Substantial Damage Assessment Handbook

A Guide for Local Floodplain Administrators

State of Nebraska
Department of Natural Resources

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Revision	Report Date	Reason for Revision
0	March 1, 2021	Initial Issue
1	March 1, 2022	• Removed "2021" from cover; added effective date, version number, and revision date • Page numbers added to appendix items • Expiration date and jurisdiction prompts added to floodplain deveopment permit form • Updated Appendix B: Contact Information; added interactive map hyperlink

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References

Appendices

NOTE: The entire handbook is available for download at Nebraska Department of Natural Resources' website: **https://dnr.nebraska.gov/floodplain/digital-desk-reference**

Abbreviations

BFE	Base Flood Elevation
CFM	Certified Floodplain Manager
CSV	Comma-Separated Value
DFIRM	Standard Digital Flood Insurance Rate Map
EI	Engineer-in-Training / Engineering Intern
ETJ	Extraterritorial Jurisdiction
FDP	Floodplain Development Permit
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance
FP	Floodplain
GIS	Geographic Information System
GPS	Global Positioning System
HMGP	Hazard Mitigation Assistance Program
HVAC	Heating, Ventilation, and Air Conditioning
NeDNR	Nebraska Department of Natural Resources
NEMA	Nebraska Emergency Management Agency
NFIP	National Flood Insurance Program
NRD	Natural Resources District
PDF	Portable Document Format
PE	Professional Engineer
PPE	Personal Protective Equipment
SDA	Substantial Damage Assessment
SDE	Substantial Damage Estimator
SFHA	Special Flood Hazard Area
XML	Extensible Markup Language

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Forward

Letter from the Nebraska NFIP Coordinator

Dear Floodplain Managers,

While we cannot predict when, where, or what disasters will impact our communities, we do know that disasters occur. We learned a lot from the 2019 floods and have developed the *Substantial Damage Assessment Handbook* based on your input.

Use this handbook to guide your actions before, during, and after a disaster impacts your community. Included in the handbook are lists and tools for specific actions that you can implement in your community today. Doing so will reduce the amount of work required of you after a disaster has occurred and aid in a smoother and quicker recovery process for the community overall.

New features added to this handbook include:

- Diagrams and decision trees to help you visualize when and where the guidance applies
- Clarification of the Substantial Damage Assessment process
- New templates and tables, such as:
- Pre-disaster and Fieldwork preparation checklists
- Floodplain Development Permit
- Interior and Exterior Inspection Guides
- Percent Damage Estimation Tables
- Contractor Damage Repair Cost Estimation Form
- Flood Zone A Compliance Requirements table
- List of references and information as to how to obtain copies
- Hyperlinks to FEMA resources documents such as full-length manuals and fact sheets (*digital version only*)
- Interactive and fillable PDF forms that may be completed electronically or on tablets in the field (*digital version only*)

We hope this disaster handbook will serve as a tool and resource in 2021 and beyond. Hard copies of the handbook can be requested by contacting this office. Additionally, all components of the handbook are available as individually downloadable files at Nebraska Department of Natural Resources' Digital Desk Reference.

Lastly, we are here to assist you. Please see our contact information at the end of the guide and do not hesitate to contact us should you have any questions or suggestions.

Sincerely,

Katie Ringland, PE, CFM
Chief, Floodplain Management Section

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Introduction

Applicability

Your jurisdiction participates in the National Flood Insurance Program (NFIP), which allows your residents to purchase federal flood insurance and makes them eligible for various federal loan and grant programs, including federal disaster assistance programs. As a condition of joining the NFIP your jurisdiction has agreed to regulate development within the Special Flood Hazard Area (SFHA), including the repair and reconstruction of damaged buildings, no matter the type of disaster (flood, wildfire, wind, hail, etc.). Failure to carry out these requirements could lead to suspension of your jurisdiction from the NFIP and the denial of flood insurance and other federal benefits to your residents and community.

There are two key NFIP requirements you need to be aware of after a disaster:

- A floodplain development permit is required for all development within the SFHA, including repair and reconstruction.
- Buildings that are substantially damaged must be treated as new buildings and brought into compliance with your floodplain management ordinance.

To be substantially damaged means that the cost of restoring a disaster-damaged structure to its pre-disaster condition would be equal to or greater than 50% of the structure's pre-disaster market value. Substantially damaged buildings must be treated as new structures and brought into compliance with your ordinance. In most cases, this means either elevating the structure to one foot above the base flood elevation (BFE) or removing it from the SFHA.

It is your jurisdiction's legal responsibility to determine the extent of any damages to structures in any SFHA within your jurisdiction, including your extraterritorial jurisdiction (ETJ). The Substantial Damage Assessment (SDA) is different than the damage assessments being completed by other agencies. Your jurisdiction's SDA process must include: identification of a pre-event fair market valuation for each structure, visual inspection of the damaged properties, and recordation of the extent of physical damage to the structure.

The Substantial Damage Assessment Handbook has been specifically developed for Nebraska's Floodplain Managers, for both urban and rural settings. Please review this guide and use it to prepare yourself and others in advance of disasters occurring within your jurisdiction. This handbook includes guidance and resources applicable preceding, during, and after a disaster has occurred.

While the contents have been tailored to the State of Nebraska's minimum standards for floodplain management, your community may have adopted higher standards, procedures, and/or policies that are specific to your local jurisdiction. These higher standards may include but are not limited to: cumulative substantial damage, higher freeboards, and best available data. Please review your floodplain management ordinance in order to know and understand where your jurisdiction's higher standards fit within this guidance.

This guide is a compilation of several resources. Information has been assembled from FEMA resources and training sessions, Nebraska Department of Natural Resources staff and documents, community members, and resources developed by regional neighbors. For access to in-depth reference guides produced by FEMA, please go to the references section of this handbook.

Regulatory Setting

The guidance contained within this document is in accordance with the following current federal and state rules and regulations governing local flood hazards:

- Criteria for Land Management and Use, 44 C.F.R. §60
- General Provisions, 44 C.F.R. §59
- Rules and Regulations Concerning Minimum Standards for Floodplain Management Programs, 455 Neb. Admin. Code §1
- Flood Plain, Neb. Rev. Stat. §31-10
- Cities of the First-Class Flood Control, Neb. Rev. Stat. §16-6, 106
- Sanitary Districts for Cities 100,000 to 300,000, Neb. Rev. Stat. §§31-508 & 31-509
- Sanitary Districts for Cities 100,000 to 300,000, Neb. Rev. Stat. §§31-515 & 31-516

PRE-DISASTER PLANNING ACTIONS

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Chapter 1: Pre-Disaster Planning Actions

Knowing Hazard Zones

As the floodplain administrator it is important to know the boundaries of the regulatory Special Flood Hazard Area (SFHA) within your jurisdiction. This is the area in which your floodplain management ordinance applies, and the area in which you will need to perform substantial damage assessments (SDA) and provide a substantial damage determination to the property owners. The SDA process is discussed fully in Chapter 2.

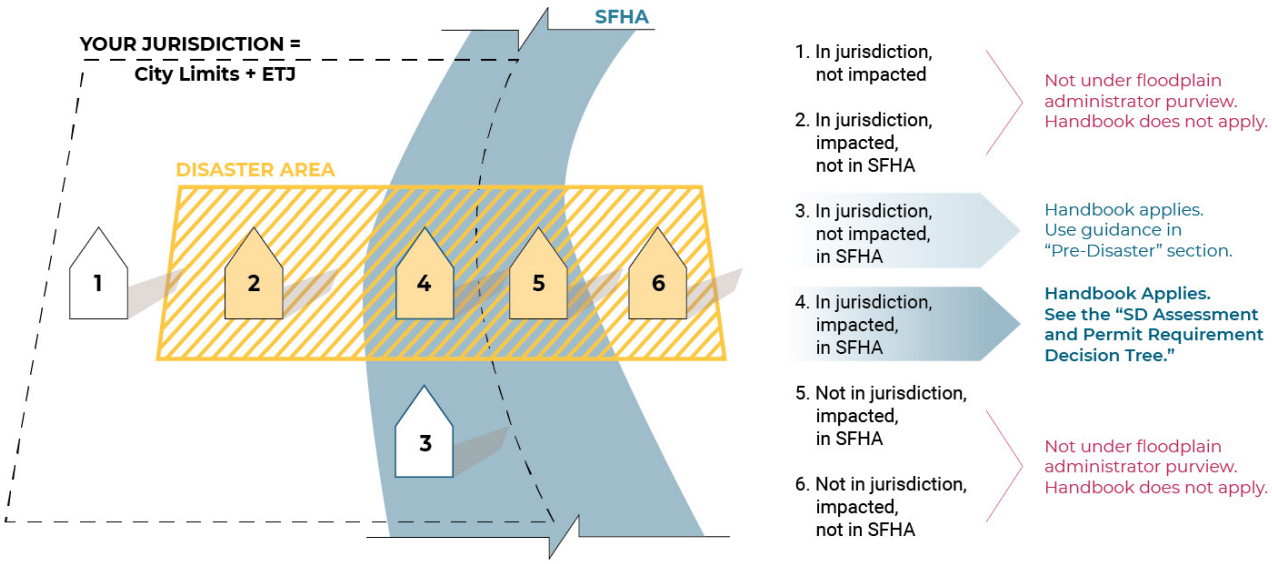
In order to start the post disaster recovery process, you will need to be able to answer the following questions:

- Where is the SFHA located?
- What structures exist in the SFHA?

If you are not able to answer these questions, you can search for your jurisdiction on **NeDNR's Interactive Floodplain Map**. The interactive map will show you the location of the floodplain in relation to the properties in your community. If you would like additional information, or have questions about your flood risk, reach out to NeDNR's Floodplain Management Section via the contact information included in Appendix B.

You and other community officials should educate your jurisdiction's residents on their flood risk and measures that can be taken to protect their assets. Communication can include instruction on how to purchase flood insurance, the importance of anchoring potentially buoyant or easily-washed away objects such as fuel tanks and outbuildings; using the flood risk product viewer on NeDNR's website, capping wellheads to prevent pollution; and protecting your home from flooding.

Figure 1. Applicability of Substantial Damage Assessment Handbook Guidance



Creating a Post-Disaster Plan for Floodplain Management

Prior to a disaster occurring, develop a general plan or framework for how to move into action in time of disaster. This "Post Disaster Plan for Floodplain Management" should be flexible enough that it can be fine-tuned or modified per the specific characteristics of any given disaster. Be sure to include county emergency managers, the local fire chief, and other emergency operation agencies in your area in the planning process. This plan is specific to your floodplain management duties. It is not to be confused with an incident command structure, yet should complement the incident command structure. The plan should contain:

- Meeting locations.
- Staff members.
- Staff responsibilities.
- Emergency or critical routes.
- Known stockpiles of emergency materials, such as: fuel supplies, sandbags, generators, food banks.
- List of state agency contacts and contacts in neighboring jurisdictions and any applicable mutual aid agreements, such as: police chiefs, fire chiefs, NEMA, NeDNR, floodplain administrators, zoning officials, council members.
- Plan for notification of the public and local officials.
- List of data sources and locations, such as: maps, permit files, tax records.
- Substantial damage inspection resources, such as: this handbook, FEMA guides, and fieldwork tools.

Meeting locations. Prior to going out into the community, team members should be briefed about the current situation and what they might expect in the field. Establish primary and back up locations at which to meet and operate.

Staff members. Consider including Maintenance, Fire, Police, Utilities, and Roads personnel as a resource. These individuals likely know the lay of the community very well and can be effective in mapping and assessing damage. Small communities might also consider teaming up with adjacent communities for the purpose of fulfilling post disaster duties.

Staff responsibilities. These responsibilities include but are not limited to: pre-deployment briefing, substantial damage inspections, public notice and media release writing and distribution, Substantial Damage Estimator (SDE) Tool data processing, quality assurance review of substantial damage inspections and determinations, and permit review.

Emergency routes. In addition to evacuation routes, know which routes may be threatened by flood waters and plan for alternatives.

Agency and neighboring jurisdiction contacts. Meet the people critical during a disaster before the disaster occurs. Maintain up-to-date contact information, such as: physical addresses, mobile telephone numbers, and email addresses. Be aware of any mutual aid agreements or memorandums of understanding in place with other jurisdictions, as these may be a useful resource post disaster.

Plan for notification. Have draft notices available for posting in the community and for distribution to local media and know who is going to print and distribute them. Know how to contact area television and radio stations as well as any local newspapers.

Substantial Damage assessment resources. Have pre-assembled tools you and your inspection teams will need for field work. Such items include:

- Copies of maps, damage assessment worksheets, property owner consent forms, and notices.
- Digital cameras with extra memory cards and/or extra batteries.
- Small dry erase boards and markers.
- High visibility vests, hardhats, safety glasses, gloves, and other appropriate personal protective equipment.
- Tape measures.
- Flashlights.
- Notepads, clip boards, and pens.
- GPS devices that can store points in decimal degrees.

Use "Checklist 2 – Field Preparations" in Appendix A to help you prepare your field supplies

FEMA's Substantial Damage Estimator Tool

FEMA developed the Substantial Damage Estimator (SDE) Tool, a stand-alone computer program, to assist state and local officials in estimating substantial damage for residential and non-residential structures in accordance with the requirements of the National Flood Insurance Program (NFIP). The software can be used to assess flood, wind, wildfire, seismic, and other forms of damage. It allows community officials with limited appraisal or construction backgrounds to develop reasonable estimates of structure values and damage in accordance with the NFIP requirements. It also helps communities provide timely substantial damage determinations so reconstruction can begin quickly following a disaster. Only structures in the SFHA are required to be assessed for substantial damage under the NFIP.

Installing and Familiarizing Oneself with the SDE Tool

The SDE Tool is based on the concept of using damage percentage estimates for individual structure elements to determine whether the structure as a whole is substantially damaged. Using SDE will save you time and research in a busy post-disaster work environment. The SDE allows you to set up property records in advance of a disaster. This will save time and prevent errors in the post-disaster efforts. The program supports the preparation of data and calculation of substantial damage determinations in a formal, consistent, and organized manner. Time-saving aspects include:

- View/Search: the ability to search all records based on selected filters.
- Default Data & Bulk Editor: the ability to create or edit default values that can be quickly applied to many property and assessment records.
- Import/Export: the ability to import structure data from non-SDE databases.

The latest version of the SDE Tool software can be downloaded directly from the FEMA web page, "**Building Science – Multi-Hazard Publications**." To install the software, first select the "Download Document" link located below "FEMA P-784, Substantial Damage Estimator

(SDE) Tool" to download a zipped folder including the SDE 3.0 Tool exe file. Then follow the step-by-step installation guide and the reference "SDE Read Me – SDE 3.0 Tool Installation Guide (2017)."

Please note that only one copy of the SDE Tool may be installed on a computer at a time, and before installing the latest version, you must export any existing SDE data that you would like to save from previous SDE versions. Although it is not required, FEMA recommends that users uninstall previous versions of the SDE Tool from the host computer using the Windows add or remove programs function to avoid confusion between past and current SDE inventories. Installation steps may vary depending on the host computer setup and the utility program installed on the computer to unzip the SDE Tool installation file.

Developing a Property Record Inventory

A jurisdiction can save considerable post-disaster time and effort by assembling SFHA property records before a disaster occurs. Using the SDE Tool, records should be made for each structure located within the SFHA. The SDE Tool offers multiple ways to create property records in advance. You can create each property record one by one, or in batches by using the enterprise import function with any of the following: Excel spreadsheet, Access database, CSV file, or an XML file. More information regarding importing data is available in Section 3 of FEMA's P-784 "Substantial Damage Estimator (SDE) User Manual and Field Workbook."

Gathering Information

Various data resources can be assembled prior to a disaster, saving time and stress after a disaster has occurred. The following types of information will be most relevant to your work. Verify that you are gathering the most current versions available.

Base Cost. This value represents the typical construction cost per square foot. For Nebraska, $125 is a reasonable number to use for a residence of "good" initial construction quality. If you have knowledge that your community uses a different base cost, use that value instead. You may consult with area building experts and residential cost-estimating guides for base cost data. Local permit data for new construction, repairs, or remodeling may also be used as source data for determining an appropriate base cost.

Geographic Adjustment. This is a factor which modifies the base cost. When using a locally developed base cost, use a geography adjustment factor of 1. More information about geographic adjustment and base cost values can be found in Sections 3 and 8 of P-784 "Substantial Damage Estimator (SDE) User Manual and Field Workbook."

