

# **Chapter 10**

## **The National Flood Insurance Program**

### **Chapter Overview**

The National Flood Insurance Program has been mentioned in numerous instances in preceding chapters. Its time has arrived in this course! This chapter is devoted to a more detailed discussion of the program and its two components—flood insurance and floodplain management requirements for localities participating in this federal program. The program has earned this level of attention because of the dramatic impact it has had on local floodplain management measures throughout the nation over the past thirty years. Other federal and state executive and legislative actions and programs that also impact local floodplain management will be covered in Chapter Eleven.

### **History**

In 1955 and 1956 the U.S. Senate Banking and Currency Committee made an extensive study of federal disaster insurance, and as a result the Federal Flood Insurance Act of 1956 (P.L. 84-1016) was enacted. The Act provided for the establishment of three programs – a federal flood insurance program, a federal flood reinsurance program, and a federal loan contract program covering flood losses. Upon the enactment of the Act, extensive discussions were held among various federal agencies, with state and local governments, and with the insurance industry. However, no satisfactory program was developed to implement the Act and Congress refused to grant appropriations to fund the flood indemnity program. Experience indicated that the programs contained in the Act were not workable.

Despite the shortcomings of the 1956 Act the need for programs to provide insurance or other assistance against floods or other natural disasters remained apparent. Bills were introduced into the Congress for a restudy of the entire subject with a view to making necessary amendments in the 1956 Act to make it an effective and workable measure. A requirement for such a study was included as Section 5 of the Southeast Hurricane Disaster Relief Act of 1966 (P.L. 89-339). The Department of Housing and Urban Development (HUD) undertook an extensive study of insurance and other programs for financial assistance to victims of floods and related disasters. In August 1966 the HUD Secretary forwarded to President Johnson a report entitled “Insurance and Other Programs for Financial Assistance to Flood Victims.” The President subsequently transmitted the report to the Congress.

As a result of this study, Congress passed in 1968 the National Flood Insurance Act (P.L. 90-448) which authorized the Secretary of Housing and Urban Development to administer the National Flood Insurance Program (NFIP). The Secretary in turn delegated this authority to the newly created Federal Insurance Administration within HUD.

In order for residents of a locality to be able to purchase flood insurance, localities (cities, towns, counties and other forms of local government) had to formally apply for participation in the NFIP. As part of the application process the locality had to adopt resolutions or ordinances to regulate new development in identified flood hazard areas. Initially, participation in the program was strictly voluntary and there were few penalties for non-participation. By 1973 around 2,200 communities had entered the program and committed themselves to certain restrictions on construction in floodprone areas. This represented only about 12 to 15 percent of the nation's floodprone localities.

Despite the efforts of the Federal Insurance Administration to carry out the Congressional intent for sound floodplain management measures in its administration of the Act, it became obvious that a strictly voluntary program was not working. Without mandating provisions to bring about nearly total community participation throughout the nation, no real accomplishment in regulating future floodplain development could be expected nationally. The Administration also stated that an expanded flood insurance program was intended as a substitute and eventual replacement for federal disaster relief for flood occurrences. Property owners not only would be more aware of flood hazards through the requirement to purchase flood insurance in some instances, but would be able to contribute to their own protection when the inevitable flood loss actually occurred.

To achieve these objectives, the Congress enacted the Flood Disaster Protection Act of 1973 (P.L. 93-234), amending the 1968 Act. Its main purpose and effect were to deny both federal financial assistance for acquisition or construction purposes and federally related financing (loans guaranteed through VA, SBA, FHA and other authorities) by lending institutions (such as banks and savings and loans), for use in identified floodprone areas, unless the community in which the area is located participated in the NFIP so that flood insurance would be available.

In 1979 administration of the NFIP was transferred to the Federal Emergency Management Agency (FEMA) under a federal government reorganization. FEMA is presently housed within the Department of Homeland Security. Nearly 18,500 communities are now participating in the program. Over 4 million flood policies with a total coverage of over \$500 billion are in effect.

## **How the NFIP Works**

The National Flood Insurance Program is a voluntary program based on a mutual agreement between the federal government and the participating community. Federally-backed flood insurance coverage is available to any property owner in return for mitigation of flood risks by community regulation of floodplain development. A “community” is a governmental body with the statutory authority to enact and enforce development regulations. The authority to enforce such regulations varies by state. Eligible communities can include cities, towns, villages, townships, counties, parishes, special districts, states and Indian nations or tribes. Only those residing, owning property, or operating a business or nonprofit organization in a community that participates in the NFIP may purchase flood insurance through the program.

The NFIP has developed minimum floodplain management standards and criteria that must be adopted and enforced at the community level. They are based on the technical data provided through flood insurance studies (see Chapter Six). Community management measures must, at a minimum, meet the NFIP standards and any more restrictive state standards. These standards are applied to the 1% chance floodplain and typically involves new construction and substantial improvements to existing structures. Through the NFIP over 100 million acres of flood hazard areas nationwide have been mapped and floodways designated for some six million acres along 40,000 stream and river miles. The total cost for this mapping effort is in the range of \$1 billion.

Administration of floodplain management measures required for participation in the NFIP rests at the community where development/building permits are issued or denied, inspections of development to ensure compliance with the local ordinance is carried out, and records of floodplain development permits are kept for possible future “audit” by a NFIP or state representative.

The National Flood Insurance Program is comprised of two programs: the Emergency Program and the Regular Program.

### **The Emergency Program**

At the onset of the NFIP an Emergency Program was established whereby property owners in participating communities could obtain flood insurance coverage on existing structures at federally subsidized rates, even though flood insurance studies would not be completed for some time. Communities could enter the NFIP by agreeing to adopt minimum land use and control measures for new construction in floodprone areas. This typically involved use of the Flood Hazard Boundary Maps, described in Chapter Six, provided by the NFIP. Presently the emergency program applies to those participating communities that either do not have an identified and mapped flood hazard or only have been provided with a Flood Hazard Boundary Map. It also applies to those newly participating in the NFIP and having not yet adopted floodplain management measures that meet minimum NFIP standards. While in the Emergency Program, FEMA authorizes the sale of flood insurance in the community up to the program limits (see below). Once the community has been provided with flood insurance study data and adopts the required floodplain management measures it is converted to the NFIP's Regular Program.

