



# User's Guide to Technical Bulletins

Developed in accordance with the National Flood  
Insurance Program

Technical Bulletin 0 / March 2009



**FEMA**

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Comments on the Technical Bulletins should be directed to:

Federal Emergency Management Agency  
Mitigation Directorate  
Building Science Branch  
500 C Street, SW.  
Washington, DC 20472

Technical Bulletin 0 replaces User's Guide 01, *User's Guide to Technical Bulletins*.

## Introduction

This User's Guide is intended to assist those using the Technical Bulletins issued by the Federal Emergency Management Agency (FEMA), Mitigation Directorate. This guide includes a Key Word/Subject Index that identifies topics addressed in the Technical Bulletins regarding the National Flood Insurance Program (NFIP). Reference sources and information about ordering additional NFIP publications are also provided.

## The Technical Bulletins

The Technical Bulletins provide guidance concerning the building performance standards of the NFIP, which are contained in Title 44 of the U.S. Code of Federal Regulations at Section 60.3. The bulletins are intended for use primarily by State and local officials responsible for interpreting and enforcing NFIP regulations and by members of the development community, such as design professionals and builders. New bulletins, as well as updates of existing bulletins, are issued periodically as needed. The bulletins do not create regulations, rather they provide specific guidance for complying with the minimum requirements of existing NFIP regulations. Users of the Technical Bulletins who need additional guidance concerning NFIP regulatory requirements should contact the appropriate FEMA Regional Office (see page 7).

Comments on the Technical Bulletins Series should be addressed to:

Federal Emergency Management Agency  
Mitigation Directorate  
Building Science Branch  
500 C Street, SW.  
Washington, DC 20472

The quickest and easiest way to acquire copies of FEMA's Technical Bulletins is to download them from the FEMA website (<http://www.fema.gov/plan/prevent/floodplain/techbul.shtm>).

Technical Bulletins may also be ordered free of charge from the FEMA Publications Warehouse by calling 1-800-480-2520, or by faxing a request to 301-362-5355, Monday through Friday between 8 a.m. and 5 p.m. EST. Please provide the FEMA publication number, title, and quantity of each publication requested, along with your name, address, zip code, and daytime telephone number. Written requests may also be submitted by mail to the following address: FEMA Distribution Center, 4440 Buckeystown Pike, Frederick, MD 21704

For questions regarding any of the Technical Bulletins, call the Flood/Wind Building Science Helpline at (866) 927-2104 or email [FEMA-Buildingsciencehelp@dhs.gov](mailto:FEMA-Buildingsciencehelp@dhs.gov).

It should be noted that Technical Bulletins provide guidance on the minimum requirements of the NFIP regulations. State or community requirements that exceed those of the NFIP take precedence. Design professionals should contact the community officials to determine whether more restrictive State or local regulations apply to the building or site in question. All applicable standards of the State or local building code must also be met for any building in a flood hazard area.

# Available Technical Bulletins

As of October 2008, the following Technical Bulletins are available:

## **Technical Bulletin 0 – User’s Guide to Technical Bulletins**

Provides a list of available technical bulletins, a key word/subject reference index for all of the bulletins, and information about how to obtain copies of the bulletins.

## **Technical Bulletin 1, 2008 – Openings in Foundation Walls and Walls of Enclosures**

Provides guidance on the NFIP regulations concerning the requirements for openings in foundation walls for buildings with enclosures below the base flood elevation (BFE) and located in Special Flood Hazard Areas (SFHAs) shown on Flood Insurance Rate Maps (FIRMs) as Zones A, AE, A1-A30, AR, AO, and AH.

## **Technical Bulletin 2, 2008 – Flood Damage-Resistant Materials Requirements**

Provides guidance on the NFIP regulations concerning the required use of flood-damage resistant construction materials for building components located below the BFE in SFHAs in both A and V zones.

## **Technical Bulletin 3-93 – Non-Residential Floodproofing — Requirements and Certification**

Provides guidance on the NFIP regulations concerning watertight construction and the required certification for floodproofed non-residential buildings in Zones A, AE, A1-A30, AR, AO, and AH whose lowest floors are below the BFE.

## **Technical Bulletin 4-93 – Elevator Installation**

Provides guidance on the NFIP regulations concerning the installation of elevators below the BFE in SFHAs in both A and V zones.

## **Technical Bulletin 5, 2008 – Free-of-Obstruction Requirements**

Provides guidance on the NFIP regulations concerning obstructions to floodwaters below elevated buildings and on building sites in Coastal High Hazard Areas (Zones V, VE, and V1-V30).

## **Technical Bulletin 6-93 – Below-Grade Parking Requirements**

Provides guidance on the NFIP regulations concerning the design of below-grade parking garages beneath buildings located in Zones A, AE, A1 -A30, AR, AO, and AH.

