Floodplain Management Bulletin

Variances and the National Flood Insurance Program

FEMA P-993 / July 2014

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Acronyms and Abbreviations

BFE	Base Flood Elevation
CFR	Code of Federal Regulations
DOI	Department of the Interior
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
NFIP	National Flood Insurance Program
SFHA	Special Flood Hazard Area
WSEL	Water Surface Elevation

SECTION 1
Purpose and Background

The National Flood Insurance Program (NFIP) variances procedures are designed to help local governments protect their citizens and property from flood damages. Allowing variances to the local floodplain management standards may significantly increase the property's flood insurance rate and decreased the community's resilience. Therefore, by implementing the NFIP variance procedures, a community will ensure that alternative actions are taken that protect and encourage safe development in the floodplain. This publication outlines the floodplain management variance criteria as set forth in Title 44 Code of Federal Regulations (CFR) Part 60, Criteria for Land Management and Use, Subpart A – Requirements for Floodplain Management Regulations, Section 60.6 (44 CFR §60.6).

This publication is not intended to offer legal advice.

1.1 Purpose

This guidance will assist local government officials in reviewing requests for variances and determining if a request meets the minimum requirements of the NFIP. The variance regulation set forth in 44 CFR §60.6 is not absolute; State zoning enabling legislation or State floodplain management regulations and local case law[1] may take precedence and may be more restrictive. Therefore, community officials should consult their local attorney or State Attorney General regarding the specific requirements of State and local variance regulations.

1.2 Background and Meaning of Variance

A variance is an authorization for the construction or maintenance of a structure or other land uses that would otherwise be prohibited by a land use regulation such as a zoning ordinance. Local floodplain regulations may complement and be augmented by zoning regulations to reduce the community's overall risk to flooding. Relevant to this guidance, 44 CFR §59.1 defines "variance" as "a grant of relief by a community from the terms of a floodplain management regulation." Variances are meant to address unique, site-specific and individual circumstances where the strict application of the ordinance may result in an extreme hardship to a property owner. While the variance is intended to provide relief, it still enables the community to:

- Preserve the purpose and intent of the zoning law/ordinance;
- Minimize legal challenges to the zoning law or floodplain management regulations and avoid an unconstitutional "taking" of private property without compensation; and
- Protect the safety, health, and welfare of the public and emergency responders.

1 Case law dictates following the due process of law detailed in the floodplain ordinance, enforcing regulations consistently, and acting under the advisement of the community's attorney. For more information, consult with your community's attorney.

The authority to grant a variance is typically delegated to communities through State statutes. This authority empowers a community to establish a board to adjudicate variance applications and sets out the standards and elements necessary for granting variances. The standards and elements vary from State to State. Some are strictly defined, and others are imprecise and allow the board greater discretion when granting a variance.

In some cases, a variance granted for floodplain management purposes can result in a project that does not meet the minimum standards of the NFIP. Because a variance can lead to an increased risk to life and property, variances from flood elevation requirements or other floodplain management requirements should be granted only rarely.

SECTION 2

Evaluating the General Merits of a Floodplain Management Variance

The floodplain management variance requirements are based on the general principles of zoning laws in State statutes. The minimum floodplain requirements for communities participating in the NFIP are designed to ensure the practice of sound floodplain management. (See 44 CFR §60.6.) To grant a variance from floodplain ordinances, in addition to meeting the requirements set out by State law, the community must determine:

- Good and sufficient cause and exceptional hardship exist;
- The variance will not result in additional threats to public safety, extraordinary public expense, or fraud or victimization of the public; and
- The variance is the minimum action necessary to afford relief.

If the required standards of State law, local ordinances, and 44 CFR §60.6 are closely adhered to, granting variances from floodplain ordinances should be rare. Additionally, where a variance is granted, some level of flood protection and hazard mitigation should always be required.

2.1 Floodplain Regulations versus Zoning Regulations

Floodplain regulation and zoning regulations, when applicable, are land use and development controls that should be administered in concert to promote the general welfare by minimizing the threat from natural hazards to life and property.

Floodplain regulations are similar in nature and function to zoning regulations in that both involve land use regulation and control, have benefits and performance expectations, and are often implemented under the same legislative authorities at the local or State level. However, floodplain regulations differ from zoning regulations because they specifically address human safety and property protection in relation to a known and defined natural hazard. Furthermore, in accordance with the provisions of 44 CFR Part 60, the local jurisdiction must enforce floodplain regulations for all development in the Special Flood Hazard Area (SFHA).

SPECIAL FLOOD HAZARD AREA (SFHA)

Land areas subject to a 1 percent or greater chance of flooding in any given year. These areas are indicated on Flood Insurance Rate Maps (FIRMs) as Zone AE, A1-A30, A99, AR, AO, AH, V, VO, VE, or V1-30. Mapped zones outside of the SFHA are Zone X (shaded or unshaded), B, or C.

2.2 Evaluating a Floodplain Management Variance

When evaluating a request for a variance, communities should first look to their own State law and local land use zoning and floodplain management requirements. While each State has adopted individual and often unique requirements and procedures for the issuance of variances, common examples of variance criteria include the following:

1. **Hardship**
   - An exceptional hardship related to the property such as unique physical and topographical conditions of the property; this is not related to the individual personal circumstances of the applicant.
   - The hardship related to the property was not caused by the applicant or is shared by adjacent parcels.
   - A variance is required for the applicant to make reasonable use of the property.
2. **Increased Risk**
   - Issuing the variance will not impair the adjacent properties or neighborhood.
   - The variance will not be detrimental to public health, welfare, or safety.
3. **Minimum Action**
   - The variance will deviate from the overall zoning as little as possible to afford the necessary relief.

Variance Review Boards

Typically, variance requests are reviewed by the community planning commission, a separate appeals board, or in some cases the city council. These boards will not have the authority to change the ordinance, only to impose the application or interpretation of the ordinance's provisions. Generally, the community's variance board reviews variance requests only on a structure-by-structure basis. Variance requests should not be reviewed or granted for multiple lots, phases of subdivisions, or entire subdivisions. When a review board follows and considers the intent and procedures outlined in the NFIP criteria, few situations would qualify for a floodplain management variance related to flood elevations or flood loss reduction provisions in the local ordinance.

Key Issues to Consider

A community should consider four important issues before granting a variance: (1) the community's liability, (2) the cumulative impacts on the floodplain of granting multiple similar variances, (3) the variance decision will last for the life of the structure, and (4) whether granting a variance will jeopardize the community's participation in the NFIP.

For example, variances are granted for the structure and not associated with the property owner. As such, when communities review a variance request, they should consider the life expectancy of a building. A home built today is expected to last an average of about 100 years; shopping malls with traditional parking lots have a life expectancy of about 12 to 20 years; commercial structures have a life expectancy of about 25 to 75 or more years, depending on building type. If the structure is located within a floodplain, the cumulative effects of development will increase possible flood damage to the structure.

SECTION 3
Floodplain Management Variance Review Process

To properly administer its floodplain management ordinances, including the granting of variances, a local government should establish a standardized variance review procedure. This procedure must be within the bounds of State-enabling law and in accordance with local laws and ordinances. In most cases, the variance standards in 44 CFR §60.6 are incorporated into the body of a community's floodplain management ordinance.

The NFIP variance criteria set forth at 44 CFR §60.6 must be read as a whole and not in segments. Therefore, the granting of a floodplain variance is rare.

Administrative procedures for processing and considering variance requests vary from State to State, and often from community to community. Some communities have separate procedures to hear variance requests related to zoning and building codes, while other communities have only one set of procedures. Procedurally, a variance request is usually presented to the appropriate commission (board), which then considers the request during a public meeting or hearing. During the deliberations, reports from the appropriate community official, as well as testimony from the applicant and other potentially affected or interested parties, are usually accepted orally and in writing.

