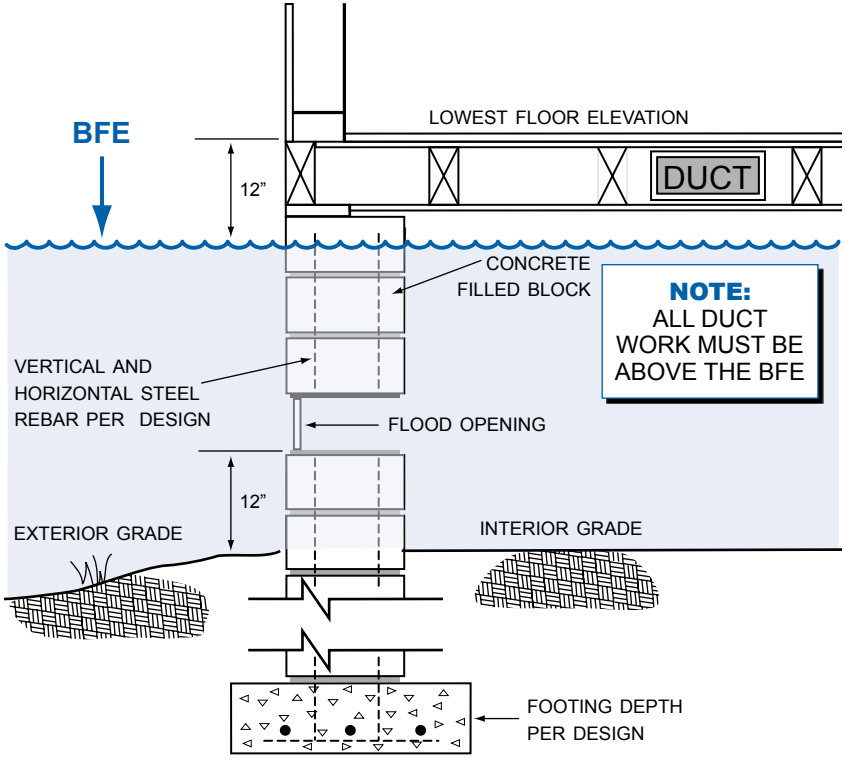
Standard ventilation units used in foundation walls must be disabled in the open position to allow water to flow in and out automatically.

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



In A Zones, solid perimeter walls can enclose floodprone areas. A crawlspace, though not common in American Samoa, is another way to elevate a few feet. In all cases the following are required: flood openings, utilities elevated to at least one foot above the BFE, flood resistant materials and limitations on use of enclosures below the lowest floor.

Crawlspace Details

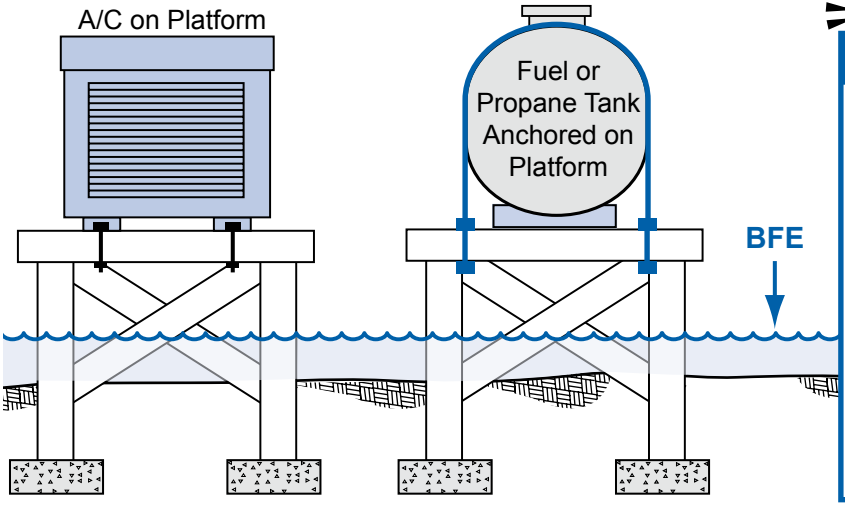


- The Lowest Floor Elevation must be at least one foot above the BFE. The bottom of flood openings must be no more than one foot above the grade.
- Standard ventilation units must be permanently disabled in the "open" position to allow water to flow in and out automatically.
- Interior and exterior grades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

Calculate Net Flood Opening:

A 30 foot x 50 foot building has 1,500 square feet of enclosed crawlspace. Flood vents must provide 1,500 square inches of net open area (or have certified engineered openings). If a standard air vent unit provides 60 square inches of net open area, then to satisfy the flood opening requirement 25 vents are required (1,500 divided by 60).

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

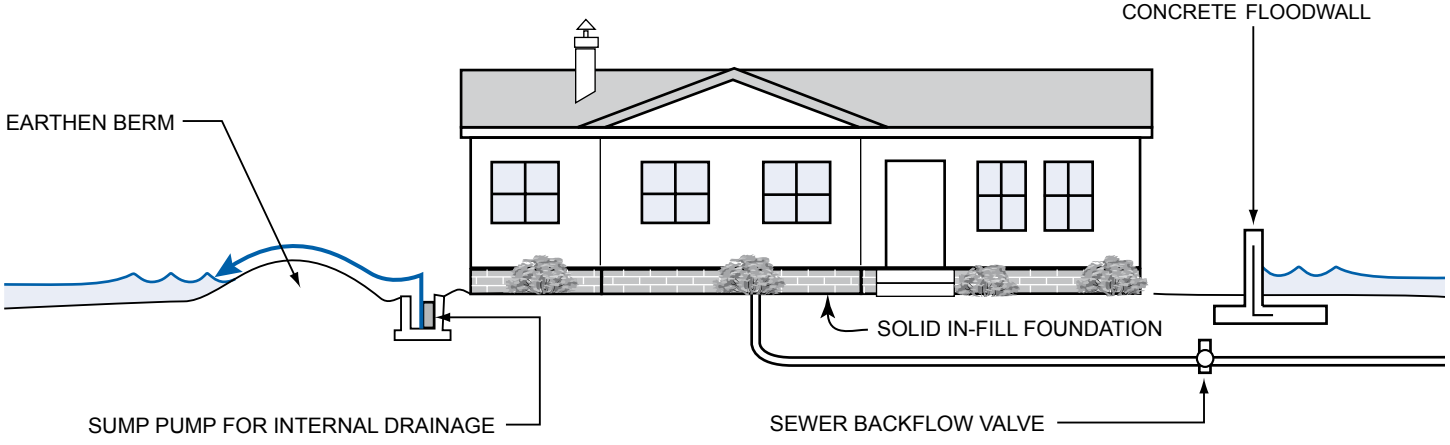
For floodplain management purposes, a gas or a liquid storage tank that is principally above ground is considered a structure and must be elevated at least one foot above the BFE.