## **Technical Bulletin 7-93 – Wet Floodproofing Requirements**

Provides guidance on the NFIP regulations concerning wet floodproofing of certain types of structures located in Zones A, AE, A1-A30, AR, AO, and AH.

### **Technical Bulletin 8-96 – Corrosion Protection for Metal Connectors in Coastal Areas**

Provides guidance on the need for, selection of, and use of corrosion-resistant metal connectors for the construction of buildings in coastal areas.

### **Technical Bulletin 9, 2008 – Design and Construction Guidance for Breakaway Walls**

Provides prescriptive criteria for the design and construction of wood-frame and masonry breakaway walls beneath elevated buildings in Coastal High Hazard Areas compliant with NFIP regulatory requirements.

### **Technical Bulletin 10-01 – Ensuring That Structures Built on Fill in or Near Special Flood Hazard Areas Are Reasonably Safe From Flooding**

Provides regulatory and technical guidance concerning the construction of buildings with various types of foundations, including basements, in areas removed from the SFHA through the placement of fill and in areas near the SFHA.

### **Technical Bulletin 11-01 – Crawlspace Construction for Buildings Located in Special Flood Hazard Areas**

Provides interim guidance on minimum NFIP requirements as well as best practices for crawlspace construction in SFHAs.

## **Key Word/Subject Index**

This index is designed to allow the user to quickly locate key words that pertain to the subject in question. The index also cross-references issues that are addressed by more than one Technical Bulletin. For example, users of Technical Bulletin 2 (*Flood Damage-Resistant Materials Requirements*) should also refer to Technical Bulletin 9 (*Design and Construction for Breakaway Walls*) concerning breakaway walls in V zones.

<b>Technical Bulletin</b>	<b>Key Words and Subjects</b>
3	A-zone floodproofing
7	accessory structures
5	accessory structures, as possible obstructions in V zones
7	agricultural structures
10	basement construction, engineered option
10	basement construction, simplified approach
1, 11	basement, definition of
10	basement foundation in fill, not recommended
10	basement foundation in fill, placed above the base flood elevation (BFE)
10	basement foundation in fill, vulnerability to subsurface flooding
10	basement foundation, with lowest floor at or above the BFE
10	basement foundation, with lowest openings above the BFE
10	basement foundation, with lowest openings at the BFE

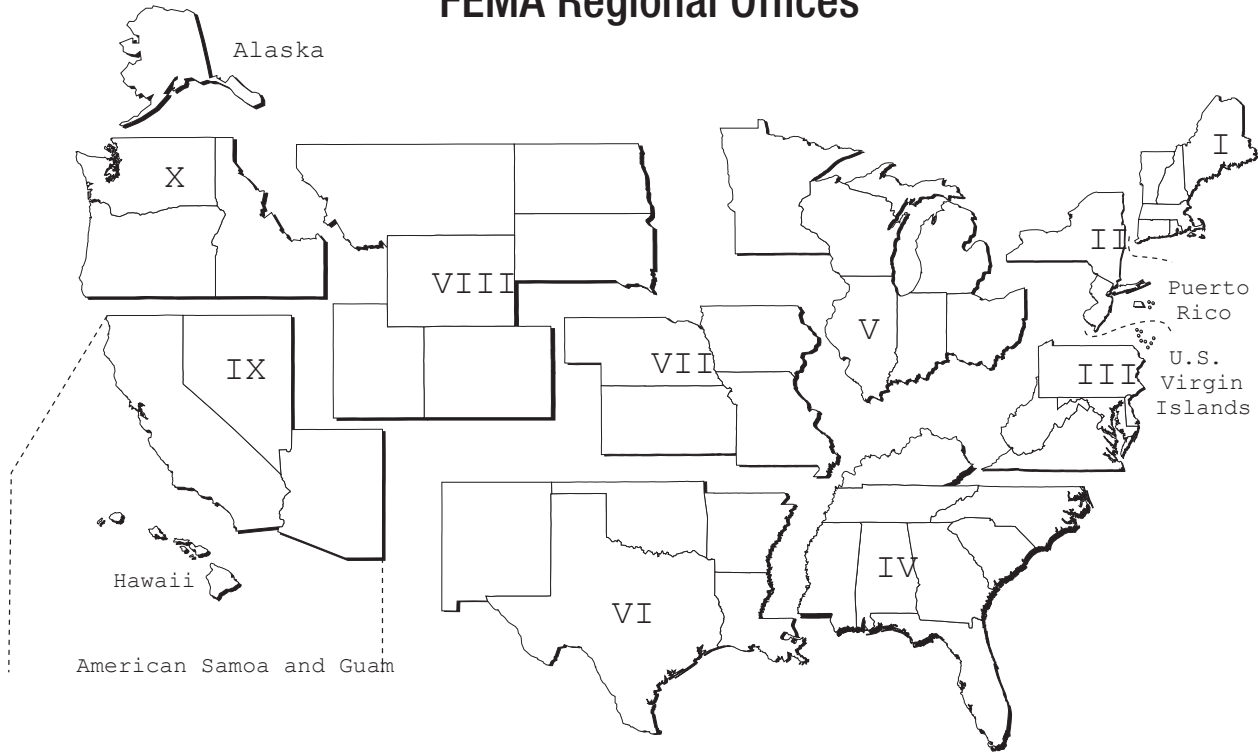
Technical Bulletin	Key Words and Subjects
6	below-grade parking garage, considered a basement
6	below-grade parking garage, defined
6	below-grade parking in A and V zones, when allowed, requirements for
11	best practices for crawlspace foundations in the SFHA
9	breakaway wall, failure modes
9	breakaway wall, insurance considerations
9	breakaway wall, NFIP regulatory requirements
9	breakaway wall, specifications for NFIP-compliant construction
2, 9	breakaway walls in V zones, made of flood damage-resistant materials
9	breaking wave, impact on vertical surface
5	bulkheads, as possible obstructions in V zones
10	community permitting, administrative options for
8	corrosion, classes of building exposure to
8	corrosion, causes of
8	corrosion, identifying high-risk buildings
8	corrosion, planning for
8	corrosion-resistant materials for sheetmetal connectors
10	crawlspace foundation
5	decks and patios, as possible obstructions in V zones
5	detached garages, elevation requirement in V zones
11	drainage considerations
10	earthen fill, placed to remove land from the SFHA
10	earthen fill, zones where prohibited
4	elevator components, location of in relation to the BFE
4	elevator electrical equipment, location of in relation to the BFE
4	elevators, types of
5, 10	fill, areas where prohibited
5	fill, as obstruction beneath buildings in V zones
10	fill, proper placement of
4	float switch, use of in flood areas (for elevator cab)
11	flood forces on buildings
11	flood insurance applications
4	flood-resistant elevator components, use of
2	flood-resistant flooring materials
11	flood-resistant materials
2	flood-resistant materials, classifications
2	flood-resistant wall and ceiling materials
3	floodproofing certificate, non-residential