3.1 Types of Variances

In general, there are two types of variances allowed by State law: use variances and area variances. The responsibility for determining that an applicant qualifies for either of these variances rests solely on the community.

A variance is the only legal means by which a community can permit construction that is inconsistent with the provisions in its floodplain management ordinance.

Use variances. Local officials permit a property owner to use a building or parcel for a purpose not normally allowed in a particular zone. An example of this would be allowing someone to establish an office in a residential zone because the property has some unique characteristic that precludes use or development as a residence, and use as an office would not be detrimental to the surrounding properties or the community as a whole.

Area variances. An area variance may be granted when, for instance, a property owner is able to show that there are serious, practical difficulties associated with complying with the dimensional requirements of the zoning ordinance, such as setback requirements or maximum height restrictions.

Floodplain Management Variances

While variances from NFIP floodplain management criteria may seem, at first glance, to be similar to area variances, this is not actually the case. Variance requests that deal with maximum height or setbacks

are usually related to aesthetic concerns, and may affect property values. Variances from floodplain management criteria are not related to aesthetics, but rather may affect the safety and protection of the public, the environment, and the flood risk of a community.

Any variance from local floodplain management standards must be closely scrutinized to determine if it meets State and local standards for variance issuance, as well as the minimum standards adopted by the community in the variance requirements of the floodplain management ordinance.

Variances can be granted for new construction and Substantial Improvements only if *all* the other NFIP requirements in the local floodplain management ordinance are met. If even one criterion is not met, the variance should not be granted.

DEFINITIONS

Substantial Damage: Defined by the National Flood Insurance Program (NFIP) as *"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."*

Substantial Improvement: Defined by the NFIP as *"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 (or smaller percentage if established by the community) before the 'start of construction' of the improvement. This term includes structures that have incurred 'Substantial Damage,' regardless of the actual repair work performed."*

Refer to FEMA P-758, *Substantial Improvement/ Substantial Damage Desk Reference* (2010) for more information.

3.2 NFIP Variance Standards

The NFIP does not set forth an absolute criterion for granting variances from the minimum floodplain management provisions. NFIP regulations provide the basis for each participating community to determine whether construction or other development activities qualify for a variance from the local floodplain management regulations.

The authority and the responsibility to approve or disapprove a variance rest with the local government. However, because variances may expose insurable property to a higher flood risk, the Federal Emergency Management Agency (FEMA) evaluates variances granted by a community to determine whether they are consistent with sound floodplain management standards as required for participation in the NFIP. The floodplain management variance criteria contained in the NFIP regulations are intended to:

- Provide specific floodplain management input to the community criteria for approving variances;
- Inform participating communities of FEMA's guidelines for evaluating local compliance with the standards required for participation in the NFIP;
- Ensure appropriate notification of the issuance of a variance; and
- Advise applicants and future owners of potentially high flood insurance rates.

The NFIP variance standards are based on the general principle of zoning law that variances pertain to a piece of property and are not personal in nature. Though standards vary among States, in general, a properly issued variance is granted for a parcel of property with "physical characteristics" so unusual that complying with the local floodplain management ordinance would create an exceptional hardship to the applicant or the surrounding property owners. Those characteristics must be unique to that specific parcel or property and not be common to or shared with adjacent parcels. The unique characteristics must pertain to the land itself and the intended function of the structure, *not to its inhabitants or the property owners.* Therefore, financial hardship or the health condition of the property owner is never a sufficient cause for granting a variance. Section 3.3.3 of this document details the "Good and Sufficient Cause" that must be considered for approval when reviewing a variance.

Some communities have considered floodplain variances based solely on the fact that another Federal or State agency permit has been issued or a project is federally funded (e.g., a U.S. Army Corps of Engineers Section 404 permit or a U.S. Office of Housing and Urban Development Community Development Block Grant). While the NFIP requires a community "to assure that all necessary permits have been received from those government agencies from which approval is required by Federal or State law" (CFR §60.3(a)(2) before issuing a floodplain development permit or considering a variance, the determining factor should be whether a development permit or variance will meet the requirements of the community's local floodplain management provisions, including the cumulative impacts of development within the SFHA. Even if a Federal or State permit has been issued, a community must still determine whether the requirements of the local floodplain management ordinance have been met, and either issue or deny a floodplain development permit, and then review whether to grant a variance. A variance granted based solely on the applicant obtaining a permit or funding grant from a Federal or State does not meet the NFIP requirement in CFR 44 §60.6.

VARIANCES DURING A POST-DISASTER PERIOD

Frequently, post-disaster situations lead a community to erroneously consider granting variances so the rebuilding process can begin quickly. Often, communities are pressured to grant variances for structures that have incurred Substantial Damage. The enforcement of a floodplain management ordinance requires new construction and structures that have had Substantial Damage in SFHAs to be elevated or floodproofed (non-residential only) so they are at or above the base flood elevation (BFE). The consistent enforcement of such an ordinance should be viewed by community officials as the fulfillment of a responsibility to protect the lives and property of residents and business owners, especially in the aftermath of a disaster. It is also a requirement for implementing a sound floodplain management program for the overall betterment of the community, risk reduction, and continued participation in the NFIP. For these reasons, a variance requesting the alteration of floodplain management ordinances involving elevation of a damaged structure in an SFHA would not meet the NFIP variance criteria.

3.3 NFIP Variance Regulations

The following sections describe each criterion of the variance regulations as stated in 44 CFR §60.6.

3.3.1 Floodways

Communities should not issue variances for construction within a floodway if the variance will result in an increase in flood levels during the base flood event.

44 CFR 60.6(A)(1)

Variances shall not be issued by a community within any designated regulatory floodway if any increase in flood levels during the base flood discharge would result.

Floodway Definition and Background

The floodway is defined in the NFIP regulations as:

> *...the channel of a river or other water course and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. (44 CFR §59.1)*

The floodway is designated on FEMA's Flood Insurance Rate Maps (FIRMs) for riverine areas based on a detailed study called a Flood Insurance Study. It is important to reserve the floodway as a water conveyance area because any encroachments or obstructions placed in the floodway will increase flood heights and/or water velocities, and consequently increase flood damage to other properties.

BASE FLOOD ELEVATION (BFE)

Elevation of flooding, including wave height, having a 1 percent chance of being equaled or exceeded in any given year. The BFE is the basis of insurance and floodplain management requirements and are shown on FIRMs.

Floodway Variance Requests

The intent of this variance criterion is to prohibit development that may increase flood levels which, in turn, could increase potential flood damage to the development and to structures of other property owners. In most cases, alternative locations for the proposed development are available outside the limits of the floodway. Other actions may also be taken or required as a condition of approval to compensate for increased flood levels, such as requiring the applicant to install flood-control measures to accommodate increased discharge.

The burden of proof rests on the applicant or developer, not FEMA, the local community, State, or other agency, to demonstrate that scientific data were used to determine that no increase in flood levels would result from the proposed development. Sufficient proof may include, but is not limited to, studies provided by an appropriately licensed professional.

If no feasible or practical alternative location for the proposed development is available, the variance applicant must demonstrate that it conforms to all of the requirements stipulated in NFIP variance regulations and is in accord with other floodplain management regulations such as:

Prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge. 44 CFR 60.3(d)(3)

When deciding whether to issue a variance, the community should consider the potential liability it may encounter if the granting of a variance later results in increased property damages, personal injuries, or even loss of life during a flood.

Even when all variance criteria are met and a floodway analysis has been reviewed and approved by the community, a community may still choose not to grant a variance and deny issuance of a floodplain development permit. Some communities choose to adopt a higher regulatory standard that exceeds the minimum requirements of the NFIP. As a result, based on the potential hazards involved, communities can still prohibit the issuance of variances for floodway development.

