



1.0 About This Guide

The Third Edition of FEMA P-312, *Homeowner's Guide to Retrofitting*, has been prepared to update the state of art in residential flood protection methods and reflect changes made to the National Flood Insurance Program (NFIP).

1.1 Who This Guide Is For

The Federal Emergency Management Agency (FEMA) has prepared this guide specifically for homeowners who want to protect their homes from flooding. It provides clear information about the options available to you and straightforward guidance that will help you make decisions. This guide is designed for readers who have little or no experience with flood protection methods or building construction techniques.

If you are an engineer, an architect, a construction contractor, or someone with skills in those fields, you may want to ask FEMA for copies of technical manuals that cover design and construction in greater detail. For example, all flood protection methods described in this guide are discussed in depth in FEMA P-259, *Engineering Principles and Practices for Retrofitting Flood-Prone Residential Structures*, Third Edition (FEMA. 2012a). If you work in a coastal area, FEMA P-55, *Coastal Construction Manual: Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas*, Fourth Edition (FEMA. 2011b), may also be useful. If you would like to obtain copies of these documents or other FEMA documents referred to in this guide free of charge, you can download them from the FEMA Web site (<http://www.fema.gov/resource-document-library>) or call the FEMA Publications Service Center at 1-800-480-2520. See Appendix A for a list of documents concerning flood protection prepared by FEMA and other agencies and organizations.

In addition to FEMA publications, architects and engineers may want to obtain literature from the American Society of Civil Engineers (ASCE). ASCE 24, *Flood Resistant Design and Construction* provides minimum requirements for flood-resistant design and construction of structures located in flood hazard areas. ASCE 7, *Minimum Design Loads for Buildings and Other Structures*, may also be useful since formulas for flood loads are described in this document.



DEFINITION

FEMA is an agency within the Department of Homeland Security (DHS) that administers the NFIP. The NFIP is a Federal program, created by Congress in 1968. The NFIP makes flood insurance available to communities that adopt and enforce floodplain management ordinance, regulation, or provisions of the building code that meet the minimum requirements of the NFIP regulations.

1.2 How This Guide Can Help You

You should take steps to protect your home if it has been damaged by flooding or is in an area where flooding is likely to occur. But first, you need to know what methods are available, how they work, how much they may cost, and whether they will meet your specific needs. This guide covers all of those issues. It also explains flood hazards and how they can damage your home.

Flooding is only one of several natural hazards that may threaten your home. This guide includes maps that will help you determine whether your home is in an area where earthquakes or high winds occur, and it also explains when your retrofitting project should include protection against these hazards.

Your state and local governments probably have adopted building codes and other rules and regulations that you will need to know about. This guide explains how your **local officials** can advise you on those codes, rules, and regulations. Regardless of the flood protection method you choose, you may wish to consult with a licensed architect, engineer, or contractor for assistance with some of the retrofitting measures described in this guide. This guide describes the types of services you can expect design professionals and contractors to provide.



DEFINITION

In this guide, the term **local officials** refers to the employees of your community who are responsible for floodplain management, zoning, permitting, building code enforcement, and building inspection. The responsibilities of local officials vary from one community to the next. In your community, you may need to work with one or more of the following: floodplain administrator, building official, city engineer, and planning and zoning administrator.

1.3 How To Use This Guide

To get the most from this guide, you should first read Chapters 2, 3, and 4. Chapter 2 explains retrofitting and, by describing how flood, wind, and earthquake forces can damage your home, helps you understand how retrofitting works. Chapter 2 also provides a discussion of Federal, State, and local financial assistance programs that may help pay for your retrofitting project. Chapter 3 provides short descriptions of the six flood protection methods covered by this guide. It gives you the information you will need as you begin to think about how to protect your home, including the approximate costs, advantages, and disadvantages of each method. Chapter 4 leads you through four steps that will help you decide which method or methods will best meet your needs. Chapter 4 also explains how to work with local officials, design professionals, and contractors.

When you finish Chapter 4, you will be ready to focus on a specific retrofitting strategy. In some cases, a single method may adequately address your needs. In other cases, a combination of methods may be best. Then you can move to Chapter 5, 6, 7, 8, or 9, depending on the method or methods you've chosen. Those chapters describe the methods in greater detail and include photographs and illustrations that show how the methods are applied. Chapter 9 explains how you can protect service equipment (utility systems; heating, ventilating, and air conditioning [HVAC] systems; and large appliances) in conjunction with the retrofitting method you have chosen.

As you read this guide, you will often find information in the margins of pages—definitions (such as the one on the previous page), notes, and warnings. Each is identified by a special symbol:



DEFINITION – The meaning of a technical or other special term. Where a term is first used in the text, it is shown in bold type and the definition is provided in the margin. You can also find these and other definitions in Appendix B.



NOTE – Supplemental information you may find helpful, including things to consider as you plan your retrofitting project, suggestions that can make the retrofitting process easier, and the titles and sources of other publications related to flood protection and retrofitting.



CROSS REFERENCE – Reference to another relevant part of the text or another source of information.



WARNING – Critical information that will help you avoid mistakes that could result in dangerous conditions, violations of your community’s ordinances or regulations, and possibly delays and higher costs in your retrofitting project. Be sure to read these warnings. If you are unsure about what a specific warning means or what to do to avoid the problem it describes, consult your local officials. Chapter 4 provides information about working with local officials.

A final note before you begin Chapter 2: No guide or other document of this type can anticipate every retrofitting situation or every concern a homeowner may have about undertaking a retrofitting project. If you have questions that this guide does not answer, consult your local officials. Other resources include:

FEMA’s Building Science Helpline, a technical assistance hotline, can be reached at 1-866-927-2104 (phone) or FEMA-Building-sciencehelp@dhs.gov (email).

If FEMA has set up a Disaster Recovery Center (DRC) in your area in response to a Presidential Declaration of a Major Disaster, members of the DRC Mitigation staff can answer questions and advise you on recovery strategies. Call the FEMA Helpline at 1-800-621-3362 for the location of a DRC in your area.

Appendix A of this guide lists helpful publications from FEMA and other organizations. The FEMA Web site, <http://www.fema.gov>, has information about all of these resources and more.

Appendix C lists the staff members of the FEMA Regional Office for your State.

Appendix D identifies your State NFIP Coordinator and State Hazard Mitigation Officer (SHMO).



NOTE

Many government agencies, including FEMA and non-profit organizations, maintain sites on the Internet where you can find information about flooding, high winds, earthquakes, and other hazards. Appendix A includes a partial list of available sites at the time this guide was prepared.