Fuel and propane tanks can pose serious threats to people, property, and the environment 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.

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.

Berms/Floodwalls Can Protect Pre-FIRM Structures

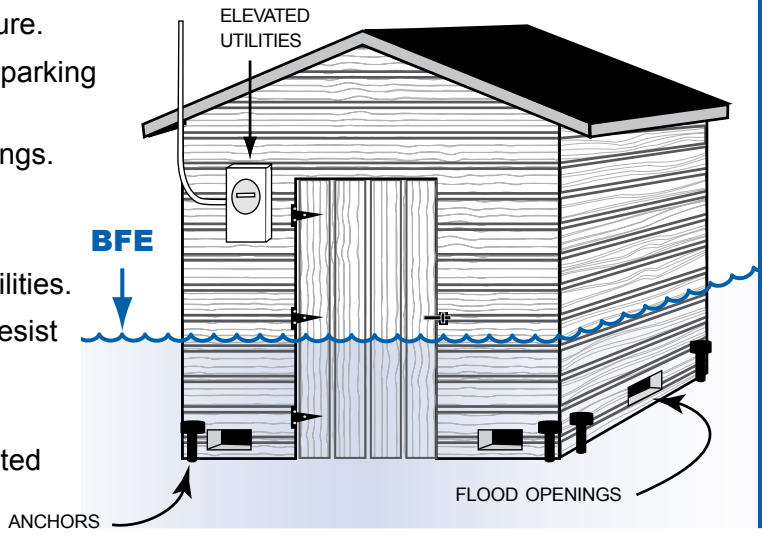
In areas where flood waters are not expected to be deep, sometimes individual buildings can be protected by earthen berms or concrete floodwalls. Permits are required for those protection measures, and extra care must be taken if the site is in a floodwa. A berm or floodwall does not remove building 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! Berms are not allowed in V Zones and floodwalls must meet V Zone design requirements.

Accessory Structures in Special Flood Hazard Areas:

- 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

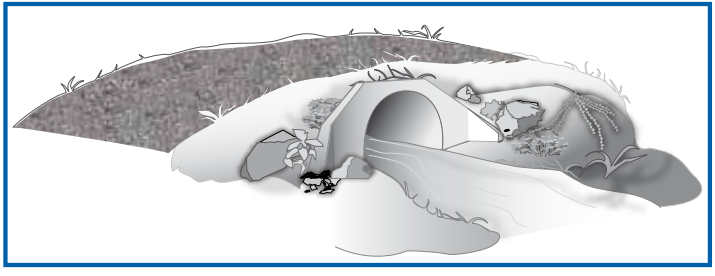
Accessory Structure means a structure that is located on the same parcel of land as a principle structure and whose use is incidental to the use of the principal structure. Accessory structures should be no more than a minimal initial investment, may not be used for human habitation, and must be designed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

Private Water Crossings

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

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



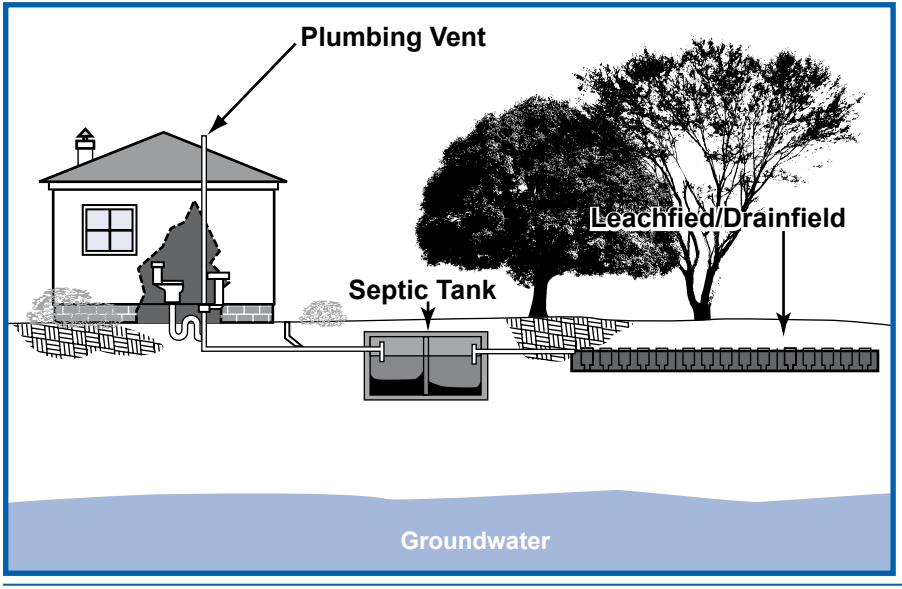
Structural design must be based on the maximum anticipated water depth and velocity and the intended use of the crossing. Coordination between the owner, engineer, contractor and appropriate Territory and Federal agencies is essential to project success. Remember Territory and Federal permits are required.