### **The Regular Program**

Once converted to the Regular Program, FEMA authorizes the sale of additional flood insurance in the community up to the program limits (see below). To remain in the program the community must continue in good faith to implement its adopted floodplain management measures. FEMA arranges for periodic community assistance visits with local officials to monitor and provide any needed technical assistance regarding complying with minimum NFIP floodplain management requirements. Failure to adequately enforce its floodplain management measures can result in a community being suspended or terminated from the program. The ramifications for non-participation are discussed below.

### **NFIP Floodplain Management Standards**

For a community to participate in the National Flood Insurance Program, it must adopt and enforce floodplain management regulations that meet or exceed the minimum NFIP standards and requirements. In some instances, more restrictive state standards may exist, and they must also be met.

The NFIP uses the term "Base Flood" as the standard for floodplain management. It is the base or minimum flood elevation standard that communities must adopt in their local programs. The base flood, also referred to as the "100-year" flood, has a 1 percent chance of occurring in any given year. As detailed in Chapter Six, FEMA provides data, through flood insurance studies, to participating communities in order to provide a technical basis for local floodplain management programs. The level of required floodplain management regulation is tied to the data provided by FEMA in its studies.

NFIP minimum regulations are to be applied to new construction and substantial improvement or substantial damage to existing buildings in identified floodprone areas. New construction is the "start of construction" commenced on or after the effective date of a local floodplain management regulation. Substantial improvement is any rehabilitation, addition, or other improvement of a building when the cost of the improvement equals or exceeds 50 percent of the market value of the building before start of construction of the improvement. Substantial damage means damage of any

origin sustained by a building when the cost of restoring the building to its pre-damaged condition would equal or exceed 50 percent of the market value of the building before damage occurred.

Where Base Flood Elevation (BFE) data have been provided by FEMA, the lowest floor of any new construction or substantial improvement to an existing structure within the mapped “100-year” floodplain (and lying outside the regulatory floodway, as noted below) must be placed at or above the BFE. The lowest floor of a structure is the basement, if one exists; the top of the lowest floor in a mapped A Zone; the bottom of the lowest structural member in mapped V Zones. Figures 10-1 and 10-2 further illustrate the definition of the lowest floor in a variety of building types.

Where FEMA has provided sufficient information to designate a regulatory floodway, the community must select and adopt a floodway that will carry the base flood flow without causing no more than one foot increase in the water surface elevation at any point along the studied stream within the community. (Refer to Chapter Five for a more detailed discussion of the regulatory floodway.) This is illustrated in Figure 10-3, in Table 6-2, and in Floodway Data tables in all flood insurance study reports. Further encroachments within the adopted regulatory floodway are prohibited unless it can be demonstrated through hydrologic and hydraulic analyses that the proposed encroachment would not result in any measurable increase in flood levels within the community during a base flood flow. Because of the uncertainty of further floodplain development outside the floodway boundaries that could ultimately cause the calculated increases in the base flood elevation, communities are not required to reflect these increases in the elevation of the lowest floor of any new construction or substantial improvement to an existing structure. That is, the base flood elevations calculated before designation of a regulatory floodway can be used.

In coastal studies, zones on flood insurance study maps are divided into Zone A and Zone V. The latter zones are defined as “coastal high hazard areas.” These are areas located along coastlines that are subject to high water levels, wave action, and erosion from strong storms and hurricanes. The wind and resultant waves and tidal surges associated with these storms cause water of high velocity to sweep over nearby land. Generally, the V Zone indicates the inland extent of a three-foot breaking wave atop a storm surge. Similar in some ways to riverine floodways, these areas are extremely hazardous to life and property. (Refer to discussion of Coastal High Hazard Areas in Chapter Six and Figures 6-13 and 6-18.) Because of such hazardous conditions, FEMA standards require that buildings in V Zones be constructed to a stricter standard. New construction or substantial improvements are to be elevated such that the bottom of the lowest horizontal structural member of the lowest floor is at or above the BFE, on a pile or column foundation.