Tax Data. SDE Tool is populated with various types of information necessary to create a complete property record. Photographs and tax data are the most helpful. The floodplain administrator should also know the locations of tax parcels and structures on Flood Insurance Rate Maps (FIRM). If available in a usable format, assemble tax data and place a hard-copy of key tax data in individual folders organized by property address.

Table 1. "Potential Tax Data Used in the SDE Tool" lists several types of data that can be acquired from local tax records and which may be input into the SDE Tool. Numbers such as structure dimensions and habitable area may be *approximate.*

Table 1. Potential Tax Data Used in the SDE Tool

Type	Data
Owner and Structure Location	• Owner's first and last name • Owner's telephone number • Community name • Zip code • Official structure address • Owner's mailing address if different from structure address • County/parish name (for multiple communities in the same county/parish) • Lot and parcel number
Structure Information	• Date of construction • Date of improvements requiring building permits • Number of dwelling units on the property • Habitable area (in square feet) per structure • Structure use (e.g., single-family home, manufactured housing, commercial use, public building) • Structure style (number of stories, with or without basement) • Construction type (e.g., wood frame, masonry) • Foundation type • Exterior material type (e.g., vinyl siding, brick veneer) • Attached or detached garage • Other structures on the same lot
Assessed Building Value	• Adjusted tax assessed structure value • Date of last tax adjustment (to verify validity of the adjusted tax assessed value)

Table 1 is adapted from the table found on page 8-2 of FEMA P-784, Substantial Damage Estimator (SDE) User Manual and Field Workbook.

Photographs. Digital photographs should be taken of structures and houses to fully describe scale and condition prior to being damaged by disaster. Photos of houses should be taken such that 2 sides are visible, and two photos per structure obtained to allow a view of nearly all sides. The purpose of capturing two photographs per structure is to confidently identify the structure in the SFHA, and to provide a basis for future regulatory needs. Regulatory needs include identifying substantial improvements, as well as substantial damage and unpermitted actions. For this reason, it is recommended that these photos be taken on a regular basis to keep them current.

There are no specific SDE requirements for the size and resolution of digital photographs attached to SDE assessments. Be advised that the larger the digital files and the more photographs attached per inspection, the larger the SDE database becomes and the slower the SDE Tool may operate.

Inspectors should try to frame the photograph so that the structure fills the majority of the view and is readily recognizable to the structure owner or anyone else who views the structure from the point where the photograph was taken. Taking photographs from curbside or the driveway of the structure is recommended, especially if the mailbox with address numbers is visible, unless the structure is set too far back from the street for a clear photograph. Be wary of taking photographs that are too dark, washed out by sunlight, or obscured by dense foliage. These factors may render a structure indistinguishable from nearby similar structures.

To reduce confusion as to which location a photo is depicting, consider using a small dry-erase board annotated with the following information and held in the lower corner of a structure photograph:

- Street number
- Street name and suffix
- Team number
- Photo date

The above recommendations also apply to photos taken *after a disaster.* More information regarding the use of photos in the SDE Tool can be found in the FEMA guide P-784 "Substantial Damage Estimator Best Practices."

Maps. As part of your field preparations, be sure to have multiple copies of the most accurate maps available. The following map types will be of use to you:

- Current Regulatory Floodplain Maps: Flood Hazard Boundary Map (FHBM), and Flood Insurance Rate Map (FIRM)
- Best Available Data Maps: Flood Recovery Maps, or NeDNR Flood Awareness Area Maps
- Assessor maps
- Address maps
- Street maps
- GPS way-point files

Enough copies of maps should be available for all field and office staff. Be sure to confirm that the jurisdictional boundaries depicted in community maps are correct. Field and office staff should be able to mark on the maps which structures have been inspected to help ensure that structures are neither omitted nor inspected twice.

Appendix A begins with "Checklist 1 – Pre/Post Disaster Planning," a comprehensive list to help you make sure all appropriate actions are being taken. This list should be reviewed and updated on a regular basis. The first 17 items should be completed prior to a disaster occurring.

POST-DISASTER ACTIONS

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Chapter 2: Post-Disaster Actions

Substantial Damage Assessment Process and Preparation

Whenever a pre-FIRM or other non-flood code compliant structure located in a jurisdiction's SFHA is damaged from any source (such as flood, fire, seismic activity, wind, or human activity), the jurisdiction must determine to what percentage the structure is damaged. This is called a *substantial damage determination*. The multi-step process a floodplain administrator follows to produce a substantial damage determination is referred to as the *substantial damage assessment* (SDA) in this handbook. A structure in a jurisdiction's SFHA that has sustained damage greater than or equal to 50% of its pre-disaster market value is *substantially damaged* and needs to be treated as a new structure that must be brought into compliance with the local floodplain management ordinance.

Substantial damage determinations can be difficult. This handbook describes approaches and tools that should take some of the guesswork out of evaluating damage, ensuring both efficiency of process and consistency in results. This chapter breaks down the SDA process into actionable steps. The previous chapter introduced FEMA's Substantial Damage Estimator 3.0 (SDE 3.0) software program that is available for free to help make substantial damage determinations.

The SDA process includes the following steps, each of which are expanded upon in the following sections:

Step 1: Office review and prerequisite preparations
Step 2: Curbside review
Step 3: Substantial damage inspections, comprising:
- Developing the substantial damage inspection schedule
- Notifying authorities of inspection plans
- Providing training for inspectors via pilot inspections
- Conducting substantial damage inspections

Step 4: Processing field data
Step 5: Review and issuance of substantial damage determinations
Step 6: Floodplain development permitting

Keep the Public Informed

Local officials should recognize that citizens will have questions about the recovery process and how to obtain inspections and permits. Floodplain administrators should brief elected officials as soon as possible after an event on the community's floodplain management responsibilities. Officials should be prepared to answer questions throughout the post-disaster recovery phase. Distributing substantial damage determinations may generate several questions.

It is very important that information about the local ordinance requirements for obtaining permits for repairs and rebuilding are posted as early as possible. Use as many avenues as possible to disseminate the information. You can make social media posts, distribute signs

NOTE: Be aware that a disaster event may trigger multiple forms of damage-scoping assessment. These assessments are briefly described below:

- *Rapid Needs Assessment.* This process is specifically for use in determining the scope of Federal involvement in supporting State response operations. It should occur within hours after an emergency, and the information gathered in this process establishes a basis for the response activities taken by the Federal government to sustain a population and protect life, and to a lesser degree property.

- *Preliminary Damage Assessment.* The first step in a disaster declaration process, this assessment is usually conducted by teams of federal and local representatives within 30 days after a disaster. The information gathered describes the impact as a whole and is shared with the Governor and Nebraska Emergency Management Agency to determine the type and amount of assistance needed.

- *Damage Assessment.** In addition to determining the scope and scale of the loss, suffering, and/or harm to a community caused by a disaster, this assessment evaluates structural loss into four categories: "destroyed," "major," "minor," and "affected."

- *Public Assistance Damage Assessment.* Part of a Damage Assessment, this evaluation is specific to impacted public and certain non-profit entities. Public entities may include but are not limited to road systems, utilities, schools, and parks.

- *Substantial Damage Assessment.** Specific to floodplain administration and structures within the SFHA, this assessment determines to what percentage a structure is damaged, and whether the level of damage constitutes "substantial damage."

*These assessments are different yet may be conducted simultaneously if correctly organized.

or fliers around your community, place notices on damaged structures, put up door hangers, publish press releases, and mail letters to individual owners. Educate yourself on the substantial damage assessment process, reconstruction methods, and available mitigation programs. Have a blank *floodplain development permit application* in hand and ready to distribute. Keep it simple. Often community members will want to begin repairs on damaged buildings as soon as possible after a disaster. Be prepared for residents who are angry that they cannot start immediate repairs. Template letters, notices, and a model floodplain development permit application are available in Appendix A.

In addition to the resources provided in Appendix A, jurisdictions should consider developing and distributing guidance to citizens, property owners, contractors, and design professionals regarding:

- The importance of having damaged structures inspected before repair work is started.
- Activities that require a permit.
- Activities that do not require a permit.
- The floodplain management requirements that apply when structures in the SFHA are substantially damaged and what it means to bring those structures into compliance.
- The availability and benefits of Increased Cost of Compliance (ICC) coverage that is part of the NFIP flood insurance policies for structures in mapped SFHAs.
- The importance of hiring licensed contractors and cautions about fraudulent or unlicensed entities that may take advantage of disaster victims.
- The importance of including damage-reduction measures to minimize future flood damage, even if such measures are not required by the jurisdiction's floodplain management ordinance.

This guidance need not only be distributed in time of disaster. NeDNR recommends that guidance be distributed to SFHA property owners on an annual basis.

Step 1: Office Review and Prerequisite Preparations

Prior to going out into the field, use community specific maps, FIRMs, any other adopted floodplain maps, and permit records to identify the general limits of the area in which you will need to conduct substantial damage inspections. The purpose of this step is to identify areas that need to be evaluated by *curbside review* (Step 2) *before* completing the inspection. Step 1 is also used to identify properties not subject to the substantial damage process. If a structure meets any of these criteria, then it need not be inspected for substantial damage:

1. *Areas of your SFHA that were not impacted by the disaster.*

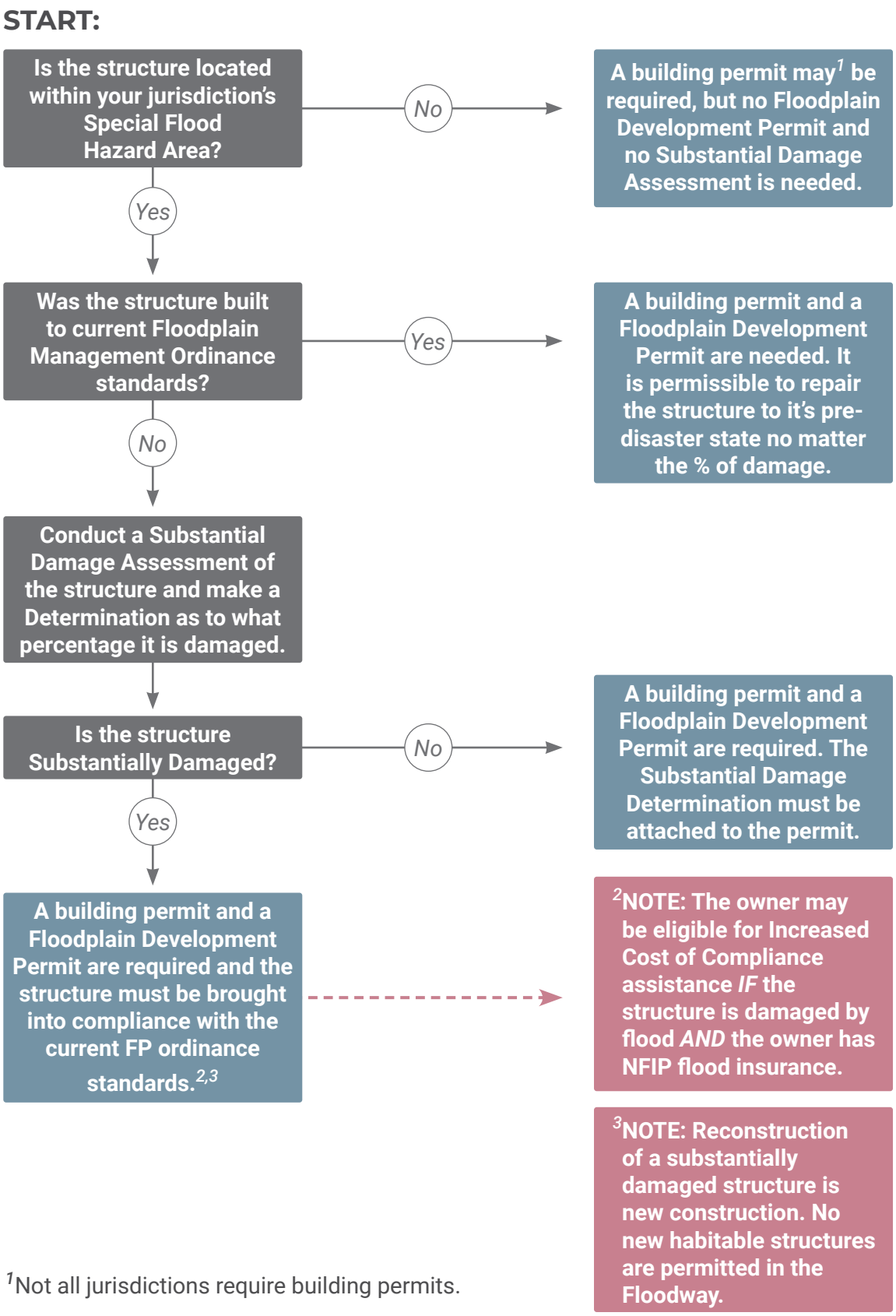
2. *Damaged structures located outside of the SFHA*. Only structures located within your regulatory floodplain are subject to the substantial damage process detailed in this handbook.

3. *Damaged structures that were built in compliance with your current floodplain management ordinance.* The purpose of the SDA is to identify which structures need to be brought into compliance with your local ordinance. If the structure is already built to compliance, then there is no need to conduct a SDA.

Please note that in the case of flood, the actual limits of the flood event often will *not* coincide with the mapped SFHA. Structures outside the SFHA may be damaged by flood waters. Such structures which are impacted by flood but are not within the SFHA are *not* subject to floodplain management regulations and the associated SDA process.

To guide you in identifying which structures require a SDA and permit requirements, NeDNR has developed Figure 2: "SDA and Permit Requirement Decision Tree."

Figure 2: SDA and Permit Requirement Decision Tree:



[1]Not all jurisdictions require building permits.

Appendix A begins with "Checklist 1 – Pre/Post Disaster Planning," a comprehensive list to help you verify all appropriate actions are being taken in the substantial damage assessment process. Checklist items 1 through 17 were discussed in the previous chapter. **If not yet completed, these items 1 through 17 will need to be done before continuing in the process of creating substantial damage determinations outlined in the following sections.**

Step 2: The Curbside Review

A coordinated and systematic approach to field work is necessary to ensure consistency in SD determinations and overall service to your community. Inspectors need to begin field work as soon as possible after the damage event, as this will allow local officials to begin making SD determinations and issuing building permits as quickly as possible. In most cases, field work should begin within 2 weeks of the disaster event occurring. By quickly producing SD determinations, local officials will prevent owners from initiating repairs without a permit or without waiting for the SD data to be collected. Additionally, local officials will avoid having to determine whether any new construction they observe constitutes damage repairs or general improvements.

To build your SD inspection strategy, conduct a Curbside Review of the area identified in Step 1. To complete a curbside review, drive through damaged areas of SFHA and determine the scope of disaster impact. Identify the quantity of structures impacted, the structure types, their approximate levels of damage, any health and safety issues, and any access issues. This is not an individual structure review; it is a scoping review of the community's damage that will thus provide a broad characterization of the affected areas. During this initial screening, collect the following flood and structure information :

- Depth of flooding above the first floor (if applicable).
- Duration of flooding (if applicable).
- Count the total number of damaged structures.
- Approximate the degree of damage to structures (this may be based on the depth and duration of flooding above the first floor).
- Refine the boundaries of area(s) needing field inspections.
- Take photos as needed to help with prioritization of field work once returned to the office.

The data collected in your curbside review will help you define the scope of the field inspections (Step 3) and the number of days that are needed to complete the substantial damage inspections for the inventory area. For planning purposes, use the following criteria to estimate damage based on rapid, visual evaluations from the exterior of the structures:

- **25% or less damage:** If the interior flood height was one foot or less above the lowest floor; the flood duration was less than one day; the floodwater velocities relatively low (less than five feet per second); and, the structure and its foundation, exterior walls, and roof are in good condition, then the damage to the structure is most likely around 25% or less.
- **75% or more damage:** If there is obvious exterior damage to the foundation, exterior walls, or roof, then a structure is likely to be substantially damaged. A structure that has shifted off the foundation or has leaning walls has experienced significant structural damage.

Please note that due to the location of utilities and the structural design in *manufactured housing*, substantial damage and total loss may occur with flood depths of six inches or more.

During the curbside review, you may also identify areas where representative inspections may be appropriate. Representative inspections may be fitting in developments where the structures share several similar characteristics, such as:

- General structure (square footage, materials, foundation type, number of stories).
- Construction quality.
- Flat or similar topography.
- Lowest floor elevation (± 0.5 foot).
- Flood depth above lowest floor (± 0.5 foot).
- Flood conditions.