The FEMA publication, *Private Water Crossings: Considerations before you build or rebuild*, does includes information and examples useful in deciding which type of crossing may best fit particular situations. It is available online at: http://www.fema.gov/library/viewRecord.do?id=3896&fromSearch=fromsearch

Septic Tanks

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

Septic systems are often destroyed if located near a shoreline. Therefore 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 waters to nearby properties.

Approved Environmental Review Permits are required for On-Site Wastewater Treatment Systems. Villages should approach the PNRS prior to redevelopment to identify potential wastewater options.

Septic systems must be designed by a qualified engineer in accordance with soil percolation rates, water usage rates, separation distances to groundwater and surface water.

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.
- 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 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 69).

Terms and Definitions

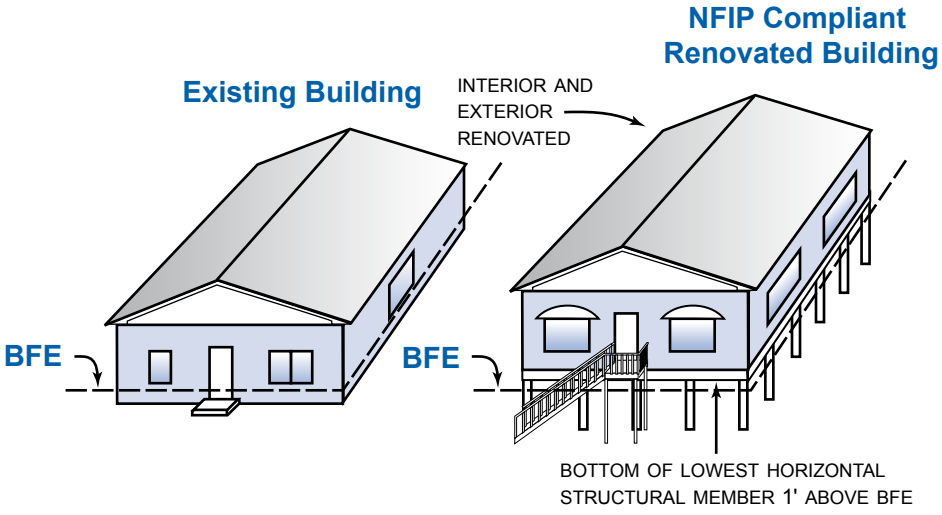
Substantial improvement means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred substantial damage, regardless of the actual repair work performed (see page 70).

Important Information

Improvements include

- Renovation/ rehabilitation of the interior of the existing building
- Lateral addition, without renovation or structural alteration of the existing building
- Lateral addition, with renovation or structural alteration of the existing building
- Vertical addition, adding a new story or partial story

Substantial Improvement V Zone: Renovation Only



Important

Information

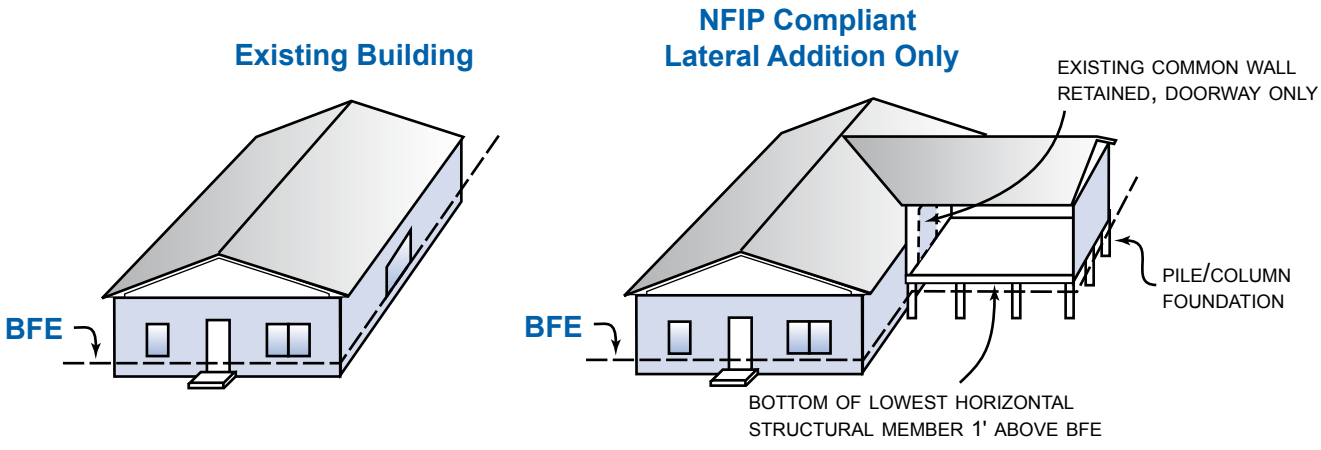
Floodplain buildings can be improved, renovated, rehabilitated or altered, but special rules apply. Check with the Department of Commerce before you begin. It will be easier to do it right the first time.

The cost to correct previously cited violations of Territory 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.

All new and substantially improved buildings in V Zones must be built on an open pile or column foundations and meet all other requirements for V Zone construction. Though not required, the Department of Commerce recommends that all new and substantially improved structures in coastal A Zones subject to breaking waves and erosion also comply with V Zone construction requirements.