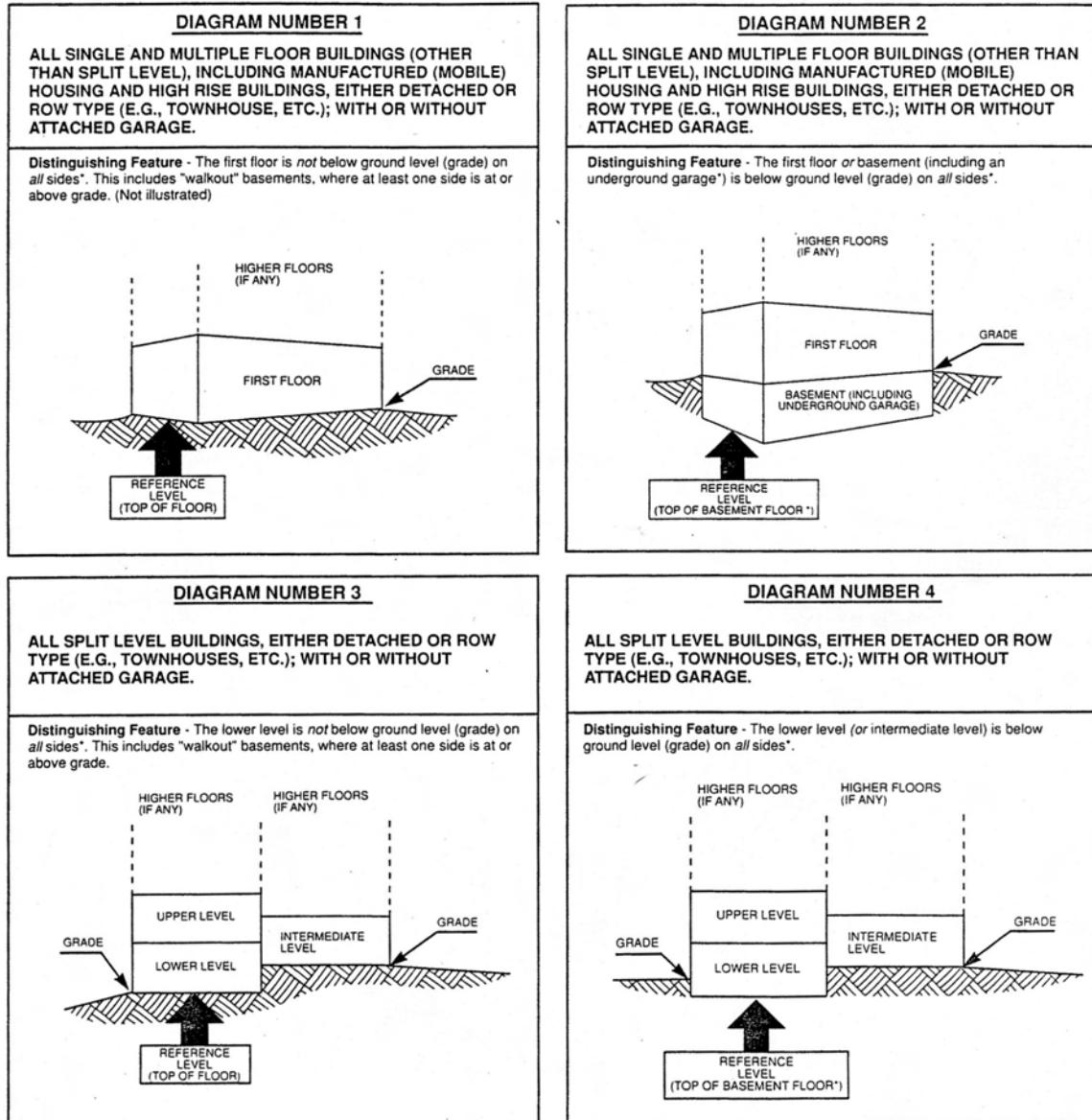
## **Community Rating System**

A community may choose to benefit from actions it takes over and above the minimum requirements of the National Flood Insurance Program (NFIP) to reduce the risk from flooding to its residents by applying to become part of the NFIP Community Rating System (CRS). Through the CRS, a voluntary program, flood insurance premium rates are discounted to reflect reduced flood risk resulting from creditable community activities.

For CRS participating communities, the cost of flood insurance for residents will be reduced based on the number of activities it undertakes and the points it receives for those activities. Flood insurance premium rates are discounted in increments of 5%; i.e., a Class 9 community would receive a 5% premium discount, while a Class 1 community would receive a 45% discount (a Class 10 community receives no discount). The CRS classes for local communities are based on 18

creditable activities, organized under four categories: (i) Public Information, (ii) Mapping and Regulations, (iii) Flood Damage Reduction, and (iv) Flood Preparedness. A description of each of the activities appears in Table 10-1.

**NOTE:** In all A Zones, the reference level is the top of the lowest floor; in V Zones the reference level is the bottom of the lowest horizontal structural member (see diagram on page 2). Agents should refer to the Flood Insurance Manual for instruction on lowest floor definition.



\* Under the National Flood Insurance Program's risk classification and insurance coverage, a floor that is below ground level (grade) on *all sides* is considered a basement even though the floor is used for living purposes, or as an office, garage, workshop, etc.

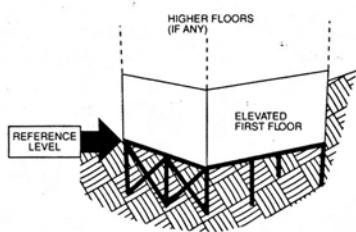
**Figure 10-1. Illustration of "lowest floor."**

Note: In all A Zones, the reference level is the top of the lowest floor; in V Zones the reference level is the bottom of the lowest horizontal structural member (see diagram on page 2). Agents should refer to the Flood Insurance Manual for instruction on lowest floor definition.

#### DIAGRAM NUMBER 5

ALL BUILDINGS, INCLUDING MANUFACTURED (MOBILE) HOMES ELEVATED ON PIERS, POSTS, COLUMNS, SHEAR WALLS, WITH OR WITHOUT PARKING AREA BELOW ELEVATED FLOOR.

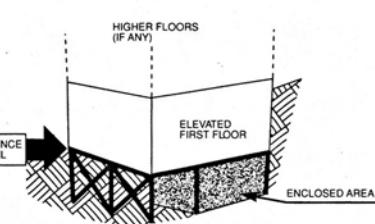
**Distinguishing Feature** - For all zones, the area below the elevated floor is open, with no obstruction to the flow of flood waters (open wood lattice work or readily removable insect screening is permissible).



#### DIAGRAM NUMBER 6

ALL BUILDINGS, INCLUDING MANUFACTURED (MOBILE) HOMES ELEVATED ON PIERS, POSTS, COLUMNS, SHEAR WALLS, WITH OR WITHOUT PARKING AREA BELOW ELEVATED FLOOR.

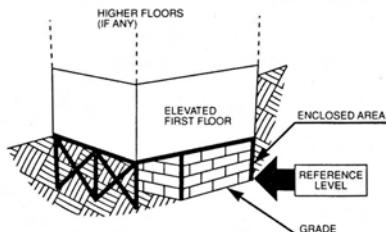
**Distinguishing Feature** - For V Zones only, the area below the elevated floor is enclosed, either partially or fully, by solid breakaway walls.\* When enclosed area is greater than 300 square feet or contains equipment servicing the building, use Diagram Number 7; this will result in a higher insurance rate. The enclosed area can be used for parking, building access or limited storage.



#### DIAGRAM NUMBER 7

ALL BUILDINGS, INCLUDING MANUFACTURED (MOBILE) HOMES ELEVATED ON PIERS, POSTS, COLUMNS, SHEAR WALLS, SOLID NON-BREAKAWAY WALLS, WITH OR WITHOUT PARKING AREA BELOW ELEVATED FLOOR.