Generally, a community may prohibit variance requests based on three potential flood hazards in the floodway:

- The hazard to the development itself;
- The increased hazard the development may cause to other properties; and
- The risk to individuals stranded in isolated structures surrounded by what is, in many cases, rapidly flowing, debris-laden floodwater, and the risk to the rescue workers.

For example, granting a variance that allows the placement of a manufactured home below the base flood elevation (BFE) in a floodway will endanger the lives of its inhabitants because a flood will likely severely damage or demolish the home. Additionally, manufactured homes can float into other structures and cause severe damage, or become wedged in a bridge opening or culvert, which can dramatically increase flood heights upstream and endanger other citizens.

A flooded manufactured home can float off its foundation and cause additional damage nearby.

Because of the hazards of granting variances for development in the regulatory floodway, community officials should carefully consider all of the possible dangers created by the variance issuance. For example, local emergency services personnel may be endangered while attempting to rescue the occupants in fast-moving floodwater. In most cases, the incremental benefits of allowing the development are outweighed by the increased costs of future flood damage and increased life safety hazards.

3.3.2 Lots of One-Half Acre or Less

This variance criterion specifies that variances should generally be granted only for lots that are one-half acre or less; variances for lots of larger sizes must include significant technical justification. The intent of this variance provision is not to place a lesser burden of justification on one-half acre lots, but a greater burden on lots larger than one-half acre.

44 CFR 60.6(A) AND (A)(2)

While the granting of variances generally is limited to a lot size less than one-half acre (as set forth in paragraph (a)(2) of this section), deviations from that limitation may occur. However, as the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases.

Variances may be issued by a community for new construction and substantial improvement to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, in conformance with the procedures of paragraphs (a)(3), (4), (5) and (6) of this section.

Variance Requests for Lots One-Half Acre or Less

Common misinterpretations of this variance criterion include using it to justify variance requests related to personal convenience, preference, or aesthetics, e.g., the height inconsistency that would result between adjacent structures if the middle one were elevated to or above the BFE. Aesthetics or other personal preferences should never be a consideration when making variance determinations. This variance criterion addresses the physical, not the aesthetic, characteristics of a lot in relation to the adjacent lots. When balancing an applicant's personal issues with issues related to public health and safety, such as the minimum NFIP criteria, a community should always choose public safety and the protection of lives and property.

Some communities misinterpret this variance criterion to mean that variances can be granted systematically for all remnant or "in-fill" lots of less than one-half acre located in subdivisions built prior to the effective date of the community's current FIRM. Granting a variance on an "in-fill" lot of less than one-half acre is not automatic.

The granting of variances for small lots where elevation on fill will pose an exceptional hardship due to drainage problems should be rare. Variances for "in-fill" lots of one-half acre or less should be granted on the basis of potential drainage problems only if, as 44 CFR § 60.6(a)(2) explicitly states, all other variance criteria are met. In addition, communities should grant variances for "in-fill" lots only if a professional engineer or architect has prepared and certified data demonstrating that no technically feasible methods are available to alleviate or mitigate the drainage problems.

Variance Requests for Lots Larger Than One-Half Acre

The 44 CFR §60.6(a) specifically states that "as the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases." The one-half acre threshold is meant to be a *general* cutoff point and is related to the intrinsic qualities of the site or parcel; as the regulations state, "deviations from that limitation may occur" provided sufficient cause has been demonstrated by the applicant in accordance with the variance criteria. However, lots larger than one-half acre, in nearly all instances, have sufficient space to elevate structures on fill to or above the BFE without resulting in adverse drainage impacts on adjacent properties and structures, whether or not the adjacent structures' lowest floor elevations are at or below grade. Because of the additional storage and infiltration capacity on

larger lots, and because of the flexibility of being able to choose a location on a large lot that will have less impact, the technical justification required for issuing a variance based on potential drainage problems increases as the lot size increases beyond one-half acre. Site-specific considerations will vary, including the size of the structure relative to the size of the lot, as well as the location of the structures relative to each other.

Compliant Mitigation Measures for Large and Small Lots

Many design and construction alternatives are available to reduce potential drainage problems while still allowing a structure to be built in full compliance with NFIP regulations. Several acceptable elevation techniques cause no more, and usually less, disruption of drainage patterns than building a structure at ground level through a variance. Examples include:

- Elevating the structure on pilings, columns, or extended foundation walls;
- Grading or landscaping the elevated fill pad to drain away from adjoining properties; and
- Creating natural or artificial infiltration fields or systems at the intersection of the fill slope and the natural ground.

These types of alternatives are often cost effective and visually appealing, without creating drainage problems for adjacent structures. Studies have demonstrated that floodplain-compliant development construction practices and alternatives are effective at mitigating the flood threat and risk to life and property while promoting resiliency. The initial cost of flood-resistant construction has been demonstrated to offset the financial impacts of emergency response, recovery, and other costs associated with flooding, such as the cost of reconstruction, displacement from the residence or business, and loss and replacement of building contents.

3.3.3 Good and Sufficient Cause

44 CFR 60.6(A)(3)(I)

Variances shall only be issued by a community upon a showing of good and sufficient cause.

A variance request by an applicant that is based on a "good and sufficient cause" is one that deals solely with the unique site-specific physical characteristics of the property, subdivision lot, or land parcel in question. Physical conditions are uniquely inherent to the land or property and will not change or be significantly altered over time. A "good and sufficient" cause for a variance occurs when a parcel of land possesses physical characteristics so unusual that complying with NFIP regulations in a local ordinance would create an exceptional hardship related to the property, the surrounding property owners, or the community in general. In addition, the unusual physical characteristics must be unique to that property and not be shared by adjacent parcels or be typical of other lots in the community.

A rendering of a "good and sufficient" cause should never be based on the design character of the planned construction or Substantial Improvements to the structure, the personal difficulties of the owner or inhabitants, or local provisions that regulate standards other than health and public safety standards (e.g., aesthetic restrictions of subdivision homeowner associations). The variance should not be based on the convenience that it would afford the applicant. Inconvenience, aesthetic considerations,

physical handicaps, personal preferences, the disapproval of one's neighbors, or homeowners association restrictions do not qualify as "good and sufficient" causes. In addition, the financial hardship of the property owner is never a "good and sufficient" cause for granting a variance. Granting a variance for construction in a flood hazard area based on financial hardship only increases the probability that the owner will suffer high health and safety risks as well as monetary adversity when the structure is damaged during a flood. In addition, the structure will be subject to higher insurance premiums.

The justification for granting a variance based on physical characteristics should be such that it remains valid over time. In contrast, personal difficulties of the owner and intended uses of buildings can change dramatically with changes in ownership. For example, once the personal circumstances of the owner changes (e.g., the property is sold or leased, or the owner no longer suffers from financial hardship) the justification for the variance may no longer exist, but the structure remains, exposing future owners/occupants to the nonconforming nature of the property and any hazards and public safety problems associated with it. This exposure of life and property to risk from flood damage would be directly attributable to a variance issued based on the personal difficulty of the previous owner.

3.3.4 Exceptional Hardship

The hardship that would result from failure to grant a requested variance must be exceptional, unusual, and specific *to the property involved*, not the personal circumstances of the applicant. When determining whether an applicant has established an exceptional hardship sufficient to justify a variance, the local variance appeal board or other governing body must weigh the applicant's hardship against the community-wide flood damage prevention requirements.

44 CFR 60.6(A)(II)

Variances shall only be issued by a community upon a determination that failure to grant the variance would result in exceptional hardship to the applicant.