Substantial Improvement V Zone: Lateral Addition Only



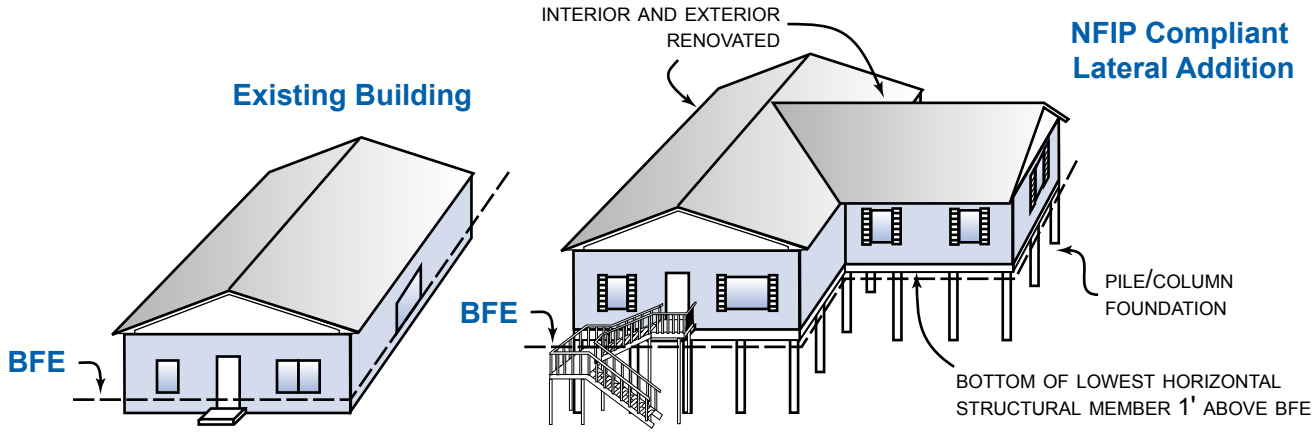
Some lateral additions are not considered substantial improvements. **If:**

- 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,

Then only the addition must be built with the lowest horizontal structural member at least one foot above the BFE.

In V Zones, an attached garage does not have to be elevated at least one foot above the BFE, but it must be constructed with breakaway walls.

Substantial Improvement V Zone: Lateral Addition Plus Other Work

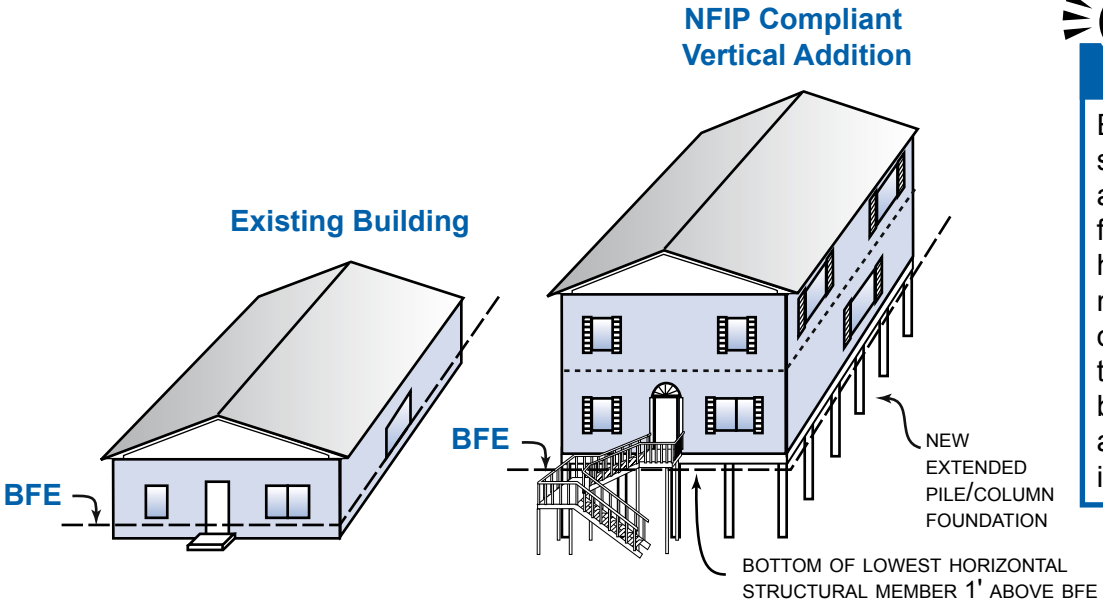


Your community must determine if all of your proposed work will trigger the substantial improvement requirement. Substantial improvement is triggered if:

- 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 equals or exceeds 50% of the market value of the existing building.

If a lateral addition and additional work is a substantial improvement, then both the existing building and the addition must be elevated at least one foot above the BFE.

Substantial Improvement V Zone: Vertical Addition



Important

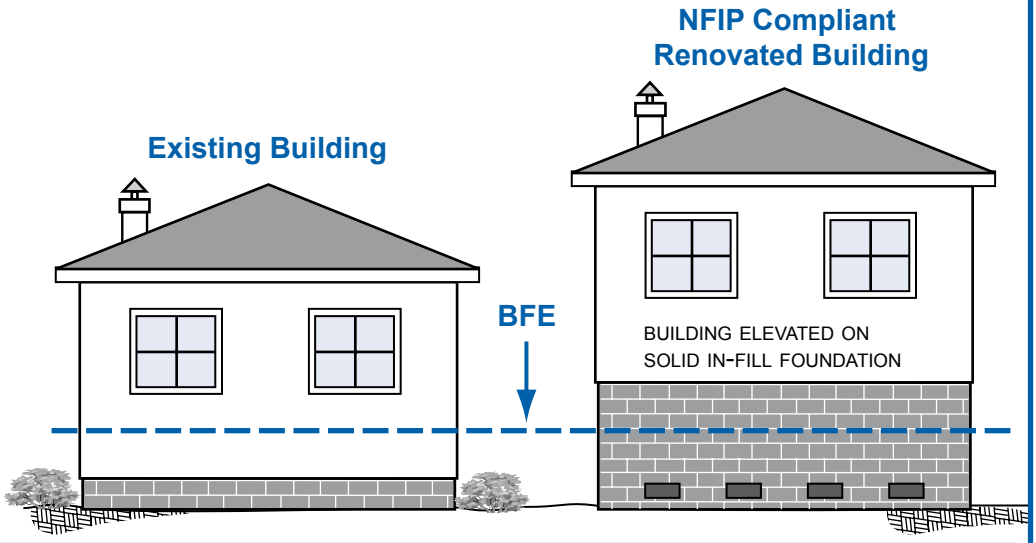
Information

Even if the existing structure is built on an open pile/column foundation, if the lowest horizontal structural member is not at least one foot above the BFE the entire structure must be raised if the vertical addition is a substantial improvement.