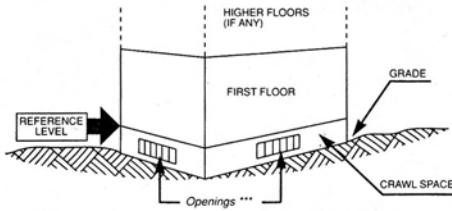
**Distinguishing Feature** - For all zones, the area below the elevated floor is enclosed, either partially or fully, by solid non-breakaway walls, or contains equipment servicing the building. For V Zones only, the area is enclosed, either partially or fully, by solid breakaway walls\*\* having an enclosed area greater than 300 square feet. For A Zones only, with an area enclosed by solid walls having proper openings,\*\*\* and used only for parking, building access, or limited storage, use Diagram Number 8 to determine the reference level.



#### DIAGRAM NUMBER 8

ALL BUILDINGS CONSTRUCTED ABOVE AN UNFINISHED SPACE, INCLUDING CRAWL SPACE.

**Distinguishing Feature** - For A Zones only, the area below the first floor is enclosed by solid or partial perimeter walls, is unfinished, and contains no equipment servicing the structure. The area can be used for parking, building access, or limited storage.

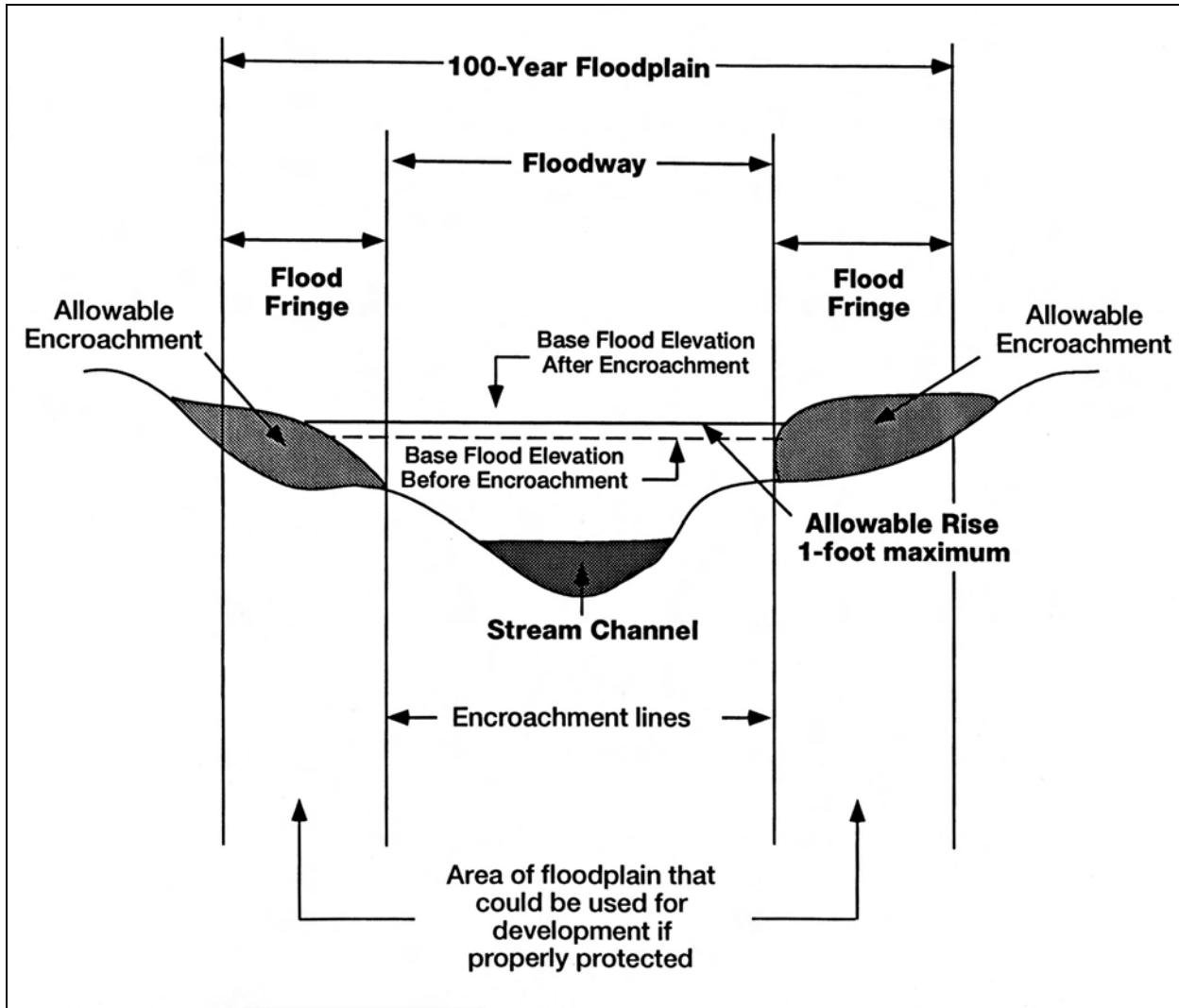


\* Under the National Flood Insurance Program's risk classification and insurance coverage, a floor that is below ground level (grade) on all sides is considered a basement even though the floor is used for living purposes, or as an office, garage, workshop, etc.

\*\* Solid breakaway walls are walls that are not an integral part of the structural support of a building and are intended through their design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation. An area so enclosed is not secure against forceable entry.

\*\*\* If the area below the lowest floor is fully enclosed, then a minimum of two openings are required with a total net area of at least one square inch for every square foot of area enclosed with the bottom of the openings no more than one foot above grade. Alternatively, certification may be provided by a registered professional engineer or architect that the design will allow equalization of hydrostatic flood forces on exterior walls. If neither of these criteria are met, then the reference level is the lowest grade adjacent to the structure.

Figure 10-2. Illustration of "lowest floor."



**Figure 10-3.** Typical floodplain.

### Flood Insurance Zones Revisited

Flood insurance zones were illustrated on a variety of flood insurance study maps presented in Chapter Six, and zone terminology was summarized in Table 6-4. Older maps have “numbered” A and V Zones, e.g., A10, V13. They have their origins in *flood hazard factors* (FHF), typically listed in Table 4 of a community Flood Insurance Study report. An example is shown as Table 10-2. FHFs were used in determining flood insurance rates in A and V Zones.