As stated in Section 3.3.3, inconvenience, aesthetic considerations, physical handicaps, personal preferences, the disapproval of one's neighbors, or homeowners association restrictions do not qualify as exceptional hardships. This applies even if the alternative means of construction are more expensive or complicated than building the structure with a variance, or if they require the property owner to use the parcel differently than originally intended or build the home elsewhere.

Two examples are provided below to illustrate situations in which variances should not be granted:

1. *A property owner requests a variance to the elevation requirement because it will cost the owner several thousand dollars to elevate the house to comply with an ordinance and an additional several thousand to build a wheelchair ramp to provide access for a handicapped family member.*

   While financial considerations are always important to property owners, and the needs of the handicapped person certainly must be accommodated, these difficulties are not in the category of "exceptional hardships" as they relate to floodplain management variances. These characteristics result in personal hardships (the physical condition and financial situation of the homeowner) rather than pertaining to the property itself.

2. *A property owner requests a variance to the elevation requirement because it will result in a structure that is architecturally different from other structures within a subdivision governed by a homeowners association.*

   Homeowners associations or subdivision boards frequently place restrictions on landscaping and construction practices, such as the total height to which structures can be built, to promote architectural and aesthetic consistency. The owner, and usually the prospective neighbors and homeowners association, protest that the structure, if elevated, will be architecturally out of sync with other structures on the block and that property values will be lowered as a result.

   Local governments must never grant variance requests for exceptional hardship stemming from architectural considerations or conflicts with local subdivision aesthetic regulations. The safety of all residents takes precedence over neighborhood aesthetics.

3.3.5 Increased Flood Heights

44 CFR 60.6(A)(3)(III)

Variances shall only be issued by a community upon a determination that the granting of a variance will not result in increased flood heights.

Development that receives a variance must not cause an increase in water surface elevations (WSELs) during floods of any magnitude, not just the base flood. Therefore, to grant a variance under this provision, a community must meet all the other variance requirements, and the applicant must demonstrate through technical studies that the proposed development will not increase flood heights.

The underlying principle is that an increase in flood heights may increase flood damage to structures in the community that otherwise would not be floodprone. Allowing flood heights to increase is inconsistent with the objectives of sound floodplain management and undermines a community's efforts to protect structures by requiring elevation or floodproofing to or above the BFE. Allowing any increase in flood heights would decrease the level of protection provided by the NFIP requirements.

3.3.6 Public Safety and Nuisances

44 CFR 60.6(A)(3)(III)

A variance will not cause additional threats to public safety or create nuisances.

Variances must not result in additional threats to public safety or create nuisances. Local flood damage prevention ordinances and minimum NFIP requirements are intended to help protect the health, safety, well-being, and property of the local citizens. Local floodplain management is a long-range community effort usually made up of a combination of approaches, including adequate drainage systems, warning and evacuation plans, and keeping new property—especially homes—at or above the BFE. These long-term goals can be met only if exceptions to the flood damage prevention ordinances are kept to a minimum.

Variances that allow the construction of habitable area below the BFE, especially in high-hazard areas such as floodways and areas adjacent to coastal Zone V, increase the risk to life and property of both occupants

and emergency services personnel. The potential for loss of life is greatest in structures where the lowest floor is below the BFE, and where flood depths are greater than 3 feet or where high velocity floodwater is present.

structed below the flood elevation, the variance then raises public safety concerns for the homeowner and adjacent properties.

In additional to potentially increasing public safety concerns, granting variances for elevation requirements often results in abandonment when non-elevated structures are damaged during flood events, thereby creating a public nuisance.

3.3.7 Public Expense

Extraordinary public expenses may include protection and/or repairs to structures, time and materials expended by emergency service personnel, the expense involved in operating disaster assistance programs, and the cost to communities to:

44 CFR 60.6(A)(3)(III)

Variances shall only be issued by a community upon a determination that the granting of a variance will not result in extraordinary public expense.

- Repair or replace public facilities and infrastructure that continue to be exposed to flood damage because a variance was issued;
- Publically fund emergency flood protection measures, such as sandbags and temporary floodwalls, used to protect structures exposed to flooding as a result of the issuance of an elevation variance;
- Accommodate time and equipment expended by emergency services personnel to evacuate an area or rescue occupants of flooded structures;
- Identify public disaster assistance needed by occupants of structures exposed to increased flooding following the issuance of a variance; this assistance may be in the form of various Federal disaster assistance programs (e.g., FEMA, Small Business Administration), non-government organization assistance (e.g., Red Cross), and denominational and other private donations; and
- Repair or demolish flood-damaged properties when such properties were granted variances and the owners, unable to afford repairs, abandon them.

3.3.8 Fraud and Victimization

44 CFR 60.6(A)(3)(III)

Variances shall only be issued by a community upon a determination that the granting of a variance will not cause fraud on or victimization of the public.

Local governments should be careful to never grant variances that have the potential to cause public victimization or fraud. Public fraud or victimization can result when a property that was granted a variance changes ownership. An unsuspecting buyer may be unaware that the structure is subject to flood damage and costly flood insurance rates. Frequently, unsuspecting buyers of previously flooded homes are not aware of the

magnitude of previous flood damage to the structure, or that a variance from the required flood elevation was granted.

An example of the potential for public victimization is when a variance for a nonconforming elevation or floodproofing requirement is granted for a storage warehouse. The units or "bays" of the warehouse, typically rented to the public for personal uses, may victimize citizens who are unaware of the flood hazard and the risk to their property. If the warehouse is flooded and its contents damaged, citizens renting units may have no recourse for financial compensation.

3.3.9 Existing Local Laws or Ordinances

A community should not grant a variance from its local floodplain ordinances if the variance is in conflict with other existing local laws or ordinances or Federal and State laws or regulations that, by statute, the community is required to obey.

44 CFR 60.6(A)(3)(III)

Variances shall only be issued by a community upon a determination that the granting of a variance will not result in conflict with existing local laws or ordinances.

Examples of local laws that may conflict with a floodplain management variance include State and local building codes, health and safety regulations, and laws protecting environmental and other natural resources, including but not limited to threatened or endangered species and historic or cultural resources. Any variance must comply with the provisions of State zoning legislation and case law.

While an approved variance to the floodplain management regulations may allow particular development within the SFHA, a variance to the floodplain standards cannot be used to waive compliance or development requirements for other local, State, or Federal requirements. A variance, if granted, must approve only the absolute minimum necessary to relieve the particular hardship identified through the variance process with regard to floodplain management; it must not exclude or exempt the development from compliance with overlapping policies, regulations, authorities, and jurisdictions.

If a variance to the floodplain development requirements is granted, the development must demonstrate receipt of permits and approvals from all other local, State, and Federal agencies as part of the variance process and prior to issuance of the floodplain development permit associated with the proposed development. For example:

- If a community has adopted the 2012 International Building Code the development must still conform to the applicable building code requirement. Conformance includes verification that all other applicable Federal and State permits have been received prior to issuance of the floodplain development permit.
- If a community has not adopted the 2012 International Building Code or other land use regulations, the development must still comply with the stand-alone provisions of the floodplain ordinance as well as all other applicable State and Federal laws. Conformance includes verification that all other applicable permits have been received prior to issuance of the floodplain development permit.

State and Federal laws that may apply even if a variance has been granted include, but are not limited to:

- State health department requirements for well or septic systems, or other requirements
- Threatened and Endangered Species Act of 2005
- National Historic Preservation Act of 1966
- National Environmental Policy Act of 1970
- Clean Water Act
  - Federal and State wastewater or stormwater discharge requirements and permits
  - Clean Water Act, Section 404 permits

A variance to the floodplain ordinance cannot be used to waive compliance or development requirements for other local, State, or Federal requirements.