Based on the above information, the SDA area map may be refined, and priority areas identified. This map should differentiate areas with structures that are damaged to *25% or more* from areas that are likely *less than 25%* damaged, and areas where *representative inspections* may be appropriate. Allow the most time for the inspection of structures that are likely damaged *25% or more*.

NOTE: Time spent and expenses incurred by you and your inspectors may be reimbursable through FEMA's Public Assistance, if you are in a Federally Declared Disaster Area. Be sure to record hours and expenses and coordinate with your local emergency manager to be included in applicable Public Assistance meetings.

Step 3: Substantial Damage Inspections

Substantial damage inspections of affected SFHA properties must be conducted after a disaster. The focus of the SD Inspections should be to collect accurate data as quickly as possible to complete an SD determination. In order to make this happen, it is important to do the prep work before leaving the office. This includes completing Step 1 and Step 2 in previous sections before advancing to the following steps.

3.1 Develop the Substantial Damage Inspection schedule.

Develop a schedule of inspections identifying neighborhoods and target dates by which inspections in those areas should be completed. You may calculate the number of days it will take to conduct the SDA based on the number of structures to inspect and the number of available inspectors, using two inspectors per team:

- Residential inspections can be completed at a rate of 20 to 35 per day for urban areas where the inspectors can walk between structures.
- Non-residential structure inspections can be completed at a rate of 3 to 15 per day, depending on the size, location, complexity, and uses of the structures.

Your inspection schedule will necessarily be informed by the accessibility of inspection areas. Be aware if there are issues such as inundation, downed power lines, cleanup activities, damaged roads, or required permission/appointments inhibiting access to properties. Additionally, some areas may be higher priority than others. You should consider the following factors when determining which areas to prioritize for inspection:

- Areas with little to no apparent damage, allowing permits for minor repairs to be issued quickly.
- Areas where debris and contents have been removed from the structures, allowing for faster inspections.
- Areas with critical facilities that may be a community priority for starting repairs.
- Damage areas with a high density of development and many structures.
- Areas with temporary (flooding, debris, downed power lines) and permanent (gated communities, industrial sites) access issues that require additional time to resolve.

Revisit and revise the inspection schedule based on progress made by inspection teams and as changes to access conditions allow.

3.2 Notify Authorities of Inspection Plans

Prior to launching the inspections, be sure to notify the police and other local officials of the schedules and coordinate accordingly.

- Issue a public announcement or press release regarding the inspections. Provide the reasons for the inspections, the areas that will be inventoried, the inspection process, hours of operation, the inspector identification procedure, and a community contact. An example of public notification is included in Appendix A.
- Inspectors should carry personal ID and letters of introduction from local officials.
- Notify the local Fire, Police, and Emergency Management agencies of the purpose and proposed dates of SD inspections.

3.3 Pilot Inspections

Prior to setting out in teams, all inspectors should jointly attend up to three pilot inspections each for both residential and non-residential structures with various levels of damage. These structures can be the first entries in the SDE inventory. The purpose of the pilot inspections is to familiarize inspectors with the SDE data requirements, inspection procedures, and use of the SDE tool. This is a time to ensure that inspectors understand how to enter substantial damage data onto either paper data sheets, or electronically on tablets. See Appendix A of this manual for residential and non-residential forms.

Demonstrate the SDE tool to the inspectors. Once the inspectors have a good sense of how the SDE tool works and understand the data that feeds into the tool, they will be able to perform the inspections with a higher degree of accuracy and prevent repeated visits to any structure.

3.4 Conducting Substantial Damage Inspections

Inspection teams should be equipped to rapidly and accurately collect data needed to make a substantial damage determination. After conducting several residential inspections, each structure should only require 15 minutes or less (excluding travel time) to collect data. Inspectors should walk the inspection sites as safety allows and avoid windshield surveys--inspections conducted without leaving the vehicle--as some damage may not be visible from the street.

The resource packet provided to the inspection teams should include the following :

- Numbers and locations of structures to be inspected.
- Delineation of inspection boundaries on a FIRM or community map.
- Sequence of inspections.
- Inspection team assignments by area.
- Guidance materials for inspectors.
  See Appendix A for "Percent Damage Estimation Tables" and more.
- Guidance on resident interaction.
  See Appendix A for "Right of Entry Certification." See also FEMA SDE User's Manual and Field Workbook Appendix C for a sample "Letter of Introduction for SDE Inspections."
- Instructions for obtaining photographs and GPS coordinate data.
  See section 4.2 "Quality Assurance".

Even though FEMA has designed the SDE Tool such that those who are not building industry experts can create reasonable estimates of damage, the assessment process is not easy and relies on subjective judgment. We strongly encourage you to use the worksheets and guides in this handbook to ensure consistency of inspection within your community.

Worksheet Templates. Providing field inspectors with pre-formatted copies of inspection worksheets enables consistent data collection in the field, and easier data entry into the SDE tool. Without worksheets, inspectors may forget to assign damage percentages to each building component. Located in Appendix A of this handbook are damage inspection worksheets for residential and non-residential structures. They are formatted as fillable PDFs in case your field inspectors are equipped with tablets to use in the field, but they may be printed and completed with ballpoint pen. Ballpoint pens are recommended because their marks are less prone to smudging or water damage that could render the field data illegible.

The "Exterior Inspection Guide" and "Interior Inspection Guide" located in Appendix A provide guidance as to *what* to look for and *where* to look for it during inspections. Inspectors may ask, "What does a 20% damaged foundation look like?" Or, "What indicators should I look for if wall studs are damaged?" Thankfully, FEMA has developed the guides to help ensure consistent and realistic field assessments.

The "Percent Damage Estimation Tables" section in Appendix A includes simplified tables that describe what types of damage can be seen at different percentage levels for medium height freshwater flooding of a single-story house without basement and without waves or high-velocity water. It is recommended that these tables be printed and accompany the inspection teams when inspecting flooded locations.

Exterior Damage. The inspector can perform a damage evaluation of the structure's exterior by walking around the entire structure or as much as possible. The inspector should record the percent damaged for each element. When more than one inspector is present, the team should agree upon the percentages assigned to each structure element.

Sometimes it may be difficult to distinguish between exterior damage and poor maintenance, such as peeling paint or worn interior floor finishes. One of the key factors in making this distinction is to consider if the repairs would be necessary to make the structure compliant with local code requirements and to return it to its pre-damage condition.

Interior Damage. Extreme caution should be exercised before entering damaged structures due to the possibility of structural deficiencies in either the floor or the floor support system. The inspectors must first verify that the floor is stable enough to support their combined weight. Foundation settlement, high flood depths, floor warping, and damage to floor joists can significantly weaken a floor and the ability of inspectors to safely walk on the floor. Stability can be evaluated during the exterior inspection for structures built on crawlspaces or other elevated foundations.

When performing an inspection, all inspectors need to remember that they are inside someone's home or non-residential structure. Inspectors should always verify that they have permission to enter the structure. Appropriate care and respect for the structure and contents should be demonstrated.

A set procedure, or inspection routine, is recommended for the interior inspection to avoid missing any rooms or damage. For instance, in residential structures, inspectors could start on the first or main floor in the utility room (where the hot water tank, washer or dryer, furnace, or other appliances are located) or the kitchen, and then work their way through the home room by room. In non-residential structures, inspectors could start at the front entrance and move clockwise room by room.

Step 4: Processing Field Data

After data is collected in the field, the next step is to enter it into FEMA's SDE 3.0 program and create a record for each SFHA-located structure damaged by the disaster. Completed field inspection documents and associated photographs should be submitted to the processing office the same day that the information is collected. Doing so will help ensure that inspection records are not lost or damaged in the field, that records are not mis-organized, and that substantial damage determinations are produced quickly.

Communities that have extensive floodplains and significant numbers of flood prone structures are encouraged to plan how to handle a post-disaster workload. Even with good planning, additional assistance may be necessary to handle large numbers of damage inspections and permit applications. In addition to support from the State and FEMA, resources may be available from: other communities, Nebraska Floodplain and Stormwater Managers Association (NeFSMA), the State Fire Marshal and State Building Official, and organizations that represent engineers and architects. Some communities develop mutual aid agreements, inter-local agreements, or some other mechanism to facilitate this post-disaster support. While help may be offered to perform inspections and gather data, making

final SD determinations and permit decisions remains the responsibility of local officials within affected communities.

4.1 Market Value

SDE 3.0 requires that each structure record have a *market value* entered in the program. Market value is defined as the most probable price that a property should bring in a competitive and open market and under fair sale conditions. For SDA purposes, market value refers to only the structure; land and exterior improvements such as pools, pool houses, landscaping, and walkways are excluded. Market value should be based on the condition of the structure before the disaster damage occurred. Having an accurate market value is important because the value is a significant factor in the determination of percent damage.

Following a disaster, communities often find it expeditious to obtain the structure's market value from the County Assessor's assessment of the structure. If the same method is used for all damaged structures, consistency of determinations is ensured. Communities may use these other methods to estimate market value, the important aspect being uniform application within a community:

- Estimates of a structure's actual cash value, including depreciation.
- Market value appraisals prepared by qualified professionals licensed in the state of Nebraska.

Please refer to the sections 3 and 8 of FEMA P-748 "Substantial Damage Estimator (SDE) User Manual and Field Workbook" for further guidance regarding market value and actual cash value.

$$\frac{\text{Cost of Improvement or Cost to Repair to Pre-Damage Condition}}{\text{Market Value of Building}} \times 100 = \textbf{\% Damage}$$

4.2 Quality Assurance

It is important that all SDE assessments be reviewed for consistency and accuracy. The assessments should be reviewed by someone other than the person who generated or input the data. The following actions are recommended as part of the quality assurance review:

- Plot all of the GPS coordinates on a georeferenced map or GIS overlay to verify that all coordinates match the inspection area.
- Review photographs for legibility and consistency with the requirements set by the SDA manager or floodplain administrator and photograph best practices.
- Confirm agreement between the photograph and the structure information. For

example, an assessment for a two-story residential structure cannot have a photograph showing a one-story house.
- Review the entire database for duplicate records from the current or previous days. This can be done by searching for duplicate addresses or ID numbers.
- Verify that the correct base cost data and depreciation percentage based on structure type were entered into the tool.
- Verify that the users have entered reasonable percent damages based on the depth and duration of flooding above the lowest floor for the structures throughout the inventory area.
- Verify that the correct community name and NFIP information were entered into the tool and are consistent for all assessments within the same community.
- Check that the street name is spelled the same for all entries on that street and that the street suffix is correct.
- Verify that all data requested by the SDE manager has been entered and is consistent where applicable. Items include: comment boxes, name and date of the source for the base cost data.
- If the teams are still in the field collecting data, communicate the errors to the inspectors and how to properly complete future assessments to prevent re-occurrences of the errors.

Step 5: Review and Issuance of Substantial Damage Determinations

Substantial damage, as defined in 44 C.F.R. § 59.1, 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% of the market value of the structure before the damage occurred." Most damage occurs during a single and sudden event, such as a fire, windstorm, lightning strike, falling tree, tornado, earthquake, flood, or natural gas explosion. Damage may also be unrelated to a specific event, such as soil settlement, exposure to the elements, termite infestation, vandalism, and other causes.

If the building is found to be substantially damaged, then the structure must be brought into compliance with the community's floodplain ordinance. *Even if not damaged by flooding*, a structure must be protected from future flooding. In Nebraska, this means ensuring the lowest floor of the structure is elevated to at least one foot above the base flood elevation, among other minimum standards found in your community's local ordinance.

5.1 Issuing Substantial Damage Determinations

Local officials should convey SD determinations to property owners in an official letter. Because this letter notifies the owners of a significant requirement, it is recommended that it be sent in a manner that documents receipt by the addressee, such as certified mail.

Appendix A includes three sample letters to send SD determinations to property owners. The first sample may be used to notify owners when a local official determines that buildings have sustained substantial damage *via flood*, while the second letter applies when substantial damage is caused by other disasters. The third sample is used to notify owners that it has been determined that damage *does not* constitute substantial damage.

The local official should offer to meet with owners or representatives to explain the various aspects required for buildings to meet the community's floodplain management regulations for substantially damaged buildings.

5.2 Determination Integrity

Greater precision is needed in determining substantial damage when the level of repair or improvement costs is close to 50% of the value of the structure. Property owners may appeal a community's substantial damage determination. Appeals of substantial damage determinations most commonly occur when the percent damage is determined to be between 50 and 65%.

An independent evaluation of damage may include a cost estimate for repairs provided by a local official (other than the initial inspector) or a contractor. Located in Appendix A is "Included and Excluded Cost for Damage Repair Estimates." This list includes items that should be evaluated for damage and included in a repair cost estimate, as well as those items that should be excluded. If a homeowner submits an independent repair estimate, carefully examine it to ensure the proper items are included, or excluded, before accepting it in lieu of the substantial damage determination.

The cost of repairs must be calculated for full repair to pre-damaged condition, even if the owner elects to do fewer improvements, such as not finishing a basement that was finished pre-disaster. The total cost of repair includes structural and finish materials as well as labor. Total costs estimates must include any unpaid labor such as that by property owner and volunteers, as well as the value of any donated materials.

Local officials are responsible for reviewing the validity of all cost estimates provided by applicants, whether prepared by licensed contractors, engineers, architects, professional cost estimators, or property owners. Local officials should also inspect damaged buildings and manufactured homes to verify that the proposed costs include all work necessary to restore the structures to pre-damage condition. See "Step 6: Permitting" for more information regarding inspections.

Please note that the integrity of the community's determinations and permitting process can be undermined if care is not taken to avoid conflicts of interest. A couple pitfalls to avoid include:

- *Allowing property owners or building contractors to complete damage assessments.* Property owners are unable to objectively assess the damage of their own property. Similarly, building contractors' assessments may be biased by a desire to generate business for their own financial gain.
- *Allowing property owners to determine the Market Value.* Property owners are unable to objectively state the market value of their property, and an inconsistent approach to determining market value will delegitimize assessments community-wide.

NOTE on *Cumulative Cost:* If standards for cumulative improvement are adopted in a jurisdiction's floodplain management ordinance, substantial damage occurs at the point when multiple damages or improvements total 50% of the original market value of the structure. For example, an improvement such as a kitchen remodel project that happened months before the disaster event counts towards the total 50%.

Step 6: Permitting

All floodplain management ordinances in the State of Nebraska require permits for the repair or reconstruction of damaged structures. The local floodplain administrator must ensure that the repair of a damaged structure within the community's SFHA meets the requirements of the floodplain management ordinance. If your community does not already have a permit application and review procedure in place, one must be set up before accepting permit applications in order to ensure fair and consistent review of development requests.

Depending on the scale and severity of damage, some communities institute a full or partial moratorium on issuing permits. Once the community has evaluated the magnitude, scope, and general location of potential substantially damaged structures, the community may remove the moratorium. When mitigation projects such as floodplain buyouts, elevation-in-place, or other measures are considered, it may be reasonable to delay rebuilding until the pros and cons of such projects are evaluated.

Structures with less than 50% damage can be issued a floodplain development permit and begin repairs immediately after issuance. Permits for repair or compliance need to have the SD determination attached or at minimum the percent damaged noted on the permit application and the SD documentation on file with your permits.

Records or files for structures identified as substantially damaged should be flagged or specially marked so that development permits are not inadvertently issued for repairs that do not bring the structure into compliance with current floodplain regulations. Permits should not be issued until compliance with the local floodplain management ordinance is demonstrated in the supporting documents submitted with the development permit application.

Want to know *why* the threshold for significant damage is set at 50%?

See Section 2.2 of FEMA 213, "**Answers to Questions About Substantially Improved / Substantially Damaged Buildings**."

Although the use of checklists is not required by the NFIP, it is a good way to document plan reviews, inspections, and compliance. Some communities use checklists during plan reviews to verify that appropriate flood damage-resistant provisions have been checked and found to satisfy the applicable requirements. Similarly, the use of inspection checklists improves the consistency of inspections and helps verify the flood damage-resistant requirements.

6.1 Repairs to Local Infrastructure

If a community experiences damages to infrastructure such as roads, then a blanket permit can be issued to repair or reconstruct these structures to their *pre-disaster* state. Road surface material must be the same as pre-disaster, as well as road elevation. A running list of repairs conducted under the benefit of such a permit should be kept on a separate sheet and attached to the permit for record keeping. A separate permit application must be reviewed if the infrastructure is changed in any way from how it was originally constructed pre-disaster.