The FHF for a studied stream reach is the average weighted difference between the 10- and 100-year flood water surface elevations expressed to the nearest one-half foot, and shown as a three digit code. For example, if the difference between water surface of these floods is 0.6 foot, the FHF is 005; if the difference is 1.3 feet, the FHF is 015; if the difference is 4.0 feet the FHF is 040. The decimal is not used after the number. When the difference between the 10- and 100-year water surface elevations is greater than 10.0 feet, it is expressed to the nearest foot, e.g., 12.3 results in a FHF of 120.

**TABLE 10-1. CRS Activities**

<b>300 Public Information Activities</b>	
310	<i>Elevation Certificate:</i> Maintain FEMA's Elevation Certificate and make copies available to inquires.
320	<i>Map Determinations:</i> Respond to inquiries for Flood Insurance Rate Map zone and flood data.
330	<i>Outreach Projects:</i> Advise residents about the flood hazard, flood insurance, and flood protection measures.
340	<i>Hazard Disclosures:</i> Advise potential purchasers of flood prone property about the hazard.
350	<i>Flood Protection Library:</i> Maintain and publicize a library of references on flood insurance and flood protection.
360	<i>Flood Protection Assistance:</i> Provide direct advice to property owners desiring to protect themselves from flooding.
<b>400 Mapping and Regulatory Activities</b>	
410	<i>Additional Flood Data:</i> Develop new flood elevations, floodway delineations, wave heights, or other regulatory flood hazard data.
420	<i>Open Space Preservation:</i> Credit is provided according to the amount of vacant floodplain that is kept free from buildings and filling.
430	<i>Higher Regulatory Standards:</i> Regulations that require new development to be protected to a level greater than the NFIP rules.
440	<i>Flood Data Maintenance:</i> Make the community's floodplain maps more current, useful, or accurate.
450	<i>Stormwater Management:</i> Regulate new developments throughout the watershed to minimize their impact on surface drainage and runoff.
<b>500 Flood Damage Reduction Activities</b>	
510	<i>Repetitive Loss Projects:</i> Develop and implement a plan to mitigate losses in repeatedly flooded areas.
520	<i>Acquisition and Relocation:</i> Purchase or relocate buildings and convert flood prone properties to open space.
530	<i>Retrofitting:</i> Credit is provided according to how buildings have been retrofitted to protect them from flood damages.
540	<i>Drainage System Maintenance:</i> Conduct periodic inspections and maintain the capacities of the channels and retention basins.
<b>600 Flood Preparedness Activities</b>	
610	<i>Flood Warning Program:</i> Provide early flood warnings to the general public and special facilities.
620	<i>Levee Safety:</i> Maintain levees that are not credited with providing base flood protection and emergency response plans for them.
630	<i>Dam Safety:</i> All communities in a state with an approved dam safety program receive credit.

TABLE 4

FLOODING SOURCE	PANEL <sup>1</sup>	ELEVATION DIFFERENCE <sup>2</sup> BETWEEN 1% (100 YEAR) FLOOD AND			FIR	ZONE	BASE FLOOD ELEVATION <sup>3</sup>
		10% (10 YR.)	2% (50 YR.)	0.2% (500 YR.)			
Neuse River Reach 1	0015,0020	-4.0	-1.4	+4.2	040	A8	Varies
Southwest Creek Reach 1	0015,0020	-3.0	-0.7	+1.2	030	A6	Varies
Briery Run Reach 1	0005,0010	-2.1	-0.7	+1.3	020	A4	Varies
Taylor's Branch Reach 1	0005	-2.1	-0.6	+1.4	020	A4	Varies
Jerico Run Tributary Reach 1	0010	-1.9	-0.6	+1.5	020	A4	Varies
Jerico Run Tributary Reach 2	0010	-1.4 -2.2	-0.5 -0.9	+0.8 +1.5	015 020	A3 A4	Varies Varies

\*FLOOD INSURANCE RATE MAP PANEL  
\*\*WEIGHTED AVERAGE  
^ROUNDED TO NEAREST FOOT SEE MAP

FEDERAL EMERGENCY MANAGEMENT AGENCY	FLood Insurance Zone Data
CITY OF KINSTON, NC (LENOIR CO.)	NEUSE RIVER-SOUTHWEST CREEK-BRIERY RUN-TAYLORS BRANCH-JERICOM RUN-JERICOM RUN TRIBUTARY.

Table 10-2. Typical flood insurance zone data.

In coastal areas, the A Zone designations are determined by calculating the average difference between the 100-year wave crest elevations and the 10-year stillwater elevations for each zone. (Refer to Figure 6-18 for an illustration of these elevations.) These differences are rounded to the nearest 0.5 foot to denote the FHF. For example, if the wave crest elevation was 11.7 feet and the stillwater elevation 5.0 feet, the FHF would be 065 ( $11.7 - 5.0 = 6.7$ )

In coastal studies where wave actions affects flood hazards, the FHF of the V Zone is determined using the differences between the 10- and 100-year wave crest elevations. This difference is not directly determined in studies but is estimated as the difference between the 10- and 100-year stillwater elevations multiplied by 1.55. A difference of 5.5 feet in these elevations multiplied by 1.55 is 8.525, resulting in a FHF of 085. As above, the decimal is not used after the number.

The flood insurance zone in the next column of Table 10-2 is a factor of the FHF. The non-zero part of the FHF is multiplied by two to produce the zone number. For example, a FHF of 040 (treated as 4.0) results in an A8 Zone, a FHF of 065 in a V13 Zone, etc. Working backwards, in an A8 Zone there is about a four foot difference between the 10- and 100-year flood elevations.

To simplify the rating process, FHFs are no longer used in determining flood insurance rates, which were based on the zone number. New format maps do not contain numbered A or V Zones (see Chapter 6).