When it is not feasible to secure all other permits prior to consideration of a variance and issuance of a floodplain development permit, the local jurisdiction may condition issuance of a flood development permit on receipt of these permits. In these instances, it is important to have administrative procedures established to:

1. Identify which permits are required;
2. Refer and notify the applicable authorities and jurisdictions of permit issuance;
3. Specify within the floodplain development permit, as conditions of approval, the expectation and need to secure and provide copies of these permits in a timely fashion;
4. Communicate these requirements to the applicant and provide contact information to initiate the permitting process with other applicable authorities; and
5. Follow up with the applicant to complete the file with copies of the permits from the other applicable jurisdictions.

3.3.10 Minimum Necessary to Afford Relief

A variance granted by a community must be the absolute minimum needed to minimize or reduce future flood damage and still relieve the hardship, as defined by the previous provisions. In considering variances, the community review board should use local technical staff expertise and recommendations from the building, planning, zoning, or engineering departments.

A "blanket variance" that would waive all NFIP requirements could never meet all of the requirements of a variance. There will always be some feasible action that can be taken to reduce the potential for flood damage.

44 CFR 60.6.(A)(4)

Variances shall only be issued by a community upon a determination that the granting of a variance is the minimum necessary, considering the flood hazard, to afford relief.

For a variance request to waive the elevation requirement, the community review board must require the "minimum necessary" actions. For example, the minimum actions necessary for a non-residential structure may include implementing "wet floodproofing" techniques and meeting the other provisions in the local floodplain management ordinance, including properly anchoring the structure, using flood damage-resistant materials and construction techniques, and elevating utilities as defined in 44 CFR 60.3(a)(3). As another example, if an applicant can justify a variance from the requirement to elevate building utilities above the BFE, the community review board should still require as much elevation as possible to provide some flood risk protection or risk to adhere to the intent of the flood ordinance.

3.3.11 Disclosure

Community officials must notify the applicant that the issuance of an elevation variance will result in increased flood insurance premium rates and that construction below the BFE will increase risks to life and property.

44 CFR 60.6(A)(5)

...a community shall notify the applicant in writing over the signature of the community official that (i) the issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as $25 for $100 of insurance coverage and (ii) such construction below the base flood level increases risks to life and property. Such notification shall be maintained with a record of all variance actions as required... to afford relief.

If the applicant is not required to purchase flood insurance at the time the variance is granted, costly flood insurance rates may not be a factor. However, if the structure experiences flooding at some point in the future, the owner may wish to purchase flood insurance. In addition, future buyers of a structure for which a variance has been granted may wish or be required to purchase flood insurance and may be discouraged from purchasing the structure because of costly flood insurance rates. This situation can be compounded when an unsuspecting buyer purchases such a structure and later discovers that flood insurance is required, at a prohibitive cost.

In addition to notifying the applicant regarding the insurance implications of a variance, the "Planning Considerations in Floodprone Areas" section of the NFIP regulations (44 CFR 60.22) recommends that a community consider requiring full disclosure of the variance "to all prospective and interested parties (including but not limited to purchasers and renters) [44 CFR 60.22(c)(3)(ii)]. Such a disclosure is important and necessary to inform subsequent buyers of structures for which an elevation variance was granted. Some communities require that a copy of the variance be attached to the property title abstract to protect a prospective buyer from victimization. The attached variance should include any conditions and findings that relate to the granting of the variance.

From a public safety standpoint, the prospective buyer has a right to know that the structure will be susceptible to flooding and its occupants subject to a flood risk. From a financial standpoint, the prospective buyer has a right to know that the structure and its contents will be susceptible to damage and that the premium rates applied can be much higher than structures built in compliance with the minimum NFIP standards.

3.3.12 Functionally Dependent Uses

44 CFR 60.6(A)(7)

Variances may be issued by a community for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that (i) the criteria of paragraphs (a)(1) through (a)(4) of this [60.6] section are met, and (ii) the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

The NFIP regulations define a "functionally dependent use" as one that cannot perform its intended purpose unless it is located or carried out near water. The term includes only docking facilities necessary for loading and unloading cargo or passengers, and ship building and repair facilities.

The definition of "functionally dependent use" limits variances to the practical problems of building and repairing ships, loading and unloading cargo and passengers from vessels, moving the cargo onto other forms of transportation, and moving the cargo to long-term storage facilities that fully comply with NFIP criteria.

The term does not include long-term storage or related manufacturing facilities since these uses can be located outside the floodplain or fully comply with all NFIP requirements, and are therefore excluded from the definition of functionally dependent use. In accordance with this variance provision, variances for new construction, Substantial Improvements, and any other development necessary for the conduct of a functionally dependent use must meet all other floodplain development and applicable variance requirements. In addition, the structures or other development must be protected by methods that minimize flood damage during the base flood and create no additional threats to public safety.

In many cases, such as port facilities, the seafood industry, or shipbuilding, NFIP floodplain management criteria can be met with the industry still being able to operate as intended. However, because functionally dependent uses must be located on or adjacent to water, practical and operational difficulties may result from the physical characteristics of the property. One way to meet the floodplain management requirements is to use wet floodproofing techniques, such as installing flood damage-resistant materials, elevating mechanical equipment, locating offices above the BFE, using ground fault circuit interrupters, or developing an emergency plan to remove contents before a flood.

If a variance is used to address the unique challenges of functionally dependent uses, it must include only the minimum necessary to afford relief considering the flood hazard. When evaluating variances for functionally dependent uses, the primary concerns should be:

- Preserving human health and safety, both within and surrounding the proposed development, including emergency responders;
- Minimizing flood damage during the base flood;
- Ensuring that no ancillary or additional threats to public welfare will be created; and
- Ensuring that only minimum deviation from the NFIP requirements is made to allow the intended use of the facility.

As with the other variance criteria, no variances for functionally dependent uses may be issued within a designated regulatory floodway if flood levels would increase during the base flood because an increase in flood levels would increase potential flood damage to other property owners.

In many situations, feasible locations for a functionally dependent use are available outside the floodway. If a functionally dependent use must be located in a floodway, the applicant must either demonstrate (using technical analyses) that no increase in the BFE will result or provide additional floodway carrying capacity, such as through channel improvements, to accommodate increased flood flows and ensure that the BFE does not increase as a result of the variance.

Local officials should contact their FEMA Regional office for technical assistance if they encounter situations where functionally dependent uses must be located in a floodway and cannot meet the no-increase-in-flood-stage requirement.

3.3.13 Historic Structures

A variance may be issued for the reconstruction, rehabilitation, or restoration of historic structures if the variance is the minimum necessary to preserve the historic character and design of the structure. "Historic structures" are those listed in the Department of the Interior (DOI) National Register of Historic Places, a DOI-certified State Inventory of Historic Places, or a certified local inventory, and structures listed as a contributing building in a listed historic district.

44 CFR 60.6(A)

Variances may be issued for the repair or rehabilitation of historic structures upon a determination that (i) the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and (ii) the variance is the minimum necessary to preserve the historic character and design of the structure.

The original intent of providing special treatment to historic structures was to comply with the intent of the National Historic Preservation Act of 1966 by:

1. Allowing historic structures to always maintain pre-FIRM subsidized insurance rates; and

2. Minimizing the adverse impacts of NFIP requirements on the historic integrity of historic structures.

For additional guidance on historic structures, see FEMA P-467-2, *Floodplain Management Bulletin on Historic Structures* (2008).

The granting of a variance should be based on a structure-by-structure review to determine whether elevation (or floodproofing, if a non-residential structure is involved) to or above the BFE would destroy the historic character or design of the structure. Variances should only be granted for individual structures and should never be granted for portions of a historic district or an entire historic district. For example, if elevating a historic structure would destroy its character and cause it to be removed from the DOI National Register of Historic Places, a variance for the elevation requirement may be considered. However, the community should place conditions on the variance to minimize flood damage such as:

- Elevate all utilities and finished interior workings to or above the BFE or to the maximum extent possible or practically feasible;
- Use flood damage-resistant materials for interior and exterior improvements wherever possible; and
- Raise the interior floors to or above the BFE or to the maximum extent possible (this is often technically feasible in older structures with high ceilings).