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6	floodproofing, below-grade parking beneath non-residential buildings, design requirements for
3	floodproofing, Emergency Operations Plan, minimum acceptable
3	floodproofing, Inspection and Maintenance Plan
3, 6	floodproofing, recognition of for insurance rating purposes
5	foundation bracing, as possible obstructions in V zones
10	foundation flood risk, summary table
1	foundation openings in A zones, size, how to calculate
1	foundation vents
1	foundations in A zones
10	freeboard, recommendations
5	free of obstruction, definition of
5	free of obstruction, designing a foundation system in V zones
5	free of obstruction requirements in V zones
7	functionally dependent use
8	galvanizing
1, 5, 7, 9	garage doors
1	garage doors, to meet the openings requirement
7	garages attached to non-residential structures
1, 7	garages attached to residential buildings
7	garages, detached from structures
5	grade beams, as possible obstructions in V zones
3	high hazard area, safety and access in
7	historic buildings
3	hydrodynamic forces on floodproofed building
3	hydrostatic forces on floodproofed building
1	hydrostatic loads, equalized by openings
1	hydrostatic pressure, how to relieve
1, 9	insect screening, for below building enclosures
10	insurance coverage for basement flooding, restrictions
9	lattice work, for below-building enclosures
2	latticework in V zones, made of flood-resistant materials
1, 3	lowest floor, definition of
11	NFIP requirements for all crawlspace construction
3	non-residential floodproofing certificate, how to fill out
1	openings for foundations in A zones
11	pre-engineered below-grade crawlspace foundation guidance
5, 10	professional certification
10	professional certification, sample form

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10	"reasonably safe from flooding," defined
10	"reasonably safe from flooding," NFIP regulations concerning
11	requirements, additional for below-grade crawlspaces
1	safety factor for foundation openings
8	salt spray from breaking waves
2	screening in V zones, made of flood-resistant materials
10	slab-on-grade foundation
1, 10	stem wall foundation
1	substantial damage, foundation wall openings requirement
1	substantial improvement, foundation wall openings requirement
10	sump pump, requirements for simplified basement construction
5	swimming pools, beneath buildings in V zones
2	U.S. Army Corps of Engineers, <i>Flood Proofing Regulations</i> (1995)
11	utilities, access, and ventilation openings
7	variances from NFIP requirements
7	variances, issuance in designated floodways
7	wet floodproofing, definition of
7	wet floodproofing, engineering considerations
7	wet floodproofing, flood insurance implications
7	wet floodproofing, planning considerations



# FEMA Regional Offices



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**Region IV** FEMA  
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**Region V** FEMA  
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Other Federal agencies that provide floodplain management assistance include the U.S. Army Corps of Engineers and the U.S. Soil Conservation Service. For their nearest locations, please refer to your local telephone directory under “United States Government.”