If the addition of another story to a V Zone structure is a substantial improvement the entire structure must be elevated on a open pile/column foundation. Space below the foundation can be used only for parking, storage or access. Enclosures below the foundation must have breakaway walls see page 50.

Substantial Improvement A Zone: Renovation Only

In American Samoa new and substantially improved floodplain buildings must be elevated at least one foot above the BFE.



A Zone buildings elevated on crawlspace foundations require flood openings and must meet other requirements (see pages 53 and 54). Solid in-fill foundations are not allowed in V Zones.

Important

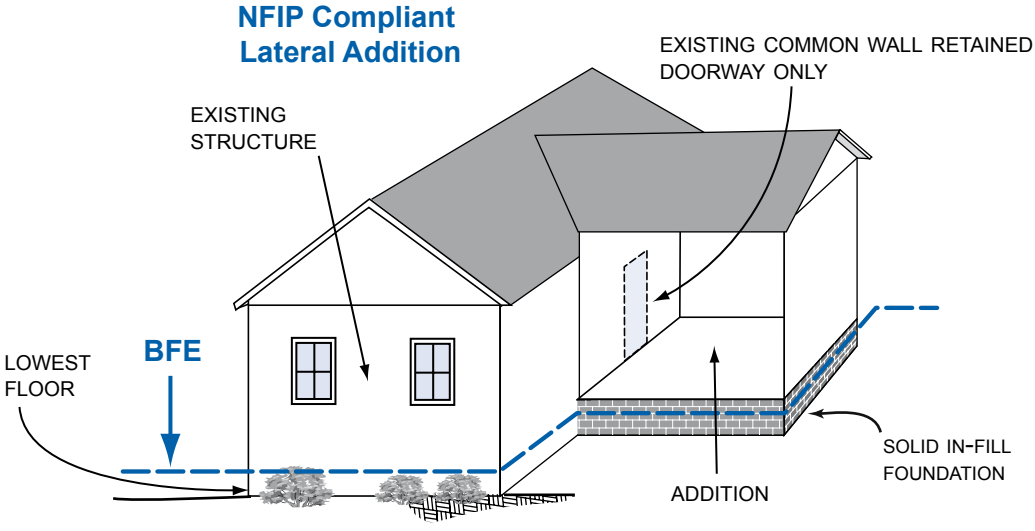
Information

Floodplain buildings can be improved, renovated, rehabilitated or altered, but special rules apply. Check with the Department of Commerce before you begin. It will be easier to do it right the first time.

The cost to correct previously cited violations of Territory 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 A Zone: Lateral Addition Only



Important

Information

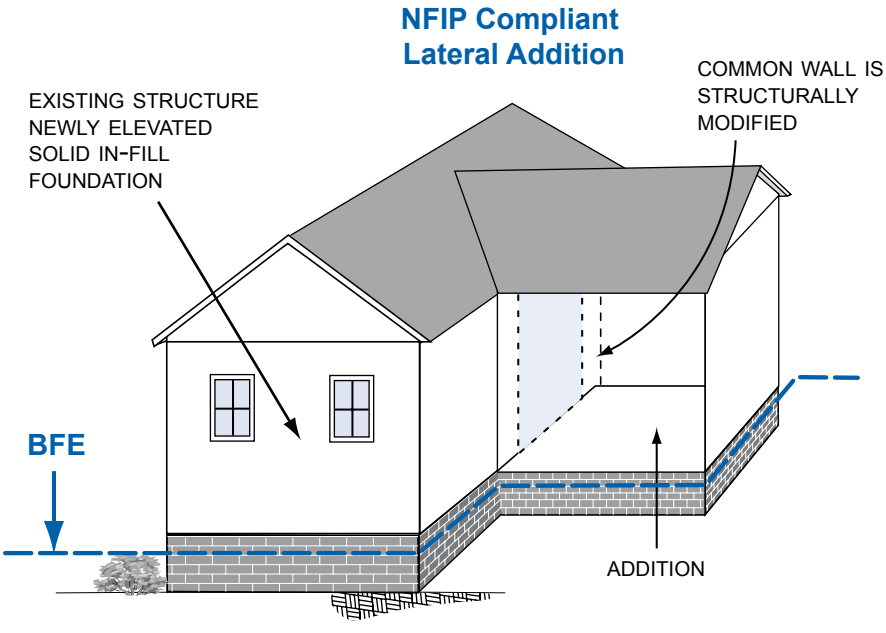
See next page if your project to add a lateral addition also includes modifying the interior of the existing building or making structural modifications to the existing common wall.

Some lateral additions are not considered substantial improvements. **If:**

- 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,

Then only the addition must be built with the lowest floor at least one foot above the BFE.

