
1 Introduction

1.1 Overview

When buildings undergo repair or improvement, it is an opportunity for floodplain management programs to reduce flood damage to existing structures. More than 21,000 communities participate in the National Flood Insurance Program (NFIP) by adopting and enforcing regulations and codes that apply to development in Special Flood Hazard Areas (SFHAs). Local floodplain management regulations and codes contain minimum NFIP requirements that are not only for new structures, but also for existing structures with proposed “substantial improvements” or repair of “substantial damage.”

Local officials in communities that participate in the NFIP must determine whether proposed work qualifies as a substantial improvement or repair of substantial damage (referred to as an “SI/SD determination”). If work on buildings constitutes SI/SD, then structures must be brought into compliance with NFIP requirements for new construction, including the requirement that lowest floors be elevated to or above the base flood elevation (BFE). Meeting this requirement can also be accomplished by demolition followed by construction of new buildings that meet the NFIP requirements on the same sites or by relocating buildings to locations outside of the SFHA. In some cases after a disaster, communities have worked with owners to buy damaged homes in order to demolish the buildings and preserve the land as open space. The NFIP defines SI/SD as follows:

- **Substantial improvement (SI)** means *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.*
- **Substantial damage (SD)** means *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. Work on structures that are determined to be substantially damaged is considered to be substantial improvement, regardless of the actual repair work performed.*

The 50 percent threshold was chosen as a compromise between two extremes. One extreme would be to prohibit all investment in existing structures that do not meet minimum NFIP requirements. The other extreme would be to allow structures in flood hazard areas to be improved in any fashion without regard to the flood risk. In the first alternative, there is the potential for causing hardship to those who have located in flood hazard areas without knowledge of the risk because the structure was constructed prior to the designation of the area as flood-prone. These individuals would not be able to improve their structures as damage or age contributed to deterioration. The second alternative provides no mechanism to ensure that increased investment in flood hazard areas will receive needed protection from the flood risk,

thus contributing to the increased peril to life and property. Thus, the threshold of 50 percent is a compromise at a half-way point and was chosen because it conforms to similar building code and zoning standards that also use this threshold.

This Desk Reference is designed for local officials who are responsible for the administration of local codes and regulations, including the SI/SD requirements. It also is intended for State officials who provide technical assistance to communities on the NFIP.

1.2 What is Covered in This Desk Reference?

Enforcing the SI/SD requirements is a very important part of a community’s floodplain management responsibilities. There are many factors that local officials will need to consider and several scenarios they may encounter while implementing the SI/SD requirements. This Desk Reference provides guidance and suggested procedures to implement the NFIP requirements for SI/SD. Table 1-1 summarizes the content of each chapter and lists the appendices.

Table 1-1. Desk Reference Organization

Chapter	Description of Content
1: Introduction	Provides an overview of the Desk Reference, other relevant requirements, and suggestions for where to obtain additional help.
2: The NFIP: Roles and Responsibilities	Outlines the purposes of the NFIP, offers an overview of how the program’s three components work together to support the long-term reduction of flood losses, and explains the roles and responsibilities of communities, State agencies, and the Federal Emergency Management Agency (FEMA).
3: NFIP Substantial Improvement/ Substantial Damage: Requirements and Definitions	Provides an introduction to the NFIP’s SI/SD requirements and lists selected definitions and terms (and compares them with those of the building codes published by the International Code Council, Inc. [ICC]).
4: Making Substantial Improvement and Substantial Damage Determinations	Explains how costs of improvements, costs of repairs, and market values are used to make the SI/SD determination, and describes ways to obtain or to estimate costs and values.
5: Administering Substantial Improvement and Substantial Damage Requirements	Outlines community and property owner responsibilities and provides detailed guidance for local officials who are responsible for administering and enforcing the SI/SD requirements.
6: Factors to Consider and Illustrations of Substantial Improvement and Repair of Substantial Damage	Describes the key aspects of bringing buildings into compliance with all of the NFIP requirements and illustrates examples of improvements and repairs.
7: Substantial Damage in the Disaster Recovery Environment	Offers suggestions to prepare for disasters, an overview of the post-disaster process, methods to estimate costs and market values after major disasters, and describes FEMA’s <i>Substantial Damage Estimator</i> .
8: Mitigation Projects	Describes the most common types of mitigation projects and briefly summarizes FEMA’s five mitigation grant programs.

Table 1-1. Desk Reference Organization (continued)

Appendices	Description of Content
Appendix A	FEMA Regional Offices, NFIP State Coordinating Agencies, and State Hazard Mitigation Offices
Appendix B	References
Appendix C	Glossary and Acronyms
Appendix D	Sample Notice to Property Owners, Worksheet, and Other Material
Appendix E	Sample Letters of Determination

1.3 Relevant Requirements

This Desk Reference provides guidance on the minimum requirements of the NFIP regulations. State or locally-adopted requirements that are more restrictive take precedence (often referred to as “exceeding the NFIP minimums” or “higher standards”).

Many States and communities have adopted one or more of the codes in the family of codes published by the International Code Council, Inc. (I-Codes®) or use the I-Codes as the basis of their own codes. These codes contain provisions for buildings in flood hazard areas, including provisions related to substantial improvement and substantial damage. The pertinent codes are the *International Building Code*® (IBC®), *International Residential Code*® (IRC®), and *International Existing Building Code*® (IEBC®). Each references *Flood Resistant Design and Construction* (ASCE 24-05), the national consensus standard produced by the American Society of Civil Engineers, Inc. (ASCE).

The most common floodplain management requirement that exceeds NFIP minimums and also applies to SI/SD is freeboard – added height to raise the lowest floor above the BFE.

Communities that have a building code and floodplain management regulations must administer the more restrictive provisions.

1.4 Answers to Questions About SI/SD

FEMA 213, *Answers to Questions about Substantially Damaged Buildings*, is a FEMA publication that summarizes answers to certain key questions regarding substantial damage and a few questions related to substantial improvement. This SI/SD Desk Reference provides expanded discussion and more detailed guidance on making substantial damage determinations, along with detailed guidance on administering the substantial improvement requirements.

1.5 Where to Get Help

Each State has a designated State Coordinating Agency for the NFIP, with an individual identified as the NFIP State Coordinator. State Coordinators provide a link between the Federal government and local governments on matters related to floodplain management. Additional assistance may be sought from FEMA's Regional Offices. Appendix A includes contact information for FEMA Regional Offices, NFIP State Coordinating Agencies, and State Hazard Mitigation Offices.

FEMA produces extensive guidance materials and publications related to floodplain management. Many NFIP State Coordinating Agencies also publish guidance documents. Appendix B lists references pertinent to administering the SI/SD requirements and other resources for managing development in floodplains. FEMA publications are available from the FEMA library at <http://www.fema.gov/library> or by calling 1-800-480-2520.