If repair or improvements result in the loss of the structure's historic designation, the structure would no longer qualify for the variance and would be required to meet the NFIP floodplain regulations.

Community Considerations

In addition to this "historic structure" variance criterion, another provision of the NFIP also provides relief for historic structures located in the SFHA. The definition of Substantial Improvement at 44 CFR 59.1 excludes historic structures from its definition by excluding "any alteration of an historic structure provided that the alteration will not preclude the structure's continued designation as 'historic structure.'" The same exclusion also applies to historic structures that have incurred Substantial Damage.

In regulating historic structures, communities have the option of using the provisions as stated in the variance criteria at CFR 60.6(a) or the definition of Substantial Improvement to address the unique needs of historic structures. Communities should adopt only one option to regulate historic structures. Some communities have chosen to adopt the variance criteria in their ordinance, while other communities have chosen to include the historic structure exemption as part of their Substantial Improvement definition. In either case, historic structures can be excluded from the NFIP elevation and floodproofing requirements (non-residential only). When a community exempts a historic structure from the NFIP floodplain management requirements, it should document the process and maintain the documents in the community permit files.

Property Owner Considerations

Owners of historic structures should be aware that physical alterations made to a historic structure may cause the structure to be removed from the National Register of Historic Places, DOI-certified State Inventory of Historic Places, or local inventory. If such alterations cause the structure to lose its official listing or historic status, the structure would no longer be a historic structure for the purposes of the NFIP and would be required to meet the minimum floodplain management requirements of the local ordinance. A determination of whether the structural alternations would forfeit the historic designation should be made before requesting a permit.

SECTION 4
Common Situations in which a Variance May Be Requested

There are several situations in which a variance may be requested. In each case, the variance should be reviewed by the community on its own merit and not in conjunction with an adjacent property.

4.1 Appurtenant/Accessory Structures

One of the most common variance requests that a community may encounter is for appurtenant structures, especially detached garages and storage sheds. If technically feasible, all accessory structures should be elevated to or above the BFE to minimize damage to the structure.

The following are possible conditions that a community may place on a variance for an accessory structure to ensure damage is minimized during a flood event:

ACCESSORY OR APPURTENANT STRUCTURE

Defined in 44 CFR 59.1 as: *"a structure which is on the same parcel of property as the principal structure to be insured and the use of which is incidental to the use of the principal structure."*

- Use of the accessory structure must be restricted to parking of personal vehicles or limited storage (storage that is incidental to the primary use of the principal structure). For instance, the storage in the accessory structure should be limited to items such as lawn and garden equipment, snow tires, and other low-damage items that cannot be conveniently stored in the principal structure.
- The accessory structure must be designed with an unfinished interior and constructed with flood damage-resistant materials as described in FEMA's NFIP Technical Bulletin 2, *Flood Damage-Resistant Materials Requirements* (2008).
- The accessory structure must be adequately anchored to prevent flotation, collapse, or lateral movement.
- The accessory structure must have adequate flood openings as described in FEMA's NFIP Technical Bulletin 1, *Openings in Foundation Walls and Walls of Enclosure Below Elevated Buildings in Special Flood Hazard Areas* (2008).
- Any mechanical and utility equipment in the accessory structure must be elevated to or above the BFE or must be floodproofed.
- The accessory structure must comply with floodway encroachment regulations in the floodplain management ordinance.

Communities should not grant variances to entire subdivisions for accessory structures, especially detached garages. As with any other structure type, variances should only be reviewed and issued on an individual or case-by-case basis and be based on the unique characteristics of the site.

Accessory structures located in Zone V areas are subject to excessive hydrodynamic forces associated with wave action and cannot meet the variance conditions described above. In these locations, communities should prohibit accessory structures in Zone V areas, or allow only very low value, "disposable" storage sheds unless the sheds are elevated to or above the BFE. For additional information, see FEMA NFIP *Technical* Bulletin 5, *Free-of-Obstruction Requirements for Buildings Located in Coastal High Hazard Areas.*

4.2 Boat Storage Facilities

Many boat storage facilities constructed in SFHAs are steel-framed buildings with sheet metal exterior walls, a roof, and a concrete floor at ground elevation. Some of these facilities store boats vertically from the ground to the roof on multi-tiered overhead racks using a hydraulic forklift to hoist the boats. Other facilities are simpler in design and function, storing boats on wheeled trailers at ground level.

For the purposes of NFIP floodplain management requirements, boat storage facilities that are walled and roofed buildings are by definition "structures" and must comply with the NFIP requirements. For boat storage facilities to comply with the minimum NFIP requirements, the lowest floor must be elevated to the BFE, or the walls must be floodproofed to be watertight to the BFE.

LOWEST FLOOR

The "lowest floor" of a structure is defined by the NFIP as the lowest floor of the lowest enclosed area.

In determining whether the construction of a boat storage facility is in compliance with minimum NFIP regulations as adopted by the local ordinance, the following factors should be considered:

- Are the construction materials and architectural design of the structure flood resistant?
- Does the proposed operating plan include storage position and techniques (e.g., vertical racks, ground level) and transporting procedures (e.g., forklift, trailers)?
- What is the distance from the water source and the intermediate terrain?
- What is the lot size and orientation?
- What is the severity of the flood hazard (e.g., height of the BFE above natural grade and risk zone designation, Zone V, Zone A, floodway)?
- What is the anticipated water velocity during flood conditions?
- Are the utilities elevated above the BFE?

WET FLOODPROOFING

Wet floodproofing involves purposely designing a building to withstand inundation by floodwaters and constructing it with materials resistant to or minimally damaged by floods. FEMA's Technical Bulletin No. 7-93, *Wet Floodproofing Requirements for Structures Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program,* provides technical information on wet floodproofing.

If the community determines that a variance is warranted, the variance should be issued

only for the minimum necessary to afford relief related to the flood hazard. Communities should place conditions on this type of variance to minimize flood damages. An example would be stipulating that wet floodproofing measures (refer to text box) be applied to a boat storage facility to reduce damage to the structure and its contents. Property owners should understand, however, that wet floodproofing will not result in a reduction of insurance premiums. Structures that are wet floodproofed are rated by the elevation difference between the lowest floor (usually the ground elevation) and the BFE.

4.3 Subdivisions

Variances are not intended to provide a means of exempting lot divisions, phases of subdivisions, or entire subdivisions from floodplain management regulations. Variances should never be granted as part of a split or the creation of multiple lots, phases of subdivisions, or entire subdivisions. Variances can affect public safety, such as variances to the elevation requirement for a subdivision that could potentially increase the risk of flooding for a large number of people, as well as the demand on local emergency services. The granting of variances by a community should be based on a site-specific, structure-by-structure review to determine whether all variance criteria are met. When a property is subdivided, streets and utilities are installed, and individual sites graded, it is generally relatively manageable and cost effective for property owners to meet the floodplain elevation requirements as stated in the local ordinance.

Subdivision design should account for the flood hazard characteristics of the properties. Communities should not approve subdivisions unless the design accounts for the flood hazard. The design of a subdivision should consider access to and from the subdivision to allow local residents a safe evacuation route from the development during a hazard event such as a flood. A safe evacuation route will reduce the demand for emergency services.

4.4 Temporary Development

- Communities may be asked to consider a variance to allow temporary development, such as a highway project or drilling operation, in the floodplain. A variance cannot be granted by a community when the proposed measure is permanent or affects insurable structures.
- Temporary projects, however, for which there is a net public benefit (such as a highway project) are not inconsistent with the variance criteria, provided the conditions described in this subsection are met.