Culverts are often damaged by flood waters. Replacement or repair of culverts should be permitted on an individual basis. Culverts are *water conveyance structures* and even seemingly minor changes to material, size, position, angle, and elevation can have detrimental upstream and downstream effects. For this reason, repair and installation of culverts requires separate permitting and engineering analysis from other infrastructure.

6.2 NFIP Violations

Sometimes there is pressure on local officials to waive permitting requirements that are perceived as delays to recovery. However, returning structures to their pre-flood condition leads to repetitive flood damage. Yielding to such pressure will expose citizens and property to future flood risk. If a community fails to properly administer its floodplain management ordinance for substantially damaged structures, its standing in the NFIP may be jeopardized as well as its access to future financial support.

If a structure that is substantially damaged is repaired or rebuilt without being brought into compliance with floodplain requirements, then it is in violation of the floodplain management requirements and the cost of an NFIP flood insurance policy will likely be high. The NFIP may deny flood insurance coverage for specific buildings if communities cite violations and owners refuse to comply with the floodplain management requirements.

Communities may decide to waive permit fees after significant damage events to be responsive to the needs of property owners. Remember, however, that waiving fees does not waive the requirement for property owners to obtain permits and comply with regulations.

NOTE: A jurisdiction that fails to process floodplain development permits for its own development activities is in violation of the NFIP.

6.3 Monitoring and Inspection

Even when building permits and construction plans are complete, proper inspections during construction are important to determine whether any work has deviated from the scope described in permits and plans. To aid your community's enforcement efforts, consider the following actions:

- Ask electric utility companies and community utility departments to turn on service only when property owners provide copies of approved building permits or evidence that permits are not required.
- Establish a routine to drive through affected areas to check for unpermitted construction work.

Building inspectors need to understand the flood damage-resistant design and construction requirements that they are to check for during inspections. If deviations from the conditions of a permit or plans are discovered early during construction, it will be easier to work with the owner and builder to achieve compliance through corrective actions.

Using a plan review and inspection checklist can make inspections easier because the inspector has a standardized summary of floodplain management requirements. A checklist also documents the inspection, which can be important if questions arise regarding compliance.

The following inspections are recommended for structures that are required to be brought into compliance with the floodplain management requirements for new construction and substantial improvements.

Footing or Foundation Inspection. Buildings and additions that are elevated on solid perimeter foundation walls create enclosures below the elevated buildings (e.g., crawlspace or underfloor space). Inspectors should check for the specified number, size, and location of flood openings. The bottom of each flood opening must be no higher than one foot above finished exterior grade or interior floor; flood openings should not be confused with underfloor air ventilation openings, which are located just under the floor level. For slab-on-grade (and stem wall) foundations, the lowest floor inspection is also conducted at this time.

Lowest Floor Inspection. The best time to verify compliance with the elevation requirement is after the lowest floor elevation is set, but before further vertical construction takes place. An error in elevation of an inch or two may seem minor, but corrective action can be expensive and complicated if that error is discovered after the walls and roof are in place.

HVAC Inspection. Verify that utilities and mechanical equipment are elevated or designed to prevent water from entering or accumulating within the components during conditions of flooding. Frequently overlooked items include heating, ventilation, and cooling equipment; electrical outlets; plumbing fixtures; and ductwork that is installed under the floor, usually in a crawlspace.

Enclosure Inspection. Inspect enclosures below elevated buildings to ensure that they comply with the limitations on use such as parking, building access, or storage; protection

of HVAC described above, the use of flood damage-resistant materials, and the specific requirements based on the flood zone.

Final Inspection. A final inspection to document compliance can be performed at the same time as the final inspection to issue the occupancy certificate. During final inspections:

- Collect the "as-built" documentation of elevations prior to the final sign-off and issuance of occupancy certificates.
- If used, complete and sign the plan review and inspection checklist and place all inspection reports in the permit file. If not, require the "as-built" documentation from a registered surveyor or engineer signing off that the final construction meets the permit and floodplain management ordinance requirements.

If your community does not have building inspectors, special efforts should be made to educate construction contractors of the floodplain development requirements. Per the NFIP, your permit files must have an official record that shows that new structures and substantially improved structures in your SFHA are properly elevated. Your community may require a completed Elevation Certificate to fulfill this requirement. Use of FEMA's Elevation Certificate can also be used by the owner to obtain flood insurance.

Record-keeping

Obtaining certain documentation and maintaining complete permit records are key responsibilities for communities that participate in the NFIP. Certifications or documentation of the following must be maintained for construction in SFHAs:

- The permit application form and all attachments, including the site plans.
- Documentation of the SD determination.
- Community letter documenting the SD determination.
- Floodway encroachment analyses, if required.
- Records of inspections of the project while under construction such as obtaining the lowest floor elevations, which is initially obtained after the foundation is in place but prior to further vertical construction, and other pertinent elevations.
- Design of engineered openings that are used as alternatives to the prescriptive openings in the walls of enclosures below elevated buildings in A Zones.
- Evidence that work proposed for listed historic structures will not preclude continued listing.
- Variance proceedings, including justifications and notifications to recipients.
- Record of final inspections of the construction project before the certificate of occupancy is issued, such as location and size of openings, location of utilities, and "as-built" lowest floor elevation.
- Certification of the elevation to which any nonresidential building has been flood-proofed before the certificate of occupancy is issued.

Chapter 5, "Administering Substantial Improvement and Substantial Damage Requirements," and Chapter 6, "Factors to Consider and Illustrations of Substantial Improvement and Repair of Substantial Damage," of FEMA's P-758, "Substantial Improvement/Substantial Damage Desk Reference," provide further detail and assistance on permitting requirements and procedures.

Educating about Increased Cost of Compliance

Under the NFIP, the Increased Cost of Compliance (ICC) program may provide additional financial assistance to either elevate or remove *flood-damaged* structures from the floodplain.

The ICC applies to structures substantially damaged by flood. It provides funding for a suite of measures often known as FRED: flood-proofing, relocation, elevation, or demolition. The two most common types of ICC mitigation used are relocation and elevation.

Relocation. Relocating structures to higher ground or buying out flood prone property is the safest way to protect against flooding and reduce the liability and cost to the community. Relocation can be expensive, but in the long run is not as costly as repetitive flood damages and high flood insurance premiums.

Elevation. The elevation method is dependent on the base flood elevation, structure condition, flood hazard, local floodplain regulations, and owner's financial condition. When elevating, it is essential for all utilities and mechanicals such as air conditioners, water heaters, and furnaces to be one foot or more above the base flood elevation.

Owners who have standard flood insurance coverage have paid for and are eligible to receive ICC benefits if the local official determines that a structure located in a SFHA has been substantially damaged by a flood or cumulatively damaged by flooding beyond 50% of the value of the structure when the damage occurred.

ICC does not normally cover buildings in B, C, X, or D Zones. However, if the community can document that it is regulating an area outside of the SFHA, ICC will be available.

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PROTECTING YOUR COMMUNITY'S FUTURE

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Chapter 3: Protecting Your Community's Future

Mitigation

The term *mitigation* refers to taking action to reduce the severity or seriousness of something. A broad spectrum of disaster mitigation activities exists, and any given measure is appropriate in different situations. *Flood hazard mitigation* reduces the overall risk of structures experiencing flood damage, and also reduces the severity of flood damage when it occurs. Flood-related mitigation actions can be categorized in the following manner:

Natural Resource Protection. When natural, riparian areas and watersheds are preserved or restored, benefits such as improved water quality, increased wildlife habitat, and reduced flood losses are realized. The following activities are usually implemented by environmental agencies and a wide variety of stakeholders:

- Wetland protection
- Erosion and sediment control
- "Best management practices" (BMPs) for stormwater runoff

Prevention. These measures are intended to ensure that future development does not increase flood damage, and they are typically administered by building and planning departments:

- Open space preservation
- Floodplain development regulations
- Stormwater management
- Planning and zoning regulations

Property Protection. Rather than keeping flood waters away from structures, property protection measures are generally used to modify flood-prone structures:

- Acquisition
- Relocation
- Elevation of structure
- Floodproofing
- Sewer backup prevention
- Insurance

Emergency Services. This group encompasses the coordination of warning, emergency response, and disaster recovery:

- Early warning systems
- Critical facilities protection
- Health and safety maintenance

Public Information. Public information activities involve advising property owners, potential buyers, and community members about known hazards, ways to avoid them, and the natural and beneficial functions of floodplains:

- Map information
- Outreach projects
- Real estate disclosures
- Technical assistance
- Environmental education

Structural Projects. Structural flood control projects are man-made structures that are built to control water flows and prevent floodwaters from reaching properties. Such projects can be extremely costly to implement, require heavy maintenance, create a false sense of security, and disturb land and natural water flows while often destroying habitats:

- Retention basins and reservoirs
- Detention basins
- Levees, floodwalls, and seawalls
- Enlarging culverts or bridge openings
- Diversions
- Storm sewers

As a floodplain administrator, be sure to collaborate with your local emergency manager and participate in updates to your local hazard mitigation plan. Make certain to include mitigation measures appropriate to your jurisdiction in the hazard mitigation plan, look for opportunities to collaborate with fellow stakeholders on mitigation activities, and consider ways to jointly pursue project planning and implementation funding.

Federal Funding

Post-disaster recovery presents the perfect opportunity to implement mitigation measures that reduce the impact of future hazards. FEMA research shows that every dollar invested in hazard mitigation provides at least a six dollar return on investment. Federal or state mitigation programs are often available. The Nebraska Emergency Management Agency (NEMA) and the Nebraska Department of Natural Resources can provide you with information, technical assistance, and guidance on mitigation actions. Public meetings can be held in impacted communities to introduce disaster victims to the various options available to them.

Flood Mitigation Assistance (FMA) Program. FMA is administered by NeDNR and provides financial assistance to federally recognized tribes and local governments to implement measures that reduce or eliminate long-term risk of flood damage to structures insured under the National Flood Insurance Program. Funds may be used for planning activities as well as purchase of flood-prone properties. The FMA program has priorities to mitigate structures that have suffered repeated flood claims and those with severe repetitive loss. To demonstrate loss, damage must be documented through substantial damage determinations.

Hazard Mitigation Grant Program (HMGP). HMGP is a mitigation grant that results from a presidential disaster declaration. The goal of the HMGP is to reduce the loss of life and property from any future disaster. NEMA administers the HMGP in Nebraska.

Eligible applicants include states, territories, federally recognized tribes, local governments, and some private non-profit organizations. Communities may apply for HMGP assistance on behalf of affected individuals and businesses, and all funds must be used to reduce or eliminate losses from future disasters.

Building Resilient Infrastructure and Communities (BRIC) Program. BRIC supports pre-disaster mitigation projects, with an emphasis on collaborative, multi-stakeholder efforts to implement nature-based solutions. The goal of the program is to shift the federal focus away from disaster-response funding, and towards research-supported, proactive and sustainable mitigation measures. Like HMGP, the grant is administered by NEMA.

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REFERENCES

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References

NeDNR, 2019 Disaster Damage Assessment Packet. Lincoln, NE: Nebraska Department of Natural Resources, 2019.

Chase, Chuck. "**Substantial Damage Estimation Process**," Floodplain Management Today (May, 2019). Lincoln, NE: Nebraska Department of Natural Resources.

Chase, Chuck and Jared Ashton. "**The Importance of Substantial Damage Estimation**," Floodplain Management Today (May, 2019). Lincoln, NE: Nebraska Department of Natural Resources.

FEMA, **Building Community Resilience with Nature-Based Solutions**. Washington, DC: Federal Emergency Management Agency, 2020.

FEMA, **Flood Risk Communication Toolkit for Community Officials**. Washington, DC: Federal Emergency Management Agency, 2020.

FEMA, 213, **Answers to Questions About Substantially Improved / Substantially Damaged Buildings**. Washington, DC: Federal Emergency Management Agency, 2018.

FEMA, 480, National Flood Insurance Program Floodplain Management Requirements. Washington, DC: Federal Emergency Management Agency, 2005.

FEMA, **Increased Cost of Compliance Coverage Fact Sheet**. Washington, DC: Federal Emergency Management Agency, 2017.

FEMA, P-758, **Substantial Improvement/Substantial Damage Desk Reference**. Washington, DC: Federal Emergency Management Agency, 2010.

FEMA, P-784, **Substantial Damage Estimator (SDE) User Manual and Field Workbook**. Washington, DC: Federal Emergency Management Agency, 2017.

FEMA, **Substantial Damage Estimator Best Practices**. Washington, DC: Federal Emergency Management Agency, 2017.

NOTE: Hard copies of FEMA Building Science's current publications may be ordered by contacting the **FEMA Distribution Center** using the online order form.

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APPENDICES

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Appendices

Appendix A: Worksheets, Templates, and Handouts

Contents

NOTE: Some of these forms--such as the Notice and SDE Worksheets--are enabled as fillable PDFs. Others--such as the letter templates--are intended to be copied and pasted into a document that is printed on your jurisdiction's letterhead. The following worksheets and templates are available for individual download at Nebraska Department of Natural Resources' website: **https://dnr.nebraska.gov/floodplain/digital-desk-reference**

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Checklist 1 - Pre/Post Disaster Planning

Need	Complete	Item	Notes:

Items 1-12 may all be completed prior to a disaster occurring. Do not attempt items 13 - 19 without first completing items 1 - 12.

1. _____ _____ **Brief all elected officials as soon as possible after the event regarding the NFIP requirements for Substantial Damage determinations.**
Source: FEMA P-758, Substantial Improvement/Substantial Damage Desk Reference , Chapter 7 (May 2010)

2. _____ _____ **Select an SDE Manager.**
Source: FEMA P-784, SDE User Manual and Workbook, Section 7.1 (August 2017)

3. _____ _____ **Review NFIP requirements for Substantial Damage and Substantial Improvement.**
Sources: NFIP Regulations; FEMA P-758, Substantial Improvement/Substantial Damage Desk Reference (May 2010); FEMA 213, Answers to Questions About Substantially Damaged Buildings (May 1991)

4. _____ _____ **Review SDE tool and User Manual to understand the SDE data requirements.**
Sources: FEMA P-784, SDE User Manual and Workbook, Sections 3 and 4 (August 2017); FEMA SDE Best Practices (August 2017); FEMA Substantial Damage Estimator Tool Frequently Asked Questions

5. _____ _____ **Identify Flood Insurance Rate Maps (FIRMs) or other floodplain maps to review the boundaries of the SFHA.** Data may include FIRMs, FBFMs, FIS reports, community maps showing previously flooded areas, and flood studies by State or other Federal agencies.
Source: FEMA P-784, SDE User Manual and Workbook, Section 8.1 (August 2017); Community NFIP coordinator

6. _____ _____ **Identify type, location, and community contacts for tax or GIS data for structures within the SDE inventory area that are potentially Substantially Damaged.** Any or all of the following data will be useful: owner name, building address, type of house, non-residential building use, year of construction, square footage, number of stories, adjusted building values, number of years since last tax adjustment, and dates of additions or renovations.
Source: FEMA P-784, SDE User Manual and Workbook, Section 8.1 (August 2017)

7. _____ _____ **Identify community street, address, or tax maps for delineating the boundaries of the SFHA.** This will help delineate the maximum limits of the SDE inventory area while also showing addresses or lot locations.
Source: FEMA P-784, SDE User Manual and Workbook, Section 7 (August 2017)

8. _____ _____ **Transfer SFHA boundaries from floodplain map to a base map that includes streets, addresses, or a tax map.** Using the effective FIRM for the community, transfer the SFHA boundaries to a base map with named streets and either addresses or lot boundary lines. This will delineate the maximum limits of the SDE inventory to narrow the focus of the inspections while avoiding areas outside the SFHA.
Source: FEMA P-784, SDE User Manual and Workbook, Sections 8.1 and 9.3 (August 2017)

Checklist 1 is adapted from "Checklist 1 - Post Disaster Planning" found in FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

Checklist 1 - Pre/Post Disaster Planning Cont.