Substantial Improvement A Zone: Addition Plus Other Work



Your community must determine if all of your proposed work will trigger the substantial improvement requirement. Substantial improvement is triggered if:

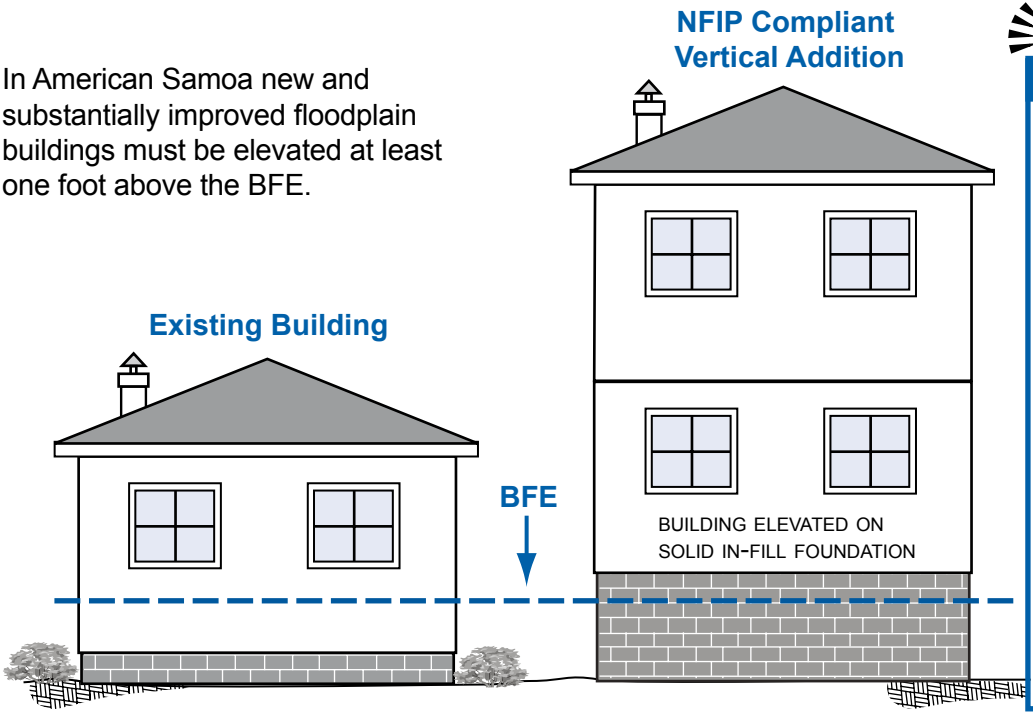
- The work involves adding a new top floor, modifying the interior of the existing building, or structural modifications to the existing common wall (for lateral addition); and,
- The cost of all proposed work equals or exceeds 50% of the market value of the existing building.

In American Samoa new and substantially improved floodplain buildings must be elevated at least one foot above the BFE.

The Department of Commerce 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.

Substantial Improvement A Zone: Vertical Addition

In American Samoa new and substantially improved floodplain buildings must be elevated at least one foot above the BFE.



Important

Information

Elevating an existing structure to one foot above the BFE or even higher will reduce future damages and reduce flood insurance costs.

The effectiveness of elevations is well told in the FEMA Mitigation Best Practices Portfolio. The portfolio is a collection of stories documenting the successful implementation and benefits, of many different types of mitigation measures.

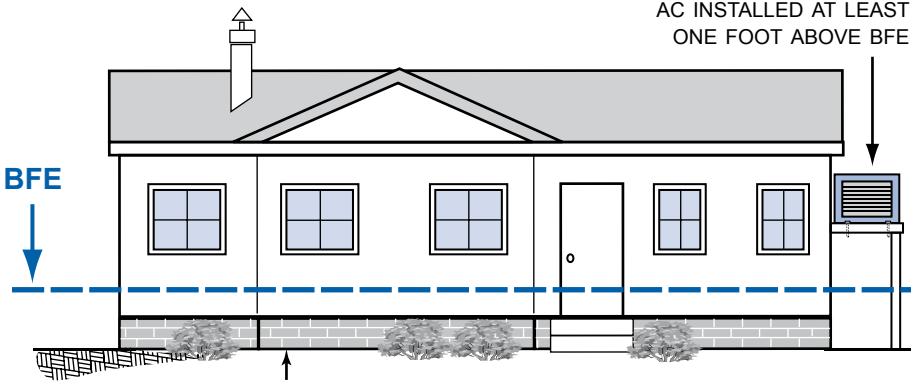
Go to http://www.fema.gov/mitigationbp/index.jsp to search for stories of interest to you.

If the addition of a full or partial story is a substantial improvement, the existing building must be elevated at least one foot above the BFE.

Non-Substantial Improvements

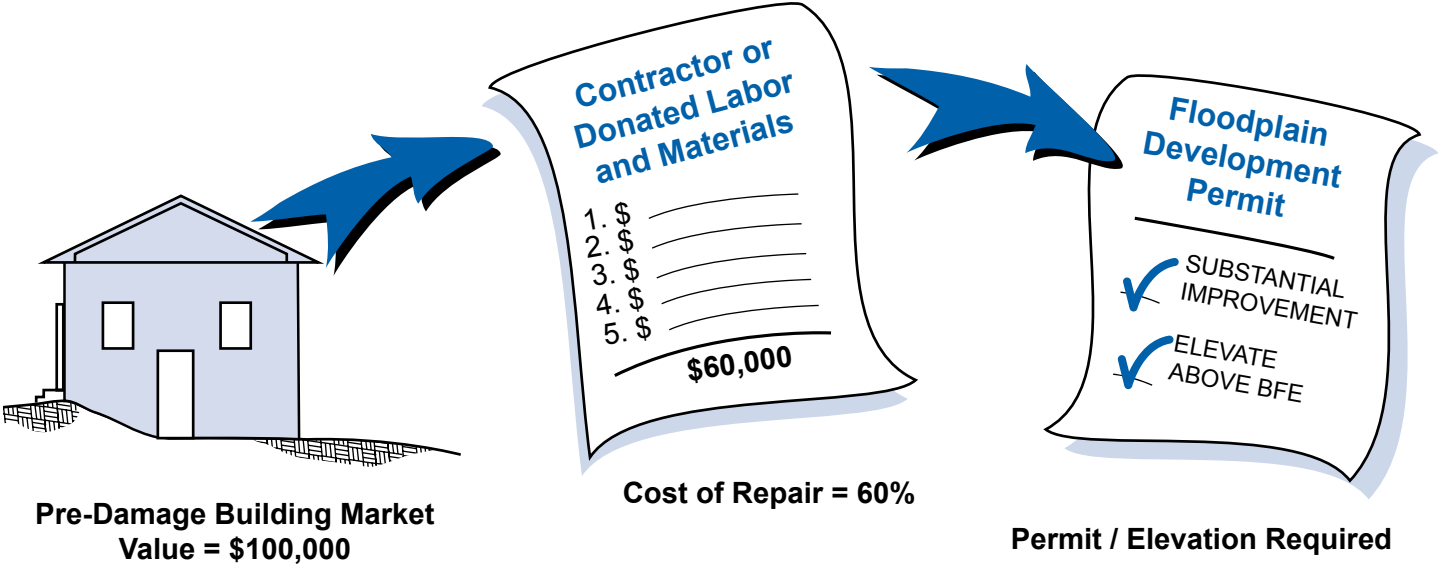
Your proposed improvements are "non-substantial" if the cost of improvements are less than 50% of the market value of the building. Although you are not required to bring the existing building into compliance, there are many things you can do to reduce future flood damage. Find out the BFE at your location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