## **Insurance Coverage, Limits, Rates, and Purchase Requirements**

### **Coverage**

Flood insurance may be purchased on almost any building, which is walled and has a roof, and its contents, including mobile homes. Further, the building must be principally above ground and not entirely over water. Coverage is not provided for motor vehicles, land, trees, shrubbery, livestock, and equipment stored in the open. *The property does not have to be located within an identified flood hazard area. Anyone in a participating community can purchase a flood insurance policy regardless of their property location.* A policy may be purchased from any licensed property insurance agent or broker.

There are a few other exceptions regarding coverage. Within units in the Coastal Barrier Resources System, established by Congressional Acts in 1982 and 1990, and subsequent revisions, no new flood insurance coverage may be provided after specified dates for new or substantially improved structures on any coastal barrier in the system. These areas have been identified on NFIP flood maps. Figure 6-19 provides an example.

## Limits of Coverage

### Emergency Program

Buildings	Contents		
Single Family	\$35,000	Residential	\$10,000
Other Residential	\$100,000	Non-residential	\$100,000
Non-residential	\$100,000		

### Regular Program

	Basic	Additional	Total
	Insurance	Insurance	Insurance
<b>Building Coverage</b>			
Single Family Dwelling	\$ 50,000	\$200,000	\$250,000
2-4 Family Dwelling	\$ 50,000	\$200,000	\$250,000
Other Residential	\$135,000	\$115,000	\$250,000
Non-Residential or Small Business	\$135,000	\$365,000	\$500,000

### Contents Coverage (per unit)

Residential	\$ 15,000	\$ 85,000	\$100,000
Non-Residential or Small Business	\$115,000	\$385,000	\$500,000

### Insurance Rates

Insurable structures built before issuance of the Flood Insurance Rate Map (FIRM) to the community are eligible for insurance coverage at a subsidized rate. The FIA position is that this was usually the first formal recognition of the degree of flood threat in that locality. The subsidy defrays the very high premiums that would be charged to building several feet below the Base Flood Elevation (BFE). The subsidized rate remains in effect unless there are substantial improvements or substantial damage to the structure. In these instances, the subsidized rate would no longer be available,

The premium rates for construction that takes place after issuance of the FIRM are actuarial, i.e., determined by the likelihood of an event happening. In this instance, insurance rates are based on the building type, occupancy, and content location, *and most importantly, the elevation of the lowest floor of the building in relation to the Base (1% annual chance or “100-year”) Flood elevation.* Tables 10-3 and 10-4 are typical Flood Insurance Rate Tables for building and contents. In the tables “basic” rates reflect limits of typical loss, i.e., most claims do not exceed this amount. They apply up to \$50,000 residential building coverage and up to \$15,000 residential contents coverage. “Additional” rates apply up to coverage limits. The latter rates are lower because there are few claims for this amount of coverage. Table 10-5 shows 1-year insurance premiums for a typical

residence based on the elevation of the lowest floor in relation to the Base Flood Elevation (BFE). It was prepared several years ago by a FIA official, upon request. Present premiums have likely changed but not the relative differences in rates.

**Table 10-3. Flood insurance building rates.**

### Flood Insurance Rate Table

Zones A1-A30, AE - Building Rates  
 Regular Program - Post-FIRM Construction  
 Basic/Additional  
 Annual Rates Per \$100 of Coverage

Elevation of Lowest Floor Above or Below BFE 4		Building Type: One Floor No Basement				Elevation of Lowest Floor Above or Below BFE 4		Building Type: More Than One Floor Unfinished Basement					
		Occupancy						Occupancy					
		Single Family	2-4 Family	Other Residential	Nonresidential			Single Family	2-4 Family	Other Residential	Nonresidential		
+4		.12/06	.12/06	.12/06	.12/06	+4		.12/06	.12/06	.12/06	.12/06		
+3		.12/06	.12/06	.12/06	.12/06	+3		.12/06	.12/06	.12/06	.12/06		
+2		.14/06	.14/06	.17/06	.17/06	+2		.12/06	.12/06	.12/06	.12/06		
+1		.19/06	.19/06	.24/06	.24/06	+1		.12/06	.12/06	.12/06	.12/06		
0		.30/06	.30/06	.41/17	.41/17	0		.24/06	.24/06	.30/13	.30/13		
-1		.78/.50	.78/.50	1.21/.80	1.21/.80	-1		.55/.40	.55/.40	.55/.59	.55/.59		
-2		*	*	*	*	-2		*	*	*	*		

Elevation of Lowest Floor Above or Below BFE 4		Building Type: More Than One Floor No Basement				Elevation of Lowest Floor Above or Below BFE 4		Building Type: Manufactured (Mobile) Home					
		Occupancy						Occupancy					
		Single Family	2-4 Family	Other Residential	Nonresidential			Single Family	Nonresidential				
+4		.12/06	.12/06	.12/06	.12/06	+4		.12/06	.12/06				
+3		.12/06	.12/06	.12/06	.12/06	+3		.14/06	.17/06				
+2		.12/06	.12/06	.12/06	.12/06	+2		.17/06	.19/06				
+1		.13/06	.13/06	.20/07	.20/07	+1		.22/06	.33/06				
0		.25/06	.25/06	.35/17	.35/17	0		.55/06	.88/06				
-1		.72/.50	.72/.50	1.13/.66	1.13/.66	-1		*	*				
-2		*	*	*	*	-2		N/A	N/A				

Elevation of Lowest Floor Above or Below BFE 4		Building Type: More Than One Floor Finished Basement				Elevation of Lowest Floor Above or Below BFE 4		Building Type: Manufactured (Mobile) Home					
		Occupancy						Occupancy					
		Single Family	2-4 Family	Other Residential	Nonresidential			Single Family	Nonresidential				
+4		.12/06	.12/06	.12/06	.12/06	+4		.12/06	.12/06				
+3		.12/06	.12/06	.12/06	.12/06	+3		.14/06	.17/06				
+2		.12/06	.12/06	.12/06	.12/06	+2		.17/06	.19/06				
+1		.12/06	.12/06	.12/06	.12/06	+1		.22/06	.33/06				
0		.24/06	.24/06	.30/13	.30/13	0		.55/06	.88/06				
-1		.55/.40	.55/.40	.65/.59	.65/.59	-1		*	*				
-2		*	*	*	*	-2		N/A	N/A				

4. If lowest floor is -1 because of attached garage, submit application for special consideration—rate may be lower.

\* Submit for rating

Table 10-4. Flood insurance contents rates.