	Need	Complete	Item	Notes:
9.	____	____	**Pre-load available property data into the SDE tool.** These data must be cross-referenced to a FIRM, address, or tax map so that the inspectors know which structure and property record are being inspected. Once the data are uploaded into the SDE tool, it will create property records. After the inspection is complete and the field data are entered, the records become SDE assessments. *Sources: FEMA P-784, SDE User Manual and Workbook, Sections 3.7, 7.5, and 8.1 (August 2017)*	
10.	____	____	**Prepare a list of local contacts for all project personnel and local agencies.** This list should include, as a minimum, the SDE Manager, a responsible community official, inspectors, office staff, and the police, fire, and emergency management contacts. *Source: FEMA P-784, SDE User Manual and Workbook, Section 8.1 (August 2017)*	
11.	____	____	**Research, obtain, or develop base costs for determining reasonable structure values for residential and non-residential structures in the community.** Resources include industry-accepted cost-estimating guides, building permit data, discussions with local contractors or realtors, adjusted tax data, guidance from adjacent communities, or personal experience with residential and non-residential cost estimating. *Sources: FEMA P-784, SDE User Manual and Workbook, Sections 3.11, 8.1, and 8.4 (August 2017)*	
12.	____	____	**Prepare a Letter of Introduction on community letterhead.** The letter will be handed to occupants by the inspectors as they prepare to enter a new property. This should include, as a minimum, a brief discussion of the intent and scope of the SDE inspections, the normal work hours and days, the option of the structure owner or resident to refuse entry to the property or the structure, and the name, telephone number, and e-mail address of the SDE Manager or local official in charge of the SDE inventory. *Source: FEMA P-784, SDE User Manual and Workbook, Appendix C (August 2017)*	

Items 1-12 may all be completed prior to a disaster occurring. Do not progress on items 13 - 19 below without first completing items 1 - 12 above.

13.	____	____	**Perform a curbside review of structures within the SDE inventory area.** This helps the SDE Manager understand the scope and extent of the inventory area as well as the initial construction quality, size, and type of structures that will require inspections. *Source: FEMA P-784, SDE User Manual and Workbook, Sections 7.3 and 9.5 (August 2017)*	

Checklist 1 - Pre/Post Disaster Planning Cont.

	Need	Complete	Item	Notes:
14.	____	____	**Identify the property and structure access procedures for locked or unoccupied structures.** These procedures should be written and well defined; the elected officials and community legal counsel should then review and approve them to ensure that the procedures are legal and defensible. As a minimum, these procedures should include guidance on owner/resident interaction, and requirements for entering open property and structures when owners/residents are not present or when occupants are present but refuse entry to the structure or property. In addition, inspectors with permission to enter a structure need to verify that the structure is structurally stable and safe to enter. *Source: FEMA P-784, SDE User Manual and Workbook, Sections 8.2 and 9.1 (August 2017)*	
15.	____	____	**Identify the number and names of inspectors required for the inventory and form the inspection teams.** The number of inspectors and inspection teams will determine the potential daily rate of completed inspections and a target completion date. *Source: FEMA P-784, SDE User Manual and Workbook, Section 8.2 (August 2017)*	
16.	____	____	**Identify inspection areas that may require permission or special access.** Industrial parks, factories, private or gated subdivisions, islands, airports, school campuses, and other areas may require permission or other advance coordination to gain access to the property and structures.	
17.	____	____	**Identify the proposed sequence of SDE inspections.** Decide which subdivisions, neighborhoods, or areas will be inspected first, then next, and so on. The sequence will depend on the number of inspectors, their availability during the inspection process, the number of structures to inspect, and the proposed completion date of the inspections. The sequence may be revised as issues arise due to other post-disaster activities that may restrict or limit the inspection teams. *Source: FEMA P-784, SDE User Manual and Workbook, Section 8.2 (August 2017)*	
18.	____	____	**Make Substantial Damage determinations for structures located in the SFHA.** *Sources: FEMA P-784, SDE User Manual and Workbook, Sections 3.11 and 9 (August 2017)*	
19.	____	____	**After Substantial Damage determinations are complete, issue permits for repair and reconstruction.** *Source: FEMA P-758, Substantial Improvement/Substantial Damage Desk Reference, Chapter 7 (May 2010)*	

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Checklist 2 - Field Preparations

	Need	Have	Item	Notes:
1.	____	____	Flood maps such as FIRMs, FIRMetts, clips of NeDNR Interactive Flood Maps, or other floodplain or flood risk maps.	
2.	____	____	Assessor's map or other address map with flood boundaries.	
3.	____	____	Route or area map showing proposed areas and sequence for data collection.	
4.	____	____	Tax data: structure owner name, structure address, mailing address, number of stories, and dimensions or habitable area.	
5.	____	____	Copies of blank SDE Damage Inspection Worksheets.	
6.	____	____	Copies of blank photo log sheets (if needed).	
7.	____	____	Photo ID badges for inspectors.	
8.	____	____	Letter of Introduction with community point of contact (name and telephone number).	
9.	____	____	Clip boards, pens/pencils, steno pad or notebook, highlighter.	
10.	____	____	100 ft tape measure (to obtain or verify structure dimensions).	
11.	____	____	Address board and dry erase markers.	
12.	____	____	Hard hat, gloves, safety glasses and vest, steel-toe and steel-shank shoes, safety vest, and flashlight.	
13.	____	____	Cell phones or walkie-talkies.	
14.	____	____	Digital camera, primary and alternate memory cards, and extra batteries.	
15.	____	____	Verification that police, fire, and emergency management agencies have been advised of SDE inspections.	
16.	____	____	Laptop computers or tablets with SDE tool installed and power cords with plug adaptors for use and re-charging in field vehicles.	
17.	____	____	Rain or cold-weather gear.	

Checklist 2 is adapted from "Checklist 2 - Field Preparations" found in FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

Checklist 2 - Field Preparations

Need	Have	Item	Notes:

Review these procedures with your inspectors prior to collecting data:

1.		Field safety procedures for dealing with extreme temperatures, wild and domestic animals, driving, parking, and accidents.	
2.		SDE data collection and recording requirements.	
3.		Guidance for entering locked, occupied, or unoccupied structures.	
4.		Guidance on identifying initial construction quality for both residential and non-residential structures.	
5.		SDE inspection procedures for residential structures.	
6.		SDE inspection procedures for non-residential structures.	
7.		Guidance on selecting the depreciation rating.	
8.		Data collection routes and sequence.	
9.		Guidelines for interaction with structure owners and occupants.	

NOTICE

Because this building is located in a regulatory floodplain and was damaged by _____,
Substantial Damage Assessment must be conducted by the _____.

Before occupying this building or doing any repair work you must call the Floodplain Administrator at
(____) _____
to schedule an inspection.

Failure to obtain reconstruction approval may result in a penalty.

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Example Press Release

RESIDENTS IN [JURISDICTION] WITH DISASTER DAMAGE REMINDED OF PERMIT REQUIREMENTS

As property owners in [jurisdiction] contemplate clean up and repairs following the recent [disaster], the [jurisdiction permit office] is reminding residents to obtaining local permits before repairing or rebuilding damaged structures in the special flood hazard area.

The permits are required as part of local government participation in the National Flood Insurance Program (NFIP), providing eligibility for flood insurance, flood disaster assistance, state and federal grants and loans, and buyout funds for flood-prone properties throughout the community.

Local floodplain management ordinances require that permits be obtained for any construction or development activity in a floodplain area, including the repair or reconstruction of structures damaged by a disaster.

Repairs to damaged buildings can be permitted, however, special conditions apply to substantially damaged buildings (those in which the total cost of repairs is ≥ 50% of the structure's pre-disaster market value). If a building is found to be substantially damaged, regulations require that repairs include bringing the structure into full compliance with the local floodplain ordinance. In some cases, doing so may require repairs that include elevating or flood proofing the structure to reduce the potential for future flood damage.

The cost to repair must be calculated for full repair to "pre-damaged" condition, even if the owner elects to do less. The total cost to repair includes structural and finish materials as well as labor. If labor and materials have been donated, they must still be assigned a value. If local building codes require the structure to be repaired according to certain standards, these additional costs must be included in the full repair cost for the structure.

State and federal assistance may be available to property owners to reduce the chances of future flood damage. Mitigation assistance may cover costs of relocation, or for elevating or purchasing flood-damaged structures. If damage is caused by a flood, flood insurance may also provide up to $30,000 to protect a structure from future flooding through a claims process known as ICC (Increased Cost of Compliance). The property owner must have had flood insurance for ICC to become available.

Property owners and residents with [disaster]-damaged buildings should contact [local building, zoning or floodplain administrator] for more information on repair and reconstruction permits.

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Overview of the National Flood Insurance Program and Substantial Damage / Substantial Improvements

Improvement and Repair of Property in the Floodplain

Our jurisdiction is a participating community in the National Flood Insurance Program (NFIP) administered by the Federal Emergency Management Agency (FEMA). In exchange for making flood insurance available to citizens of our jurisdiction, FEMA requires the community to adopt and enforce floodplain management regulations governing new construction and substantial improvements in mapped floodplains.

If you are rebuilding after a storm, renovating, remodeling, or adding an addition to your home or business, here is information you need to know concerning substantial improvement and substantial damage.

Making Substantial Damage / Substantial Improvement Determinations

The purpose of the Substantial Damage (SD) / Substantial Improvement (SI) requirements is to protect the property owner's investment and safety; and to reduce the total number of buildings that are exposed to flood damage over time, thus reducing the burden on taxpayers through payment of disaster assistance. The SI/SD requirements are triggered when the local official determines that the cost of repairing or improving a building located within a Special Flood Hazard Area (SFHA) equals or exceeds 50% of the building's market value (excluding land value).

Substantial Damage (SD) means damage of any origin sustained by a structure whereby the cost of restoring the structure to pre-damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred. Work on structures that are determined to be substantially damaged is considered a substantial improvement, regardless of the actual work performed. The cost of the repairs must include all costs necessary to fully repair the structure to its before-damage condition.

Substantial Improvement (SI) means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before "start of construction" of the improvement. This term includes structures, which have incurred "substantial damage", regardless of the actual repair work performed. The term does not, however, include either: (1) any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications that have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or (2) any alteration of a "historic structure", provided that the alteration will not preclude the structure's continued designation as a "historic structure". Once the cost of the work and the market value of the structure have been determined, the Floodplain Administrator will make a final determination of SI/SD. The work is determined to be SI/SD when the ratio of the cost of work to the market value equals or exceeds 50%.

If the local jurisdiction determines that improvements or repairs to a building constitute SI/SD, then the building must be brought into compliance with the NFIP floodplain management requirements for new construction.

The Local Jurisdiction's Responsibility

Communities that participated in the NFIP must determine whether proposed work qualifies as a substantial improvement or repair of substantial damage. If work on buildings constitutes SI/SD, then structures must be brought into compliance with NFIP requirements for "new construction", including the requirement that the lowest floor be elevated one (1) foot above the base flood elevation (BFE). There are four (4) major actions our jurisdiction performs in administering the SI/SD requirements:

- Determine costs,
- Determine market values,
- Make SI/SD determinations, and
- Reviewing and approving applications for Flood Hazard Development Permits

Determining Costs

The term "costs of improvements" includes the complete costs associated with all of the types of work performed. The term "costs of repair" includes the costs of all work necessary to restore a damaged building to its pre-damaged condition. Both terms include the costs of all materials, labor, and other items necessary to perform the proposed work.

Costs That Must Be Included in SI/SD Determinations. The attached list, "*Included and Excluded Costs for Damage Repair Estimates*," characterizes the types of costs that must be included in estimates that will be used to make SI/SD determinations.

Sources of Cost Information. The cost of improvements and the costs of repairs are necessary to make the SI/SD determination. The following are acceptable methods to determine the costs:

- Itemized costs of materials and labor, or estimates of materials and labor that are prepared by licensed contractors or professional construction cost estimators.
- Building owners may submit cost estimates that they prepare themselves. Owners will need to provide as much supporting documentation as possible, such as pricing information from lumber companies and hardware stores. The estimate must include the value of labor, including the value of the owner's labor.

Donated/Discounted Materials. The value placed on all donated or discounted materials should be equal to the actual or estimated cost of such materials and must be included in the total cost. The applicant should provide cost estimates of the value of donated/discounted materials based on actual or estimated costs.

Owner/Volunteer Labor. The normal "market" value or "going rate" for labor must be included in the estimate of the cost of improvements and the costs to repair. The value placed on labor should be estimated based on applicable minimum-hour wage scales for the skill and type of construction work that is done.

Determining Market Value

Generally, market value can be explained as the price a willing seller and buyer agree upon. The market value of a building reflects its original quality, subsequent improvements, physical age of building components, and current condition. For purposes of determining SI/SD, market value pertains *only to the structure in question*. The value of the land, landscaping, detached accessory buildings, etc., are *not* included in the market value.

When work is an improvement, the market value is the building's market value "before the 'start of construction' of the improvement." When work is repair of substantial damage, the market value is the building's market value "before the damage occurred."

Acceptable estimates of market value can be obtained from these sources:

- Assessed value developed for property tax assessment purposes.
- Detailed estimates of the structure's actual replacement cash value, including depreciation.
- An independent appraisal by a licensed professional appraiser.

The tax assessed value will customarily be used by the local jurisdiction unless the owner chooses to determine market value by a professional appraiser at the owner's expense. Whatever method is used, the closer the estimate falls relative to the 50% threshold, the more precise the market value figure needs to be. In such circumstances, the local jurisdiction may require the owner to submit an appraisal from an independent professional appraiser.

If you have any questions about these requirements, contact your local jurisdiction:

Floodplain Administrator: _____

Jurisdiction: _____

Telephone: _____

Email: _____

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Included and Excluded Costs for Damage Repair Estimates

Included Costs

Items that must be included in the costs of improvement or costs to repair are those that are directly associated with the building. The following list of costs that must be included is not intended to be exhaustive, but characterizes the types of costs that must be included:

- Materials and labor, including the estimated value of donated or discounted materials and owner or volunteered labor
- Site preparation related to the improvement or repair (foundation excavation, filling in basements)
- Demolition and construction debris disposal
- Labor and other costs associated with demolishing, moving, or altering building components to accommodate improvements, additions, and making repairs
- Costs associated with complying with any other regulation or code requirement that is triggered by the work, including costs to comply with the requirements of the Americans with Disabilities Act (ADA)
- Costs associated with elevating a structure to an elevation that is lower than the BFE
- Construction management and supervision
- Contractor's overhead and profit
- Sales taxes on materials
- Structural elements and exterior finishes, including:
  - Foundations (e.g., spread or continuous foundation footings, perimeter walls, chainwalls, pilings, columns, posts, etc.)
  - Monolithic or other types of concrete slabs
  - Bearing walls, tie beams, trusses
- Structural elements and exterior finishes (cont.):
  - Joists, beams, subflooring, framing, ceilings
  - Interior non-bearing walls
  - Exterior finishes (e.g., brick, stucco, siding, painting, and trim)
  - Windows and exterior doors
  - Roofing, gutters, and downspouts
  - Hardware
  - Attached decks and porches
- Interior finish elements, including:
  - Floor finishes (e.g., hardwood, ceramic, vinyl, linoleum, stone, and wall-to-wall carpet over subflooring)
  - Bathroom tiling and fixtures
  - Wall finishes (e.g., drywall, paint, stucco, plaster, paneling, and marble)
  - Built-in cabinets (e.g., kitchen, utility, entertainment, storage, and bathroom)
  - Interior doors
  - Interior finish carpentry
  - Built-in bookcases and furniture
  - Hardware
  - Insulation
- Utility and service equipment, including:
  - HVAC equipment
  - Plumbing fixtures and piping
  - Electrical wiring, outlets, and switches
  - Light fixtures and ceiling fans
  - Security systems
  - Built-in appliances
  - Central vacuum systems
  - Water filtration, conditioning, and recirculation systems

This list is adapted from "Costs for Substantial Improvements and Repair of Substantial Damage," found in FEMA P-758, Substantial Improvement / Substantial Damage Desk Reference.

Excluded Costs

Items that should be excluded are those that are not directly associated with the building. The following list characterizes the types of costs that may be excluded:

- Clean-up and trash removal
- Costs to temporarily stabilize a building so that it is safe to enter to evaluate required repairs
- Costs to obtain or prepare plans and specifications
- Land survey costs
- Permit fees and inspection fees
- Carpeting and re-carpeting installed over finished flooring such as wood or tiling
- Outside improvements, including landscaping, irrigation, sidewalks, driveways, fences, yard lights, swimming pools, pool enclosures, and detached accessory structures (e.g., garages, sheds, and gazebos)
- Costs required for the minimum necessary work to correct existing violations of health, safety, and sanitary codes
- Plug-in appliances such as washing machines, dryers, and stoves

PROPERTY OWNER'S RIGHT OF ENTRY CERTIFICATION AND RELEASE

A floodplain permit is required for all construction activity in the Special Flood Hazard Area (SFHA) or that area inundated by the 1% annual chance of a flood, as designated by the National Flood Insurance Program (NFIP). These SFHAs are designated as A, AE, A1-A30, AH, or AO Zones on the Flood Insurance Rate Maps (FIRMs). This includes construction for new or improved residential and non-residential structures, filling, and excavation.