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



Note! Be sure to include **all** proposed work in your initial permit application. If you add more work after the permit is issued, your community will make another evaluation for Substantial Improvement. Though you may not be required to elevate your structure, elevating it to or above the BFE or more will bring significant flood insurance savings. See pages 74 and 75 for more information.

What About After Damage?



Pre-Damage Building Market Value = $100,000

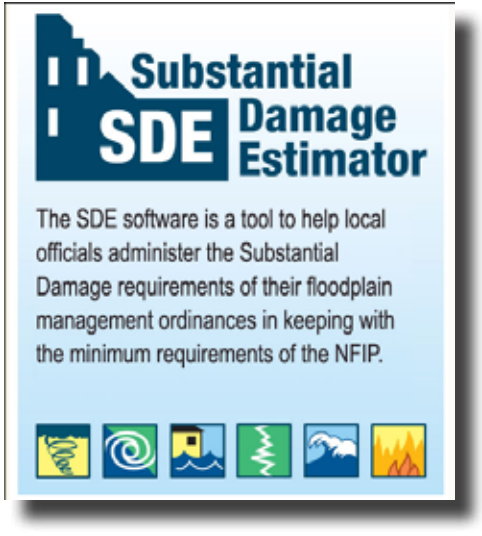
Cost of Repair = 60%

Permit / Elevation Required

Environmental Review and Building Permits are required to repair substantial damage from any cause – fire, flood, wind, or even a truck running into a building. Check with the Department of Commerce 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.

Substantial Damage Estimator

Communities participating in the 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 that are determined to be substantially damaged or improved, must be brought into compliance with the minimum requirements of the community's NFIP-compliant floodplain management laws or ordinances. This requirement applies to all structures in the SFHA, but is independent of the source of damage to the structure; damage as a result of flooding, high winds, fire, or any other source can trigger the requirement.



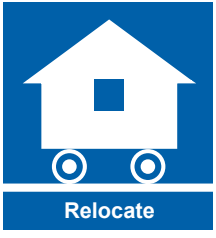
The Substantial Damage Estimator (SDE) was developed to assist State and local officials in estimating building value and damage costs for residential and non-residential buildings. The SDE software is based on the concept of using damage estimates for individual building elements to determine whether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

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

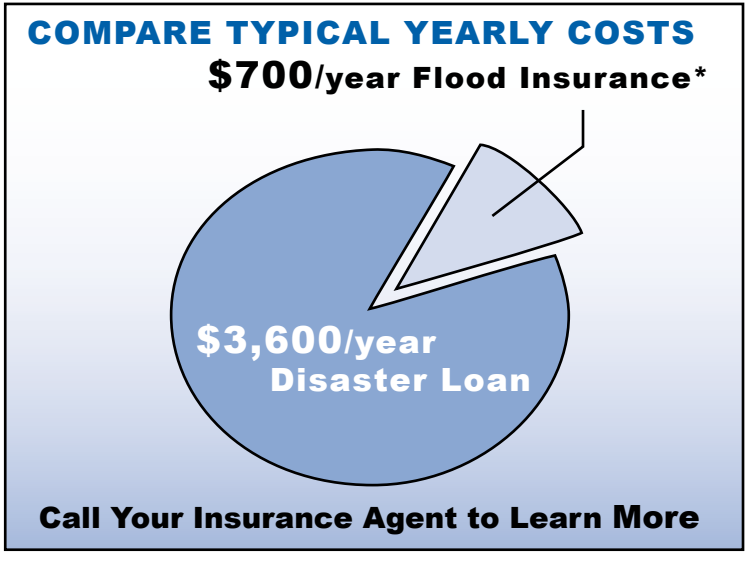
Your property sustained “repetitive damage.” This term applies to homes or businesses that were damaged by flooding twice in the past 10 years, where the cost of repairing the flood damage, on average, equaled or exceeded 25 percent of the property market value at the time of each flood. Also, there 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 American Samoa, a participating NFIP community, 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 American Samoa Government urges you to protect your financial future by getting a flood insurance policy. To get the name of an agent in your community, call the NFIP's toll free number **888-356-6329** or visit **http://www.floodsmart.gov.**

***Insurance rates vary based on many factors and will increase over time. Typical cost based on $100,000 structure coverage and $30,000 contents coverage for A Zone home using the October 1, 2009, rate tables.

Freeboard: Go Above the BFE (A Zones)

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 American Samoa, new construction and substantially improved structures must be built to at least one foot above the BFE. 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 $100,000	Contents $30,000	Federal Policy Fee	ICC Fee	Total Annual Premium	30-Yr. Mortgage Total Flood Insurance Cost
3' above	$200	$126	$35	$6	$367	$11,010
2' above	**$294**	**$126**	$35	$6	**$461**	**$13,830**
1' above	$488	$170	$35	$6	$699	$20,970
At BFE	$963	$395	$35	$6	$1,391	$41,970
1' below	**$3,244**	**$1,216**	$35	$6	**$4,501**	**$135,030**

*October 1, 2009 Rate Tables

Though other factors affect flood insurance rates, the most significant is the relationship of the lowest floor elevation to the BFE. For Post-FIRM buildings (see page 22), **the lower the structure is relative to BFE the higher the cost of insurance.** This is true in all A Zones and for all insurable structures.