## Flood Insurance Rate Table

Zones A1-A30, AE - Contents Rates  
 Regular Program - Post-FIRM Construction  
 Basic/Additional  
 Annual Rates Per \$100 of Coverage

Elevation of Lowest Floor Above or Below BFE 4		Contents Location: Lowest Floor Only - Above Ground Level (No Basement)				Elevation of Lowest Floor Above or Below BFE 4		Contents Location: Above Ground Level - More Than One Full Floor			
		Occupancy						Occupancy			
		Single Family	2-4 Family	Other Residential	Nonresidential			Single Family	2-4 Family	Other Residential	Nonresidential
	+4	.17/.11	.17/.11	.17/.11	.16/.11			N/A	.16/.11	.16/.11	.16/.11
	+3	.17/.11	.17/.11	.17/.11	.17/.11			N/A	.16/.11	.16/.11	.16/.11
	+2	.17/.11	.17/.11	.17/.11	.23/.11			N/A	.16/.11	.16/.11	.16/.11
	+1	.30/.11	.30/.11	.30/.11	.35/.20			N/A	.16/.11	.16/.11	.16/.11
	0	.60/.11	.60/.11	.60/.11	.68/.55			0	.16/.11	.16/.11	.16/.11
	-1	1.50/1.00	1.50/1.00	1.50/1.00	1.83/1.60			-1	.16/.11	.16/.11	.16/.11
	-2	*	*	*	*			-2	N/A	.16/.11	.16/.11
Elevation of Lowest Floor Above or Below BFE 4		Contents Location: Lowest Floor Only - Above Ground Level & Higher Floors (No Basement)				Elevation of Lowest Floor Above or Below BFE 4		Contents Location: Manufactured (Mobile) Home			
		Occupancy						Occupancy			
		Single Family	2-4 Family	Other Residential	Nonresidential			Single Family	Nonresidential		
	+4	.17/.11	.17/.11	.17/.11	.16/.11			.17/.11	.16/.11		
	+3	.17/.11	.17/.11	.17/.11	.16/.11			.17/.11	.16/.11		
	+2	.17/.11	.17/.11	.17/.11	.18/.11			.17/.11	.25/.13		
	+1	.20/.11	.20/.11	.20/.11	.27/.11			.20/.11	.42/.20		
	0	.40/.11	.40/.11	.40/.11	.47/.32			.55/.11	.83/.70		
	-1	.85/.70	.85/.70	.85/.70	1.24/1.00			*	*		
	-2	*	*	*	*			N/A	N/A		
Elevation of Lowest Floor Above or Below BFE 4		Contents Location: Basement and Above									
		Occupancy									
		Single Family	2-4 Family	Other Residential	Nonresidential						
	+4	.17/.11	.17/.11	.17/.11	.16/.11						
	+3	.17/.11	.17/.11	.17/.11	.16/.11						
	+2	.17/.11	.17/.11	.17/.11	.16/.11						
	+1	.17/.11	.17/.11	.17/.11	.16/.11						
	0	.17/.11	.17/.11	.17/.11	.24/.11						
	-1	.22/.11	.22/.11	.22/.11	1.00/.11						
	-2	*	*	*	*						

4. If lowest floor is -1 because of attached garage, submit application for special consideration—rate may be lower.

\* Submit for rating

**Table 10-5. 1-year insurance premiums.**

**Yearly Insurance Premiums - Single Family Residence, One Floor, No Basement  
Location – Zones AE, A1-A30**

Elevation of First Floor In Relation to BFE	\$150,000 Coverage on Residence	\$25,000 Contents Coverage	Insurance Fees	Total Annual Premium
+2	\$ 155	\$ 44	\$75	\$ 274
+1	\$ 190	\$ 66	\$75	\$ 331
0 (BFE)	\$ 270	\$ 132	\$75	\$ 477
-1	\$1,075	\$ 377	\$75	\$1,527
-2	\$1,325	\$ 455	\$75	\$1,855
-5	\$3,775	\$1,380	\$75	\$5,230

As can be discerned from Tables 10-3 to 10-5, insurance rates are dramatically increased for new construction below the BFE. This provides a positive financial incentive for future development in identified floodprone areas consistent with the flood risk.

### Purchase Requirements

Figure 10-4 illustrates where flood insurance may be required as a condition to obtain a loan for property construction or acquisition, or to obtain federal disaster assistance or other forms of federal financial assistance in a designated floodprone area.

### Impacts of the National Flood Insurance Program

#### On Floodplain Management and Flood Damage Reduction

- ∞ Community commitment to floodplain management through adoption of regulatory measures.
- ∞ Flood-risk assessment and identification of flood-prone areas.
- ∞ Allows property owners and renters to obtain protection against potential losses (subsidized rates).
- ∞ Consumer awareness through the requirement to purchase flood insurance
- ∞ Provides incentives for floodplain management and helps overcome some of the political pressure of regulating floodplain development (risk of loss of insurance).
- ∞ Intended as a substitute, and eventual replacement for federal disaster relief for flood occurrences.
- ∞ Requires property owners and other floodplain occupants to pay a portion of the costs for their locational decisions.