I, the undersigned, being the owner of the land and all structures located at the address below

Address: _____

_____

City, Zip: _____ Nebraska, _____

do hereby grant the local jurisdiction permission to inspect the property to determine the amount of damage and to comply with the National Flood Insurance (NFIP) Regulations for Substantial Damage Determinations, pursuant to Title 44 C.F.R., Section 60.3.

I, the undersigned, do hereby grant the local jurisdiction, its agents, servants, employees and assigns, for a period of 60 days or the completion of the substantial damage assessment, from the date of this document, permission to enter upon the above-identified land to accomplish substantial damage/improvement determinations.

In consideration of the substantial damage assessment conferred on me by the local jurisdiction, in said substantial damage/improvement determinations, I, the undersigned, do hereby release and forever discharge the local jurisdiction, its agents, servants, employees, and assigns from any and all claims, demands, or actions for damages for any and all personal injuries, or loss or damage to property sustained in or growing out of said inspections, and from complications arising therefrom. I also hereby agree to comply with the local jurisdiction's Ordinance/Resolution No. _____

It is understood that the above mentioned substantial damage assessment and the terms of the release are fully understood and voluntarily accepted.

I HAVE READ THE FOREGOING RELEASE AND FULLY UNDERSTAND IT.

Signature	**Print Name**	**Date**
Witness	**Print Name**	**Date**

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Exterior Inspection Guide

Item	Required Evaluation
Depth of flooding inside and outside of the structure	Examine all sides of the structure to locate a high water mark. If no high water mark is visible, check adjacent fences or vegetation for water, dirt, or debris line. Depending on the flood duration, the high water may be at different elevations inside and outside of the structure.
Obvious roof damage	Observe the roof for: • Missing shingles or roof covering • Roof sheathing movement
Less obvious roof damage	Observe the roof for warping of the roof sheathing due to lost or damaged shingles. This can be viewed by stepping back from the structure and looking at the roof surface for ripples and sunken or raised areas. This type of damage may require replacement of a significantly large portion of the roof sheathing and shingles. The inspector will need to determine if the roof damage was disaster related or due to poor maintenance. Maintenance-related damage can be addressed by the selection of the depreciation rating as part of the assessment.
Foundation damage	Examine the foundation for settlement, lateral movement, or cracking that affects structural stability. Determine whether the structure has become separated from the foundation.
Post, pier, or column damage and an evaluation of the floor stability	Examine these elements for structures built on a continuous wall with slab, crawlspace, piles, and piers and posts foundation types.
Exterior wall damage	Observe for holes or damage affecting the structural integrity of the superstructure.

This table is adapted from Table 9-1. "Features to Evaluated during Exterior Inspections of Structures," found in FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

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Interior Inspection Guide

Element	Description	What to Look For
Foundation (residential and non-residential structures)	Damage that is significant enough to affect the overall structural stability of the foundation.	Settlement, lateral displacement, or cracking not visible from the exterior. This is especially important for homes with basements or crawlspace foundations. Check for foundation damage that may not be visible during the exterior inspection.
Superstructure (residential and non-residential structures)	Damage that either currently or in the future could affect the structural stability of the structure, including the wall support systems as well as roof trusses and framing.	Wall support system: Deformation or distortion of the structural frame that is not visible from the exterior Roof support system: • For intact ceilings, look for sagging, water marks, dripping water, or other damage that may indicate truss or roof framing damage. • For removed ceilings, view the truss and roof framing for damage.
Roof covering (residential and non-residential structures)	Damage to the roof sheathing, shingles/tiles, flashing, or other elements that are part of the roof covering.	Sagging, water marks, and dripping water could indicate roof covering damage. Also, look for daylight entering through holes in the roof or warped sheathing not visible from the exterior.
Interior finish (residential) Interiors (non-residential)	Damage should be evaluated for a height above the interior high water mark. For two-story homes with similar square footage on each floor, the first floor accounts for approximately 50 percent of the total quantity of these interior finish items in the house. All painted, stained, papered, or paneled surfaces touched by floodwaters are assumed to at least require cleaning, sanding, and resurfacing.	Damaged, broken, or warped interior walls or framing studs (windows, doors, or closets). Inspectors should check for wicking of water or moisture inside of drywall and insulation at a level above the interior high water mark. All wet insulation and drywall should be removed and disposed of properly.
Doors and windows (residential only)	Depending on the flood duration, these items will require either a small amount of cleanup plus paint/stain or total replacement due to warping.	Damaged, broken, warped, or removed doors and windows

This table is adapted from Table 9-2. "Features to Evaluated during Interior Inspections of Structures," found in FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

Interior Inspection Guide Cont.

Element	Description	What to Look For
Cabinets and countertops (residential only)	Depending on the flood duration, these items will either require a small amount of cleanup, sanding, and new stain or paint for cabinets or total replacement due to warping.	Damaged, broken, warped, mold-covered, or removed cabinets and countertops. Note: The amount of damage for cabinets should reflect the depth of flooding above the floor. If the flood depth did not reach the upper cabinets, the percent damaged should be based on the floor level cabinets only. If only the lower cabinets are damaged but the owner prefers to replace both upper and lower cabinets so that they match, that is irrelevant for the cabinet damage entered into the SDE tool.
Floor finish (residential only)	With the exception of ceramic and marble tile, almost all floor coverings and sub-flooring that get wet will need to be replaced.	Discolored, warped, cut, damaged, broken, or missing flooring.
Plumbing (residential and non-residential structures)	With the exception of broken fixtures or sections of pipe, many of these items can be flushed with disinfectant, cleaned on the outside, and used again.	Cracked, dented, misaligned, leaking, broken, or missing sections of pipe or fixtures such as toilets, sinks, tub, and showers. Contamination of water supplies.
Electrical (residential and non-residential structures)	Depending on the depth of flooding, there may only be a need to replace fixtures such as outlets, switches, lights, or a junction/fuse box below a certain flood elevation. All electrical wiring exposed to salt water should be replaced.	Corroded, exposed, disconnected, broken, missing, or non-functioning items and fixtures.
Built-in appliances (residential only)	Depending on the depth of flooding, these may require only a cleanup with disinfectant plus a small amount of repairs or may require total replacement.	Damaged, water-logged, broken, non-functioning, or removed appliances.
HVAC (residential and non-residential structures)	Depending on the depth of flooding, this may require only a cleanup with disinfectant plus a small amount of repairs or may require total replacement.	Damaged, water-logged, broken, non-functioning, or removed heating-cooling units.

Percent Damage Estimation Tables

The SDE requires the inspector to estimate the percent of damage for various building components. The information compiled below can be used with the SDE worksheet to quickly calculate substantial damage.

The following table is intended to be used as a screening tool so that the property owner is notified as soon as possible as to the potential status of their property. Often a more detailed assessment is warranted and more detailed damage percentages should be determined on an as-needed basis. **The percentages in the table are based on 1-story house without a basement that has experienced medium-height freshwater flooding of limited duration.**

Please note that a more thorough damage estimation guide for both residential and non-residential structures can be found in Appendix E, "Guidance for Estimating Percent Damage for Residential Structures," and Appendix F, "Guidance for Estimating Percent Damage for Non-Residential Structures," in **FEMA P-784 Substantial Damage Estimator User Manual and Field Workbook**.

	Estimated Percentage Damage Range			
	0% - 25%	25% - 50%	50% - 75%	75% - 100%
FOUNDATION				
Continuous perimeter foundations, footings, and piers for internal beams and floor loads. Footing depth averages between 30 inches and 42 inches below ground level. Materials include unreinforced cast-in-place concrete, unreinforced masonry or concrete masonry units (CMUs), concrete slab on grade, or raised slab construction.	• Water level does not rise to the level of the bottom of the first floor of the structure. • No scouring at the footings. • Some undermining but no visible cracking at concrete slab.	• Water level rises just above first floor level. • Limited scouring at the footings. • Soils are saturated. • Undermining of the concrete slab, especially at corners - hairline cracks only.	• Water level is 4-7 feet against the outside of the building. • Limited scouring at the footings. • Soils are saturated and unstable. • Cracks noted on or along the foundation walls. • Significant undermining of the concrete slab – significant cracking is visible.	• Water level is 7 feet or higher against the outside of the building. • Limited scouring at the footings. • Foundation is notably cracked and/or displaced. Structure has been knocked off its foundation. • Portions of the foundation are damaged or missing. • Significant undermining of the concrete slab - major cracking and separation of the concrete slab.
SUPERSTRUCTURE				
For wood frame & masonry. The wall support systems that extend from the foundation wall to the roof structure. Superstructures include the exterior wall sheathing panels, shear panels, or braced wall panels. This section also includes structural members that support the roof (rafters and trusses), but does not include the roof sheathing.	• Water level does not rise to the level of the bottom of the first floor of the structure. • No damage to the roof framing.	• Water level rises just above first floor level. • Damage to the exterior walls is limited. • Damage to the roof framing is limited.	• Water level is up to 3 feet high on the first floor level. • Some damage to exterior walls. • Significant damage to sections of the roof framing.	• Water is over 3 feet high on the first floor level of the house. • Significant damage to exterior walls. • Significant damage to the main portion or multiple sections of the roof framing.

The "Estimated Percent Damage Range" tables are adapted from "Guidance for Estimating Percent damaged for Residential Structures," found in FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

	Estimated Percentage Damage Range			
	0% - 25%	25% - 50%	50% - 75%	75% - 100%
ROOF COVERING				
Roofing includes a lightweight composition shingle, tile roofs, metal roofs, or a built-up roof with gravel or rock cover material. Roofing does not include structural framing members such as rafters or prefabricated trusses that support the roof deck. The roof sheathing and flashing is included in this section.	• Minor wind damage to the roof coverings. • Main surface areas are unaffected. • Flashings are intact. • No damage to the roof sheathing.	• Some damaged areas of the roof from high-winds or damage from debris. • Some sections of the roof covering are missing or loose. • Some damage to the flashings. • Minimal damage to the roof sheathing.	• Significant damaged areas of the roof from high winds or damage from debris. • Significant sections of the roof covering are missing or loose. • Damage to the flashings allows some water infiltration at joints and roof penetrations. • Significant damage to the roof sheathing - some areas of the sheathing will need replacement.	• Large damaged areas of the roof from high winds or damage from debris. • Major sections of the roof covering are missing or loose. • Damage to the flashings allows significant water infiltration at joints and roof penetrations. • Major damage to the roof sheathing - most of the roof sheathing will need replacement.
EXTERIOR FINISH				
The wall covering system that covers the wall sheathing, as well as insulation and weather stripping. This includes the water resistant materials and the finish materials: Stucco, Siding (aluminum, vinyl, or wood), Masonry, Stone veneer. Insulation is installed at the flooring beneath the lowest floor level and throughout the walls and ceilings.	• Water level is less than 6 inches above the lowest floor level. • The duration of the floodwaters is limited - less than 12 hours.	• Water level is between 6 and 18 inches above the lowest floor level. • The duration of the floodwaters is limited - less than 12 hours.	• Water level is between 18 inches and 3 feet above the lowest floor level. • The duration of the floodwaters is more than 12 hours.	• Water level is more than 3 feet above the lowest floor level. • The duration of the floodwaters is more than 12 hours.

The "Estimated Percent Damage Range" tables are adapted from "Guidance for Estimating Percent damaged for Residential Structures," found in FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

	Estimated Percentage Damage Range			
	0% - 25%	25% - 50%	50% - 75%	75% - 100%
INTERIOR FINISH				
Interior finish includes the gypsum board, drywall, plaster, or paneling that makes up the wall surfaces. It also includes trim around door baseboards, casings, chair rails, and ceiling moldings. Materials include low-grade wood/plastic composites, soft woods, and hard woods. Finishes include paint, stain, or varnish.	• Water level does not rise to the level of the first floor structure. • The duration of the floodwaters is limited - less than 12 hours.	• Water level rises just above the first floor level. • The duration of the floodwaters is limited - less than 12 hours.	• Water level is up to 3 feet above the first floor level. • The duration of the floodwaters is more than 12 hours.	• Water is more than 3 feet above the first floor level of the house. • The duration of the floodwaters is more than 12 hours.
DOORS AND WINDOWS				
This section includes all doors and windows of a structure, as well as locks, hinges, frames, and handles. Assumptions are hollow core doors with low-cost hardware for low, fair, and average quality construction, raised-panel hardwood veneer with good quality hardware for good or excellent quality construction. (This section does not include paint or stain.)	• Water level rises just to the floor structure of the first floor level. • The duration of the floodwaters is limited - less than 12 hours.	• Water level is just above the first floor. • The duration of the floodwaters is limited - less than 12 hours.	• Water rises to at least 12 inches above the first floor level. • The duration of the floodwaters is more than 12 hours.	• Water rises more than 12 inches above the first floor level. • The duration of the floodwaters is more than 12 hours.

The "Estimated Percent Damage Range" tables are adapted from "Guidance for Estimating Percent damaged for Residential Structures," found in FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

	Estimated Percentage Damage Range			
	0% - 25%	25% - 50%	50% - 75%	75% - 100%
CABINETS AND COUNTERTOPS				
The basic cabinets for bathroom vanities and kitchens include paint-grade cabinets made of a fiberboard or plywood material. The countertop is laminated plastic or a man-made 'cultured stone' surface.	• Water level is less than 4 inches above the finished floor level.	• Water level is between 4 and 12 inches above the finished floor level. • Flood duration is short - no prolonged exposure to water or contaminants.	• Water level is between 1 foot and 3 feet above the finished floor level. • Flood duration is longer than 12 hours - prolonged exposure to water and contaminants.	• Water level is more than 3 feet above finished floor level. • Flood duration is longer than 12 hours - prolonged exposure to water and contaminants.
FLOOR FINISH				
Materials for floor finish include: carpet, hardwood, vinyl composition tile, sheet vinyl floor cover, ceramic tile, and marble. Sub-flooring is also included. Carpeting, hardwood flooring, vinyl flooring tiles, and sheet vinyl are typically replaced after water inundation. Brick, stone, and clay tile floor can be cleaned, sanitized, and reused.	• Water level does not rise to the level of the bottom of the first floor structure. • No damage to the floor sheathing.	• Water level rises just to the first floor level. • Water level inundates the sub-flooring but does not rise to the finished floor materials. • Minimal damage to the floor sheathing.	• Water level is above the first floor. • Water level inundates above the sub-flooring and finished floor materials. • Significant damage to the floor sheathing - some areas of the sheathing will need replacement.	• Water level is well above the first floor. • Water level inundates above the sub-flooring and finished floor materials. • Major damage to the floor sheathing - most of the floor sheathing will need replacement.

The "Estimated Percent Damage Range" tables are adapted from "Guidance for Estimating Percent damaged for Residential Structures," found in FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

	Estimated Percentage Damage Range			
	0% - 25%	**25% - 50%**	**50% - 75%**	**75% - 100%**
PLUMBING				
The plumbing system includes the incoming water service (municipal water supply or well service), the water heater, water distribution piping, and the wastewater system. Wastewater will be conveyed away from the structure by either a connection to the municipal sewer system or a septic system.	• Water level is less than 6 inches above the lowest floor level.	• Water level is between 6 inches and 18 inches above the lowest floor level. • Flood duration is short - no prolonged exposure to water or contaminants.	• Water level is between 18 inches and 3 feet above the lowest floor level. • Flood duration is longer than 12 hours - prolonged exposure to water and contaminants.	• Water level is more than 3 feet above the lowest floor level. • Flood duration is longer than 12 hours - prolonged exposure to water and contaminants.
ELECTRICAL				
100- to 200-amp electrical service providing circuit breaker panels and distribution wiring. Basic wiring (15/20 amp) for outlets, switches, receptacles, and lighting; 25- to 60-amp wiring systems for outlets for a washer, dryer, stove, and refrigerator.	• Water level is less than 12 inches above the finished floor level. • Minor electrical components and limited wiring are inundated but remain below normal receptacle height.	• Water level is between 12 inches and 18 inches above the finished floor level. • A significant number of wiring components and limited wiring are inundated, floodwaters above the normal receptacle height.	• Water level is between 18 inches and 3 feet above the lowest floor level. • A significant number of wiring components and a significant amount of wiring is inundated - floodwaters above normal wall switch height.	• Water level is more than 3 feet above the lowest floor level. • Most of the wiring components and a significant amount of wiring are inundated - floodwaters above normal wall switch height.