DEVELOPMENT

The NFIP defines development as 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.

4.4.1 Considerations for a Temporary Development Variance

- Two conditions should be closely considered by a community before granting a variance for temporary development:

- The magnitude of the impact (i.e., the potential height of the increase in WSEL) caused by the temporary project; and
- The number of insurable structures that would potentially be affected by such an increase during the base flood, and the severity of the impact.

Before granting a variance for temporary development, communities should consider issuing a temporary permit. The greater the increase in WSEL and number of potentially affected structures, the stricter the temporary performance requirements (e.g., sizing of temporary bridge openings) and the less justification for a variance. If the affected area has a low population density and one or more of the following factors are present, the community may want to consider allowing construction of a temporary project or other temporary development using a less restrictive standard:

- The increased flood hazard would be limited to property owned or leased by the State transportation agency or variance applicant, or property for which the owner has acquired "flowage" easement;
- The increased flood hazard would be limited to undeveloped community areas that the local government judges to have no development potential during the time the temporary measure would be in place;
- The increased flood hazard would not affect insurable structures (i.e., cause an increase in flood levels for structures that are already floodprone or cause non-floodprone structures to become floodprone); or
- The State or county transportation authority, another government agency with the power of eminent domain, or a private applicant has agreed to one of the following actions: (1) purchase or relocate structures affected by the proposed project, (2) elevate such structures to the temporary BFE, (3) purchase flowage or flooding easements, or (4) provide other forms of equivalent mitigation such as purchasing flood insurance for the duration of the temporary increase.

If one or more of the above factors are met, any increase in the BFE for the duration of the temporary permit should not adversely affect insurable structures in the community. In this case, the community may decide to grant a variance allowing a temporary project.

4.4.2 Storage of Equipment and Material in Temporary Development Projects

Per the NFIP definition of development, the storage of equipment and materials is subject to local floodplain development permit requirements. Continuous storage operations—such as lumber yards, landscape material yards, recreational vehicle/automobile storage and sale, and junk yards—are also considered development and are subject to floodplain development permit requirements. The storage of equipment and materials should not increase flood heights in the floodway and should meet the other required standards of the floodplain management ordinance.

It is a community's responsibility to make a prudent and reasonable distinction between types of storage activities. This distinction should be based on considerations such as the length of storage time, nature of the materials or equipment being stored, physical characteristics of the floodplain, and characteristics of the flood flows. As a guide, the smaller the SFHA and longer the storage time, the more concerned a

community should become with the placement of materials and equipment within the SFHA and the potential impact of such activities on the storage and conveyance of floodwaters.

Local governments should be sure to distinguish between the temporary storage of materials and equipment in flood hazard areas and the storage activities associated with continuous businesses, construction operations, or other commercial and industrial enterprises.

The unique characteristics of the site in relation to the flood threat and type of activity, material, or items to be stored may be significant. The type of flood exposure, such as flash flooding or backwater ponding, water velocity and depth, time of concentration, and potential accumulation of debris are factors to consider when determining the effect of allowing temporary storage within the floodplain. Generally, the potential for water to rise more rapidly, the greater the depth and velocity, and the potential to adversely impact neighboring properties, the greater the concern the community should have with the placement of materials and equipment and its impact on the storage and conveyance of floodwaters.

SECTION 5
NFIP Flood Insurance Implications of Variances

Property owners should understand the financial consequences of constructing or repairing a building using an approved variance. While an approved variance may allow development within the SFHA to deviate from specific performance and building standards specified in a local floodplain ordinance, NFIP flood insurance rates and the flood insurance purchase requirement enforced by lending institutions cannot be waived. As described in Section 3.3.11, Disclosure, the variance regulations require that the community notify the applicant that flood insurance rates will likely be substantially higher than rates for a comparable structure that is fully compliant. A variance from elevation requirements—the most common kind of variance requested—increases the risk to a building, and that increased risk is reflected in higher annual insurance premiums. Insurance rates for a building built below the BFE can be substantially higher than those for elevated buildings.

If a local government receives a variance request to construct a building below the BFE, it must notify the applicant (in writing) that granting the variance will result in increased flood insurance premium rates, up to $25 per $100 of coverage. The variance-induced flood insurance premium rates may increase to a level beyond affordability for the owners. For example, a marine supply store on the Gulf Coast was built 14 feet below the BFE in Zone V, resulting in an annual flood insurance premium of $25,000 on a building valued at $100,000. In some cases, the applicant for the variance may not care about the cost of flood insurance. However, if the variance is approved, the impact of the variance on flood insurance premiums may affect future owners who, if they cannot afford the property's high flood insurance rates, may abandon the building and leave the community with a vacant, flood damaged, and essentially uninsurable building.

Property owners seeking to obtain a variance to reduce construction costs should understand that a variance may save money in the short term, but may result in higher costs over the long term as a result of higher insurance premiums or, if uninsured, in flood losses.

The insurance premiums for a single-family home are directly affected by the elevation of the first floor in relation to the BFE. Figure 1 shows a pre-FIRM building constructed with the lowest floor 7 feet below the BFE and an annual premium of $830 that is flooded by the base flood event, incurring Substantial Damage. Figures 2 and 3 show different reconstruction scenarios and the resulting flood premiums. The illustrations provide a clear picture of the cost of actuarial post-FIRM flood insurance rates and, therefore, the true risk to which the building is exposed.

Note: The premiums cited in these figures are for the purposes of this example. Insurance rates vary based on flood zone, date of construction, and lowest floor elevation, and must be computed case-by-case. The premiums shown for the next series of illustrations were computed based on $100,000 in building coverage. Current rates for these buildings may be different from those shown.

Recent changes to the National Flood Insurance Program may result in long-term premium increases to the Standard Flood Insurance Policy.

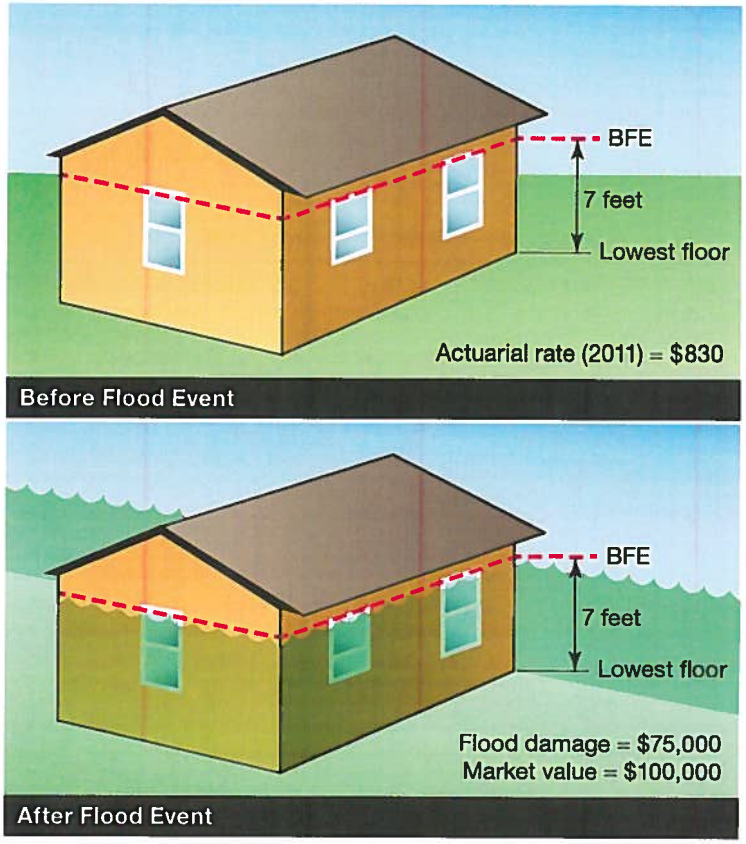

Figure 1: Pre-FIRM building with lowest floor 7 feet below the BFE incurred Substantial Damage during the base flood event.