## FLOOD INSURANCE REQUIREMENTS FOR TYPICAL RESIDENTIAL SITINGS IN FEMA-DESIGNATED SPECIAL FLOOD HAZARD AREAS

**A.** Property is in a flood hazard area but structure A is not. INSURANCE IS NOT REQUIRED.

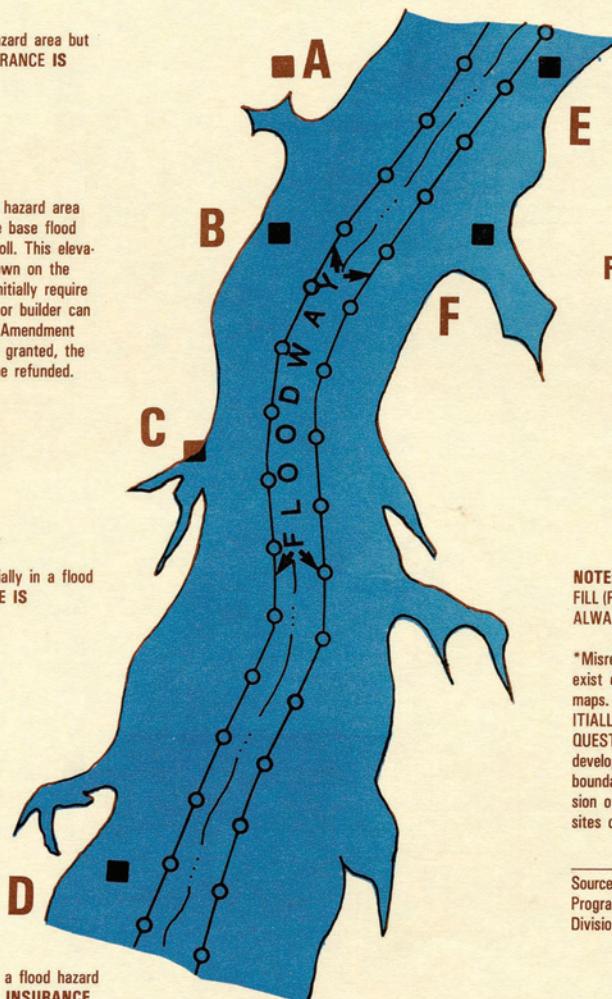
**B.** Structure B is in a flood hazard area but is elevated above the base flood elevation on a natural knoll. This elevation difference is not shown on the map.\* The lender must initially require insurance, but the buyer or builder can request a Letter of Map Amendment (LOMA). If the request is granted, the insurance premium may be refunded.

**C.** Structure is located partially in a flood hazard area. INSURANCE IS REQUIRED.

**D.** Structure D is located in a flood hazard area and is not elevated. INSURANCE IS REQUIRED.

**E.** Structure E is in a flood hazard area but is located on a high bluff. The comments listed for structure B apply to this site.

**F.** Structure F is located in a flood hazard area but is elevated on fill above the base flood elevation. The comments listed for structure B also apply here.



**NOTE: ELEVATION THROUGH MEANS OTHER THAN  
FILL (POSTS, PIERS, PILINGS, ETC.)—INSURANCE IS  
ALWAYS REQUIRED.**

\*Misrepresentation of flood hazards as they actually exist can result from inadequate base data and/or maps. THE LENDER MUST REQUIRE INSURANCE INITIALLY, BUT THE BUYER OR BUILDER CAN REQUEST A LOMA. Also, the community can appeal for development of maps to more accurately reflect flood boundaries. Map revisions or LOMA's require submission of engineering data documenting that specific sites or areas are above base flood levels.

Sources: Lenders Information, National Flood Insurance Program, FEMA, Natural and Technological Hazards Division, Region IV.

**Figure 10-4. Flood insurance requirements for typical residential sitings in FEMA-designated special flood hazard areas.**

## **Effects of Non-Participation in the National Flood Insurance Program**

Where local flood hazard areas have been identified through a flood insurance study, there are a number of ramifications for the community and its citizens for not participating in the NFIP:

1. Flood insurance is not available. No resident is able to purchase a flood insurance policy.
2. No federal grants or loans for buildings may be made in identified flood hazard areas. Includes all Federal agencies such as HUD, EPA, SBA, HHR, etc.
3. No federal disaster assistance may be provided in identified flood hazard areas for permanent restorative construction and grants.
4. No federal mortgage insurance may be provided in identifies flood hazard areas. This includes FHA, VA, FmHA, etc.
5. For conventional loans in non-participating communities: Restrictions on conventional loans in non-participating communities require that lenders:
  - a. Must notify buyer or lessee that property is in a flood hazard area; and
  - b. Must notify buyer or lessee that property is in the flood hazard area is not eligible for federal disaster relief in a declared disaster.
6. The Flood Insurance Rate Map and appropriate actuarial rates go into effect regardless of whether or not a community participates in the program. Lacking a local ordinance, unsafe construction today may result in prohibitively expensive insurance rates tomorrow.
7. Local governing body may be susceptible to liability by not participating because their action:
  - a. Denies the ability of its citizens to purchase flood insurance and;
  - b. Does not take positive steps to reduce the exposure of life and property in the face of authoritative scientific and technical data.

## **Chapter Homework Assignment**

You are constructing a 30-foot by 80-foot single-story residence with no basement in an identified flood hazard area. When finished the structure will have a value of \$230,000, with contents value of \$80,000. You are required to buy a flood insurance policy by your lender to cover the amount of the loan for the structure (its total value). You, being a prudent person, also want to cover the value of the contents. The policy is to extend for the mortgage period.

The community in which you live is participating in the regular phase of the National Flood Insurance Program, you are in the “A1” zone, and your construction is taking place after publication of the Flood Insurance Rate Map (FIRM) for your community. The Flood Insurance Rate Tables (Figures 10-3 and 10-4) can be used to determine annual flood insurance premiums.

The land on which you wish to place the structure is level and a surveyor you have employed has determined that its elevation is two feet below the base flood elevation. If you use standard construction practices and place the structure on a concrete slab the floor of the residence would be one foot above the ground surface.

You could fill the site on which you are placing the structure to elevate it before you place your slab. Cost of fill material is \$2.50/cu yard, placed and compacted. Local floodplain management regulations require that the top of the fill material extend at least 15 feet beyond all edges of the structure to protect it from flood water erosion and to facilitate access and egress during a flood emergency. The slope of the material is to be no less than 3:1.

Considering the cost of flood insurance for the structure and contents and the cost of fill material, should you elevate the structure? If so, how much above the ground should you fill? Show computations.

Use a 30-year mortgage period and a discount (interest) rate of 10 percent.