The "Estimated Percent Damage Range" tables are adapted from "Guidance for Estimating Percent damaged for Residential Structures," found in FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

	Estimated Percentage Damage Range			
	0% - 25%	25% - 50%	50% - 75%	75% - 100%
APPLIANCES				
Common, built-in appliances that would be included are the dishwasher, hot water tank, and some stoves.	• Water level is less than 6 inches above the finished floor level. • Water level is in the floor area of the appliances but not into the equipment operating system. • The appliances may be cleaned and reconditioned.	• Water level is between 6 inches and 12 inches above the finished floor level. • Water level is in the floor area of the appliances and into the equipment operating system. • Some of the appliances will need to be replaced.	• Water level is between 12 inches and 18 inches above the finished floor level. • Water level is in the floor area of the appliances and into the equipment operating system. • Most of the appliances will need to be replaced.	• Water level is between 18 inches and 3 feet above the finished floor level. • Water level is in the floor area of the appliances and into the equipment operating system. • All of the appliances will need to be replaced.
HVAC				
The base HVAC system is a forced-air heating system (furnace) with ductwork. The air handler system is located inside the thermal barrier of the house. The percent damaged will be less for a boiler. A gas-fired or oil-fired furnace located in a basement or crawlspace will require replacement of the furnace assembly as soon as 12 inches of floodwaters are present.	• Water level is less than 6 inches above the lowest floor level. • Water level is in the lower ducts but not into the air handler or equipment operating system. • The condenser unit may be reconditioned if the water level is less than 6 inches from the bottom of the appliance. If the condenser unit is located below the flood level, it will need to be replaced.	• Water level is between 6 inches and 12 inches above the finished floor level. • Water level is into the lower ducts and the air handler, but not into the equipment operating system. • The condenser unit may be reconditioned if the water level is up to 12 inches from the bottom of the appliance. If the condenser unit is located below the flood level, it will need to be replaced.	• Water level is between 12 inches and 3 feet above the finished floor level. • Water level is into the lower ducts, air handler, and the equipment operating system. • The fuel-fired equipment (burners/controls) is inundated. • The condenser unit needs to be replaced.	• Water level is more than 3 feet above the lowest floor level. • Water level is into the duct distribution system, air handler, and the equipment operating system. • The fuel-fired equipment (burners/controls) is inundated. • The condenser unit needs to be replaced.

The "Estimated Percent Damage Range" tables are adapted from "Guidance for Estimating Percent damaged for Residential Structures," found in FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

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SDA Damage Inspection Worksheet
- Residential -

COMMUNITY	STRUCTURE	INSPECTION
NFIP Community ID (CID):	Structure Address:	Inspector Name:
NFIP Community Name:		Team #:
Latitude:	City:	Assessment Date:
Longitude:	Zip:	Date Damaged:
	County:	

PHOTOS

Photo #:	*Direction facing:*	○ Northwest	○ North	○ Northeast	○ East
		○ West	○ Southwest	○ South	○ Southeast
Photo #:		○ Northwest	○ North	○ Northeast	○ East
		○ West	○ Southwest	○ South	○ Southeast

STRUCTURE ATTRIBUTES

Year Constructed:

Residence Type:	○ Single Family Residence	○ Town or Row House	○ Manufactured House
Exterior:	○ One Story	○ Two or More Stories	
Foundation:	○ Continuous Wall + Slab ○ Piles	○ Basement ○ Slab-on-Grade	○ Crawlspace ○ Piers and Posts
Superstructure:	○ Stud-Framed ○ Common Brick	○ ICF ○ Masonry	
Roof Coverings:	○ Shingles ○ Clay Tile	○ Standing Seam (Metal) ○ Slate	
Exterior Finish:	○ Siding or Stucco ○ Brick Veneer	○ Exterior Insulated Finishing System (EIFS)	○ None (Common Brick or Structural)
HVAC System:	○ None	○ Heating or Cooling	
Quality:	○ Low ○ Good	○ Budget ○ Excellent	○ Average
Cause of Damage:	○ Fire ○ Seismic	○ Flood ○ Wind	○ Flood and Wind ○ Other
Flood Duration:		○ Hours ○ Days	
Flood Depth Above Ground: *(Decimal Ft.)*		**Flood Depth Above 1st Floor:** *(Decimal Ft.)*	

Worksheet adapted from "Residential SDE Damage Inspection Worksheet" found in Appendix B, FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

SDA Damage Inspection Worksheet Cont.
- Residential -

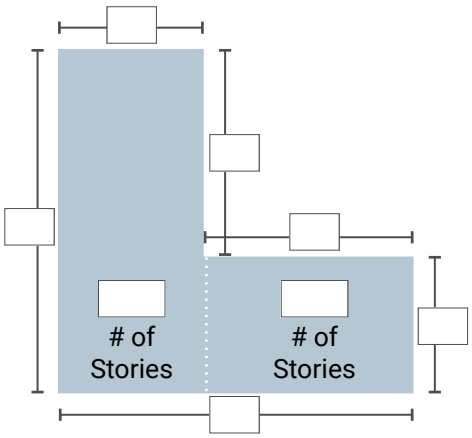
DEPRECIATION RATING

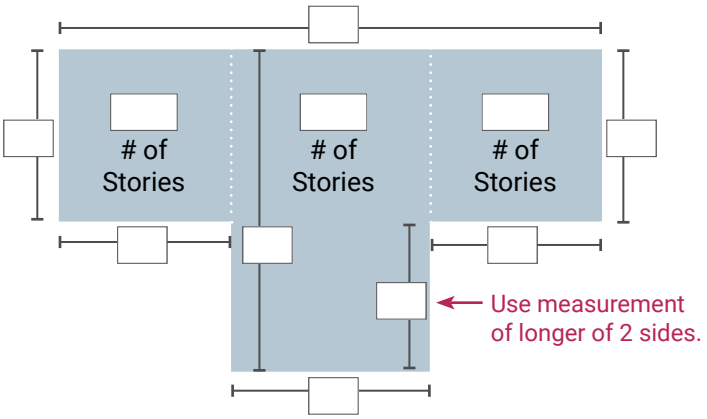
- ○ Very Poor Condition
- ○ Requires Extensive Repairs
- ○ Requires Some Repairs
- ○ Average Condition
- ○ Above Average Condition
- ○ Excellent Condition
- ○ Other:

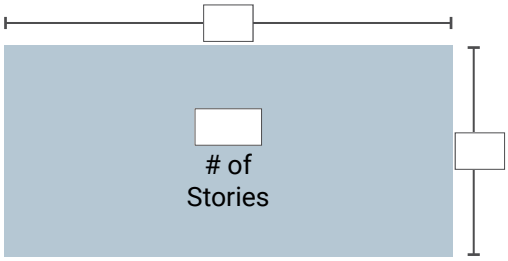
ELEMENT PERCENTAGES

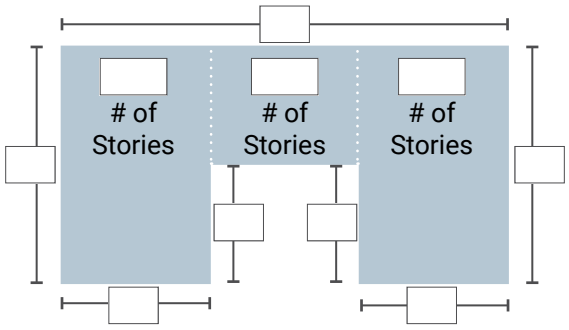
Element	Percent Damaged	Element	Percent Damaged
Foundation:		Floor Finish:	
Superstructure:		Plumbing:	
Roof Covering:		Electrical:	
Exterior Finish:		Appliances:	
Doors & Windows:		Interior Finish:	
Cabinets & Countertops:		HVAC:	

SQ. FOOTAGE CALCULATOR









Worksheet adapted from "Residential SDE Damage Inspection Worksheet" found in Appendix B, FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

SDA Damage Inspection Worksheet
- Non-Residential -

COMMUNITY	STRUCTURE	INSPECTION
NFIP Community ID (CID):	Structure Address:	Inspector Name:
NFIP Community Name:		Team #:
Latitude:	City:	Assessment Date:
Longitude:	Zip:	Date Damaged:
	County:	

PHOTOS

Photo #:	Direction facing:	○ Northwest	○ North	○ Northeast	○ East
		○ West	○ Southwest	○ South	○ Southeast
Photo #:		○ Northwest	○ North	○ Northeast	○ East
		○ West	○ Southwest	○ South	○ Southeast

STRUCTURE ATTRIBUTES

Year Constructed:

Story:	○ 1	○ 2 through 4	○ 5 or more
Use:	○ Apartments	○ Fire/Police Station	○ Mini-Warehouse
	○ Auditorium	○ Grocery Store	○ Motel
	○ Commercial Retail	○ High School	○ Municipal Building
	○ Convenience Store	○ Hospital	○ Office Building
	○ Courthouse	○ Hotel	○ Police Station
	○ Department Store	○ House of Worship	○ Restaurants
	○ Elementary School	○ Industrial	○ Strip Mall
	○ Fast Food Restaurant	○ Long-Term Care Facility	
Sprinkler System:	○ Yes ○ No	**Conveyance (Elevator/Escalator):**	○ Yes ○ No
Quality:	○ Low ○ Good	○ Budget ○ Excellent	○ Average
Cause of Damage:	○ Fire ○ Seismic	○ Flood ○ Wind	○ Flood and Wind ○ Other
Flood Duration:		○ Hours ○ Days	
Flood Depth Above Ground:		**Flood Depth Above 1st Floor:**	

Worksheet adapted from "Non-Residential SDE Damage Inspection Worksheet" found in Appendix B, FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

SDA Damage Inspection Worksheet Cont.
- Non-Residential -

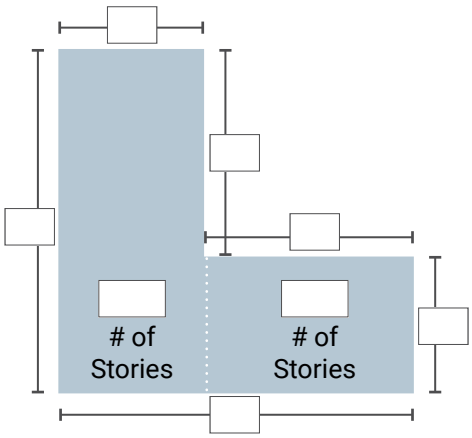
DEPRECIATION RATING

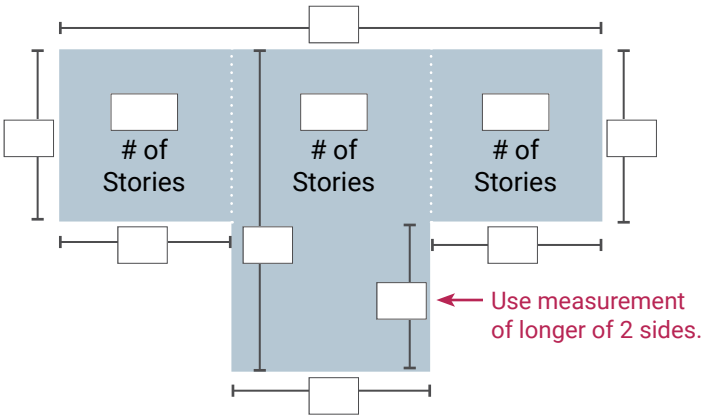
- ○ Very Poor Condition
- ○ Requires Extensive Repairs
- ○ Requires Some Repairs
- ○ Average Condition
- ○ Above Average Condition
- ○ Excellent Condition
- ○ Other:

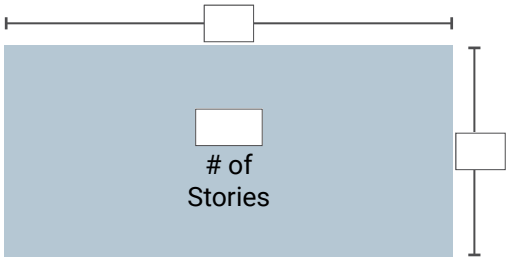
ELEMENT PERCENTAGES

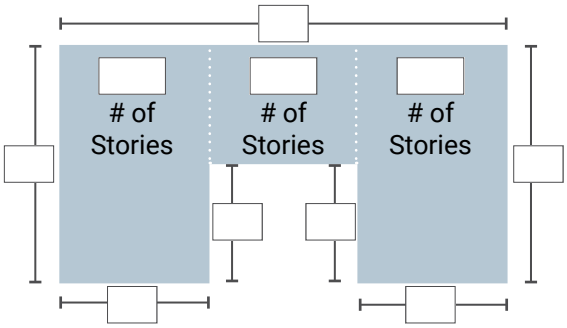
Element	Percent Damaged	Element	Percent Damaged
Foundation:		Electrical:	
Superstructure:		Interiors	
Roof Covering:		HVAC:	
Plumbing:			

SQ. FOOTAGE CALCULATOR



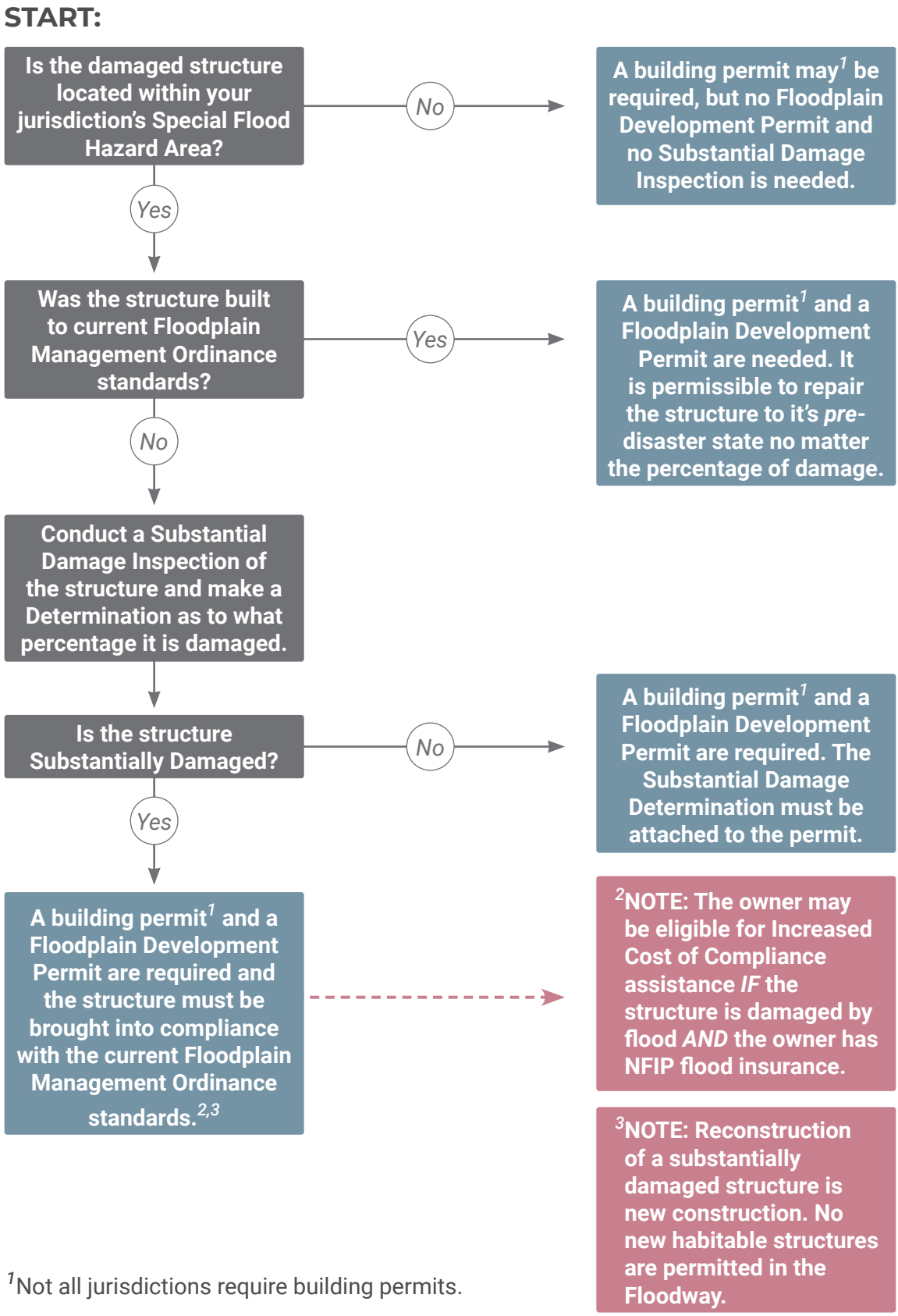






Worksheet adapted from "Non-Residential SDE Damage Inspection Worksheet" found in Appendix B, FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

SD Assessment and Permit Requirement Decision Tree:



[1]Not all jurisdictions require building permits.