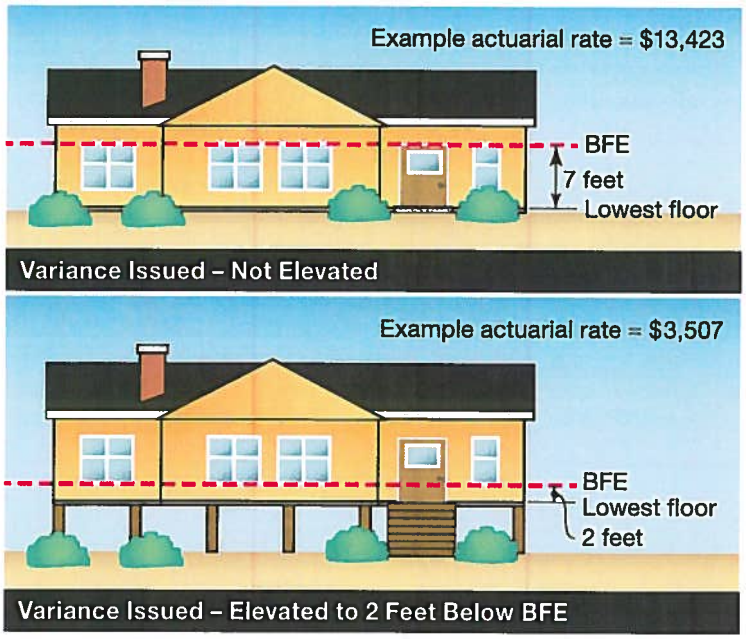

Figure 2: Two examples of repairs requiring a variance to the building shown in Figure 1. Note the example actuarial rates based on $100,000 in building coverage.

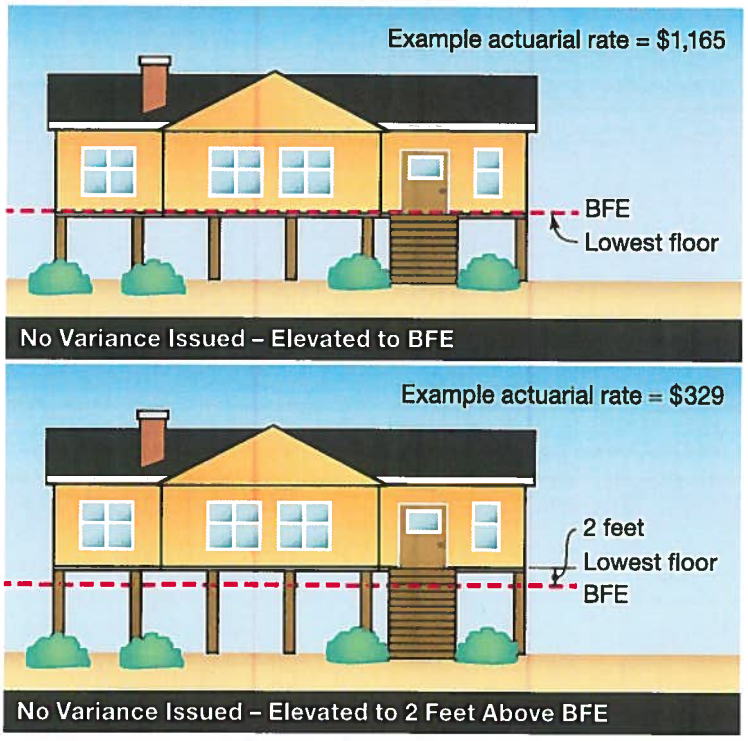

Figure 3: Two examples of repairs where no variance to the building shown in Figure 1. Note the example actuarial rates based on $100,000 in building coverage.

SECTION 6
Additional Resources

Contact the FEMA Regional Office or the State Coordinating Agencies for the NFIP for assistance implementing the NFIP. The current listing of FEMA Regional Offices is provided at http://www.fema.gov/about/contact/regions.shtm. The NFIP State Coordinating Agencies are provided at http://www.floods.org (see State/Local Resource and Tools).

6.1 Federal Emergency Management Agency Publications

Guidance and Manuals

Floodproofing Non-Residential Structures. FEMA 102. May 1986. Available at http://www.fema.gov/library/viewRecord.do?id=3581.

Protecting Building Utilities From Flood Damage: Principles and Practices for the Design and Construction of Flood Resistant Building Utility Systems. FEMA P-348. November 1999. Available at http://www.fema.gov/library/viewRecord.do?id=1750.

Floodplain Management Bulletin on Historic Structures. FEMA P-467-2. May 2008. Available at http://www.fema.gov/library/viewRecord.do?id=3282.

Homeowner's Guide to Retrofitting: Six Ways to Protect Your House from Flooding. FEMA P-312. December 2009. Available at http://www.fema.gov/library/viewRecord.do?id=1420.

Recommended Residential Construction for Coastal Areas: Building on Strong and Safe Foundations. FEMA P-550. December 2009. Available at http://www.fema.gov/library/viewRecord.do?id=1853.

Protecting Your Home And Property From Flood Damage. FEMA P-805. October 2010, http://www.fema.gov/media-library/assets/documents/21471?id=4654.

Substantial Improvement/Substantial Damage Desk Reference. FEMA P-758. May, 2010, http://www.fema.gov/media-library/assets/documents/18562?id=4160.

Repairing Your Flooded Home. FEMA P-234. American Red Cross Publication 4477. October 2010.

Additional resources: http://www.fema.gov/resource-document-library.

National Flood Insurance Program (NFIP) Technical Bulletins

Available at http://www.fema.gov/national-flood-insurance-program-2/nfip-technical-bulletins:

- *Below-Grade Parking Requirements for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program.* FEMA Technical Bulletin-6-93 (FIA-TB-6). April 1993.
- *Non-Residential Floodproofing – Requirements and Certification for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program.* FEMA Technical Bulletin 3-93 (FIA-TB-3). April 1993.
- *Wet Floodproofing Requirements for Structures Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program.* Technical Bulletin 7-93 (FIA-TB-7). December 1993.
- *Corrosion Protection for Metal Connectors in Coastal Areas for Structures Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program.* FEMA Technical Bulletin 8-96 (FIA-TB-8). August 1996.
- *Ensuring That Structures Built on Fill In or Near Special Flood Hazard Areas Are Reasonably Safe From Flooding in accordance with the National Flood Insurance Program.* FEMA Technical Bulletin 10-01 (FIA-TB-10). May 2001.
- *Design and Construction Guidance for Breakaway Walls Below Elevated Buildings Located in Coastal High Hazard Areas in accordance with the National Flood Insurance Program.* FEMA Technical Bulletin 9. August 2008.
- *Openings in Foundation Walls and Walls of Enclosure Below Elevated Buildings in Special Flood Hazard Areas in accordance with the National Flood Insurance Program.* FEMA NFIP Technical Bulletin 1. August 2008.
- *Flood-Damage Resistant Materials Requirements for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program.* FEMA NFIP Technical Bulletin 2. August 2008.
- *Free-of-Obstruction Requirements for Buildings located in Coastal High Hazard Areas in accordance with the National Flood Insurance Program.* FEMA NFIP Technical Bulletin 5. August 2008.

6.2 Comments

Any comments on the Floodplain Management Bulletin should be directed to:

DHS/FEMA
Flood Insurance and Mitigation Directorate
500 C St., SW
Washington, D.C. 20472

6.3 Ordering Information

This document can be downloaded from the following Web site: http://www.fema.gov/library/index.jsp.

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