Important Information

Note: Building owners will save insurance money if they elevate above the BFE. But more impressive is the cost of insurance can be six times more expensive if the building is even only one foot below BFE.

Note!
Premium amounts are based on the lowest floor elevation, the age of the structure, the flood zone, and how much coverage you buy. Your total annual premium is likely to vary from the amounts shown here.

Freeboard: Go Above the BFE (V Zones)

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 American Samoa, new construction and substantially improved structures must be built to at least one foot above the BFE. Additional freeboard will add safety and reduce flood insurance costs.

Annual Flood Insurance Premium* Example
Flood Zone V, VE, Post-FIRM, One-Story Single-Family Residence, No Basement
Lowest horizontal structural member elevation compared to the Base Flood Elevation (BFE)

Lowest Floor Elevation	Structure $100,000	Contents $30,000	Federal Policy Fee	ICC Fee	Total Annual Premium	30-Yr. Mortgage Total Flood Insurance Cost
3' above	$1,000	$154	$35	$6	$1,209	$36,270
2' above	**$1,288**	**$221**	$35	$6	**$1,564**	**$46,920**
1' above	$1,988	$405	$35	$6	$2,448	$73,440
At BFE	$2,550	$622	$35	$6	$3,227	$96,810
1' below	**$3,375**	**$900**	$35	$6	**$4,330**	**$129,990**

*October 1, 2009 Rate Tables

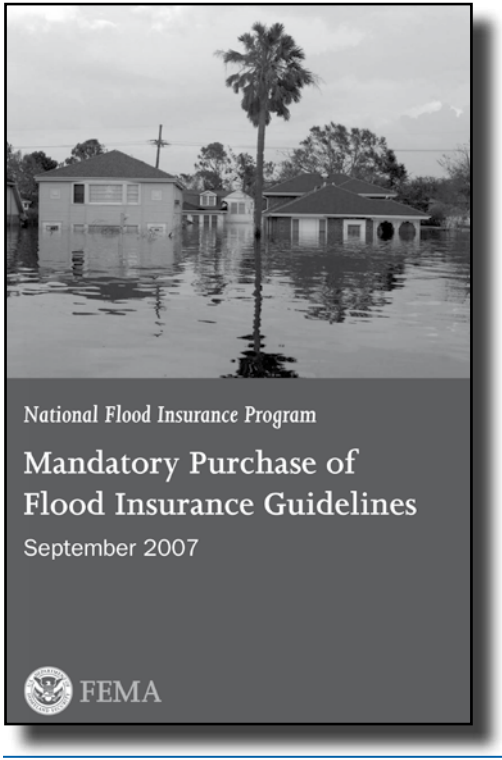
Though other factors affect flood insurance rates, the most significant is the relationship of the lowest horizontal structural member to the BFE. For Post-FIRM buildings (see page 22), **the lower the structure is relative to BFE the higher the cost of insurance.** This is true in all V Zones and for all insurable structures.

Important Information

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

Note!
Premium amounts are based on the lowest floor elevation, the age of the structure, the flood zone, and how much coverage you buy. Your total annual premium is likely to vary from the amounts shown here.

Mandatory Purchase Requirement



In NFIP participating communities, improved properties in Special Flood Hazard Areas with real estate loans, that are secured by a Federally backed lending institution, must have flood insurance equal to the amount of the loan, or the replacement cost of the structure, or to the NFIP coverage limits, whichever is lower. This requirement is in effect for the life of the loan.

The requirement applies to construction loans, mortgages, home improvement and home equity loans, commercial loans, buildings as loan collateral security, farm credit loans, second mortgages, subordinate loans and more. Proof of insurance must be provided at loan closing.

Territory-owned structures and small loans – less than $5,000 and repayment term of one year or less – are excepted from the requirement.

The FEMA Publication Mandatory Purchase of Flood Insurance Guidelines provides a detailed explanation of the requirement, the reasons for its enactment and the responsibilities of all affected parties. To download a copy go to:
http://www.fema.gov/library/viewRecord.do?id=2954

Floodplain Management Best Practices

Flooding is a problem and throughout the United States and its territories. Many individuals, businesses and communities have been taking steps to combat its impacts. Many of these actions are documented. FEMA's Best Practice portfolio, available online at http://www.fema.gov/plan/prevent/bestpractices/index.shtm, is one good source for stories.

From the website you can search for stories by State, hazard, activity and other criteria. For instance a nationwide search for stories related to floodplain management returns over 35 stories on topics ranging from mitigating flood risk through buyout and elevation projects, to the connection between code and ordinance enforcement and reduced flood damage to the benefits of mitigation planning and participation in the CRS program.

The Association of State Floodplain Managers website at http://www.floods.org/ is also a good resource. Click on "Publications and Policy Papers" on the left, then "Publications". Among the resources available for download is the publication *Building Public Support for Floodplain Management*, which shows what can be done to build public support and how others have done it.

Have a story to tell? Contact the American Samoa Coastal Management Program Manager.

Want to Learn More?

- For information and advice on permits, contact the Department of Commerce.
- For advice on managing floodplains, contact the Department of Commerce
- To order FEMA digital flood maps, call FEMA's Map Service Center at 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 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.
- Call the National Flood Insurance Program's toll free number, 888-356-6329, to get the name of an agent in your area who writes flood insurance. To learn about flood insurance, speak with an agent that sells 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 American Samoa Department of Commerce website at:
http://www.doc.as

Photo by Samir Valeja/FEMA