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Flood-Related Substantial Damage Determination Letter:

[Jurisdiction Name]
[Jurisdiction Address Line 1]
[Jurisdiction Address Line 2]

[Date]

[Property Owner Name]
[Property Owner Address Line 1]
[Property Owner Address Line 2]

Subject: Damage Estimation for Property Located at [Property Address and Parcel No.]

Dear [Property Owner],

On [date], the subject property was damaged by a flood. Your property is located in Flood Zone [A, AE, A1-30, AH, AO]. When a property in a special flood hazard area is damaged, the local jurisdiction is required to perform damage estimation in accordance with [Ordinance/Regulation/Resolution and No.]. The damage estimation for your property has been determined to be [percentage]. This number is based on the ratio of the cost to repair the structure to its pre-flood market value. The fair market value of your structure was determined to be [dollar amount]. The cost to repair is estimated to be [dollar amount]. Please see the documentation attached.

Prior to beginning repairs to your structure, please complete the required Floodplain Development Permit Application (enclosed). Failure to obtain a required permit is a violation of [Ordinance/Regulation/Resolution and No.]. We regret your loss and the damage you have sustained. We will try to make the permitting process as easy as we can for you.

Because the damage to your building has been determined to be greater than 50% of fair market value, your building has been determined to be *substantially damaged*. Substantially damaged properties are required to be brought into full compliance with floodplain regulations found in [Ordinance/Regulation/Resolution and No.]. Residential structures must be elevated [height freeboard] above the base flood elevation (BFE) . Non-Residential structures must be flood-proofed or elevated to [height freeboard].

You are welcome to contact this office to schedule a consultation to discuss your options for bringing the building into compliance. Increased Cost of Compliance (ICC) funds could be available for those who have flood insurance through the National Flood Insurance Program (NFIP). Contact your claims adjuster for details. *NOTE: Buildings already in compliance will not qualify for ICC so do not include statements about ICC for those buildings.*

If you disagree with the damage estimation there is an appeal process. An appeal will require additional information such as [contractor's estimate/insurance adjusted claim/licensed

Flood-Related Substantial Damage Determination Letter (Cont.)**:**

appraisal/other]. Details about an appeal and about how the damage estimation was done can be discussed in more detail by calling this office. We are sure you want to repair your property as soon as possible.

[Local jurisdiction] participates in the National Flood Insurance Program. Failing to enforce floodplain damage requirements puts [local jurisdiction] in jeopardy of losing flood insurance, disaster assistance and federally backed loans and grants for our citizens.

Thank you in advance for your cooperation and assistance at a difficult time.

Sincerely,

[Name Community Official], Floodplain Manager

[Contact Information]

CC: [City Attorney/County Attorney]

Enclosed: [Ordinance/Regulation/Resolution and No.]
[Damage determination worksheets / documentation]
[Floodplain Development Permit]

Non-Flood Related Substantial Damage Determination Letter:

[Jurisdiction Name]
[Jurisdiction Address Line 1]
[Jurisdiction Address Line 2]

[Date]

[Property Owner Name]
[Property Owner Address Line 1]
[Property Owner Address Line 2]

Subject: Damage Estimation for Property Located at [Property Address and Parcel No.]

Dear [Property Owner],

On [date] the subject property was damaged by [fire / tornado / wind / other]. Your property is located in Flood Zone [A, AE, A1-30, AH, AO]. When a property in a special flood hazard area is damaged, the local jurisdiction is required to perform damage estimation in accordance with [Ordinance/Regulation/Resolution and No.]. The damage estimation for your property has been determined to be [percentage]. This number is based on the ratio of the cost to repair the structure to its pre-flood market value. The fair market value of your structure was determined to be [dollar amount]. The cost to repair is estimated to be [dollar amount]. Please see the documentation attached.

Prior to beginning repairs to your structure, please complete the required Floodplain Development Permit Application (enclosed). Failure to obtain a required permit is a violation of [Ordinance/Regulation/Resolution and No.]. We regret your loss and the damage you have sustained. We will try to make the permitting process as easy as we can for you.

Because the damage to your building has been determined to be greater than 50% of fair market value, your building has been determined to be *substantially damaged*. Substantially damaged properties are required to be brought into full compliance with floodplain regulations found in [Ordinance/Regulation/Resolution and No.]. Residential structures must be elevated [height freeboard] above the base flood elevation (BFE) . Non-Residential structures must be flood-proofed or elevated to [height freeboard].

If you disagree with the damage estimation there is an appeal process. An appeal will require additional information such as [contractor's estimate/insurance adjusted claim/licensed appraisal/other]. Details about an appeal and about how the damage estimation was done can be discussed in more detail by calling this office. We are sure you want to repair your property as soon as possible.

Non-Flood Related Substantial Damage Determination Letter (Cont.)**:**

[Local jurisdiction] participates in the National Flood Insurance Program. Failing to enforce floodplain damage requirements puts [local jurisdiction] in jeopardy of losing flood insurance, disaster assistance and federally backed loans and grants for our citizens.

Thank you in advance for your cooperation and assistance at a difficult time.

Sincerely,

[Name Community Official], Floodplain Manager

[Contact Information]

CC: [City Attorney/County Attorney]

Enclosed: [Ordinance/Regulation/Resolution and No.]
[Damage determination worksheets / documentation]
[Floodplain Development Permit]

Compliant Structure / Non-Substantial Damage Determination Letter:

[Date]

[Property Owner Name]
[Property Owner Address Line 1]
[Property Owner Address Line 2]

Subject: Damage Estimation for Property Located at [Property Address and Parcel No.]

Dear [Property Owner],

On [date] the subject property was damaged by [fire / tornado / wind / other]. Your property is located in Flood Zone [A, AE, A1-30, AH, AO]. When a property in a special flood hazard area is damaged, the local jurisdiction is required to perform substantial damage assessment in accordance with [Ordinance/Regulation/Resolution and No.].

The damage estimation for your property has been determined to be [percentage]. This number is based on the ratio of the cost to repair the structure to its pre-flood market value. The fair market value of your structure was determined to be [dollar amount]. The cost to repair is estimated to be [dollar amount]. Please see the documentation attached.

Prior to beginning repairs to your structure, please complete a Floodplain Development Permit (enclosed), as a floodplain development permit is required. Failure to obtain a required permit is a violation of [Ordinance/Regulation/Resolution and No.]. We regret your loss and the damage you have sustained. We will try to make the permitting process as easy as we can for you.

If you disagree with the damage estimation there is an appeal process. An appeal will require additional information such as [contractor's estimate/insurance adjusted claim/licensed appraisal/other]. Details about an appeal and about how the damage estimation was done can be discussed in more detail by calling this office.

[Local jurisdiction] participates in the National Flood Insurance Program. Failing to enforce floodplain damage requirements puts [local jurisdiction] in jeopardy of losing flood insurance, disaster assistance and federally backed loans and grants for our citizens.

Thank you in advance for your cooperation and assistance at a difficult time.

Sincerely,

[Name Community Official], Floodplain Manager
[Contact Information]

CC: [City Attorney/County Attorney]

Enclosed: [Ordinance/Regulation/Resolution and No.]
[Damage determination worksheets / documentation]
[Floodplain Development Permit]

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Floodplain Damage / Improvement Cost Form: All Structures

Property Information	Contractor Information
Owner Name	Company
Property Address	Contractor Name
City, State, Zip	Address
Phone	City, State, Zip
Email	Phone
Disaster Name / Type	Email
	Contractor Registration #

Costs That Must Be Included in Floodplain SI/SD Determination

Labor and materials, including sales tax

Exterior:		**Utilities:**	
$	Site preparation	$	HVAC Equipment
$	Foundation / slab	$	Plumbing fixtures & piping
$	Beams, subflooring, & roof joists	$	Electrical wiring, outlets, & switches
$	Roof, gutters, & downspouts	$	Light fixtures & ceiling fans
$	Walls, tie beams, trusses	$	Security systems
$	Exterior finishes	$	Built-in appliances
$	Windows & Exterior doors	$	Central vacuum systems
$	Hardware	$	Water filtration, conditioning,
$	Attached decks & porches		& recirculation systems
Interior:		**Other:**	
$	Flooring & subflooring	$	Construction debris disposal
$	Bathroom fixtures	$	Other:
$	Drywall & Wall finished		
$	Built-in cabinets	$	Other:
$	Interior doors		
$	Interior finish carpentry	$	Other
$	Built-in bookcases & furniture		
$	Hardware		
$	Insulation	**$**	**Total Cost of Repairs**

The Damage Improvement Cost Form is adapted from "Costs for Substantial Improvements and Repair of Substantial Damage," and "Required and Recommended Elements to be Included In a Contractor or Community Estimate of Repairs," both found in FEMA P-784, Substantial Damage Estimator User Manual and Field Workbook.

Floodplain Damage / Improvement Cost Form Cont.

Costs That May Be Excluded From Floodplain SI/SD Determination

Items that should be excluded are those that are not directly associated with the building. The following list characterizes the types of costs that may be excluded:

- Clean-up and trash removal
- Costs to temporarily stabilize a building so that it is safe to enter to evaluate required repairs
- Costs to obtain or prepare plans and specifications
- Land survey costs
- Permit fees and inspection fees
- Carpeting and re-carpeting installed over finished flooring such as wood or tiling
- Outside improvements, including landscaping, irrigation, sidewalks, driveways, fences, yard lights, swimming pools, pool enclosures, and detached accessory structures (e.g., garages, sheds, and gazebos)
- Costs required for the minimum necessary work to correct existing violations of health, safety, and sanitary codes
- Plug-in appliances such as washing machines, dryers, and stoves

Substantial Damage / Substantial Improvement Calculation

$ _____ **Total Cost of Repairs** *See preceding page*

$ _____ **Assessed or Appraised Value of the Structure***

* Attach to this form either a: ____ *tax assessment*, or an

____ *appraisal from a licensed appraiser*

_____ _____

Submitted by **Date**

Substantial Damage / Substantial Improvement Determination

To be completed by staff

The damage / improvement has been determined to be: ___ **Substantial**

___ **Not substantial**

_____ _____

Floodplain Administrator **Date**

Floodplain Development Permit Application

Place Jurisdiction Seal

FOR OFFICIAL USE ONLY		
Jurisdiction:		
Permit No.:		Date Filed:
Fee:		Receipt No.:
Approved?	**Y N**	Date Decided:
Notes:		

OWNER	STRUCTURE	APPLICANT *If different than owner.*
Owner Name:	Structure Address:	Applicant Name:
Address:		Address:
City, State, Zip:	City, State, Zip:	City, State, Zip:
Phone:	Parcel No:	Phone:
Email:	Lot & Block Subd. / PLSS (S-T-R):	Email:
		License No:

PROJECT INFORMATION

Project Type: *Check all that apply*

___ Residential
___ New Construction - Detached
___ Grading / Fill / Excavation
___ Other:
___ Commercial / Non-Residential
___ New Construction - Attached
___ Mobile Home
___ Fences / Walls
___ Remodel / Rehab

Description of proposed Work:

Cost of Improvements for this project: **(a)**
Attach an itemized cost estimate; See FEMA's "Included and Excluded Costs for Damage Repair Estimates".

Appraised Valuation of the Structure: **(b)**
Attach assessment documents.

Calculate the following: **(a) ÷ (b) x 100 = (c)** **(c)** **%**

Is the project a substantial improvement? ___ **Y** ___ **N**
If (c) value is greater than or equal to 50%, then the project constitutes substantial improvement.

FLOODPLAIN INFORMATION

FEMA Flood Zone: ___ **A** ___ **AE** ___ **X** (shaded) ___ **Other**

Base Flood Elevation: NGVD(29) / NAVD(88)

Required Flood Protection Elevation: NGVD(29) / NAVD(88)

Is the property within the Floodway? ___ **Y*** ___ **N**
**If any work is proposed within the Floodway, a no-rise certification must be attached.*

REGULATORY REQUIREMENTS

Structure is: *Check all that apply. If the structure is elevated, attach an Elevation Certificate.*	___ Elevated ___ Flood Proofed	___ Vented ___ N/A
Elevation Certificate: *Elevation Certificate is required for all new structures, additions, and substantial improvements.*	___ **Y** ___ **N**	
Flood Proofed	___ Dry *(non-residential only)* ___ Wet	
Lowest Floor Elevation: *Provide source.*		NGVD(29) / NAVD(88)
Lowest HVAC / Equipment Elevation:		NGVD(29) / NAVD(88)
Enclosed Area		Square Feet
Number of Openings*:		Openings
Area of Openings: **If engineered vents are proposed, construction details and specifications must be attached.*		Square Inches

REQUIRED SUBMITTAL DOCUMENTS

- ☐ Completed Application
- ☐ Location Map
- ☐ Site Plan *(include regulatory floodplain / floodway)*
- ☐ Grading Plan
- ☐ Floor Plans / Construction Specifications
- ☐ Flood-Proofing Certificate *(as necessary)*
- ☐ Flood Vent Specifications *(as necessary)*
- ☐ No-Rise Certificate *(floodway only)*
- ☐ Pre-Construction Elevation Certificate *(for new structures / additions)*
- ☐ Less than 1' Rise Determination *(for SFHA without floodway)*
- ☐ Other *(describe)*:

NOTE: If grades are not changing as a result of site work, a current topographical map of the site will suffice in lieu of a grading plan. If structures are proposed, the submittal must include foundation design and floor plans. All site plans must detail the location, elevation, and design of mechanical equipment, venting, and flood-proofing. Additional information and materials may be required.

Certification

I CERTIFY THE ABOVE INFORMATION IS CORRECT AND AGREE TO CONSTRUCT THE PROJECT IN ACCORDANCE WITH THE APPROVED PLAT, PLANS, AND SPECIFICATIONS NOTED HEREIN AND IN STRICT COMPLIANCE WITH ALL PROVISIONS OF APPLICABLE REGULATIONS.

Applicant Signature	**Print Name**	**Date**

FOR OFFICIAL USE ONLY

Floodplain Administrator Approval Signature:	**Approval Date:**
Notes:	**Permit Expiration Date:**

Building Compliance Requirements in Flood Zone A

Types of Work	Building is Pre-FIRM	Building is Post-FIRM
Rehabilitation (renovate or remodel), *not SI*	Compliance not required	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance
Rehabilitation (renovate or remodel), SI	Building required to comply	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance*
Lateral addition and Rehabilitation, SI	Addition required to comply; building required to comply	Addition required to comply; building required to comply*
Lateral addition, *not SI*	Addition not required to comply	Addition required to be elevated to at least the elevation of the existing lowest floor
Lateral addition, SI, *not structurally connected*	Addition required to comply; building not required to comply	Addition required to comply
Lateral addition, SI, structurally connected	Addition required to comply; building required to comply	Addition required to comply; building required to comply*
Vertical addition above building, *not SI*	Compliance not required	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance
Vertical addition above building, SI	Building required to comply	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance*
Repair foundation, *not SI*	Compliance not required	Repairs shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance
Repair foundation, SI	Building required to comply	Building required to comply*
Replace/extend foundation, SI (including “elevate-in-place”)	Building required to comply	Building required to comply*
Repair damage, SD	Building required to comply	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance*
Reconstruct new building on existing or new foundation, SI	Reconstructed building required to comply	Reconstructed building required to comply*

***If a map revision has resulted in a higher BFE, a post-FIRM building must comply based on the new BFE.**

This table is adapted from “Table 6-1a. Compliance Matrix (A Zones)” found in FEMA P-758, Substantial Improvement/ Substantial Damage Desk Reference.

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Appendix B: Contact Information

Department of Natural Resources Floodplain Management Section:

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Morgan Ryan	Floodplain Mapping Specialist	(402) 471-2242
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Karl Merchant	Floodplain Mapping Specialist	(402) 471-2240
Michele York	Administrative Assistant	(402) 471-1214
Shuhai Zheng, Ph.D., PE, CFM	Division Head, Engineering Programs & Services	(402) 471-3936

Visit the NeDNR Floodplain Management website at: **https://dnr.nebraska.gov/floodplain**
Tour the NeDNR Interactive Floodplain Map at: **http://ne.gov/go/floodriskmap**

Nebraska Emergency Management Agency:

Main Office	(402) 471-7421
NEMA Hotline	(855) 211-2453

Visit the NEMA website at: **https://nema.nebraska.gov**