



# Flood after Fire and Substantial Damage Overview UFSMA Conference 2020

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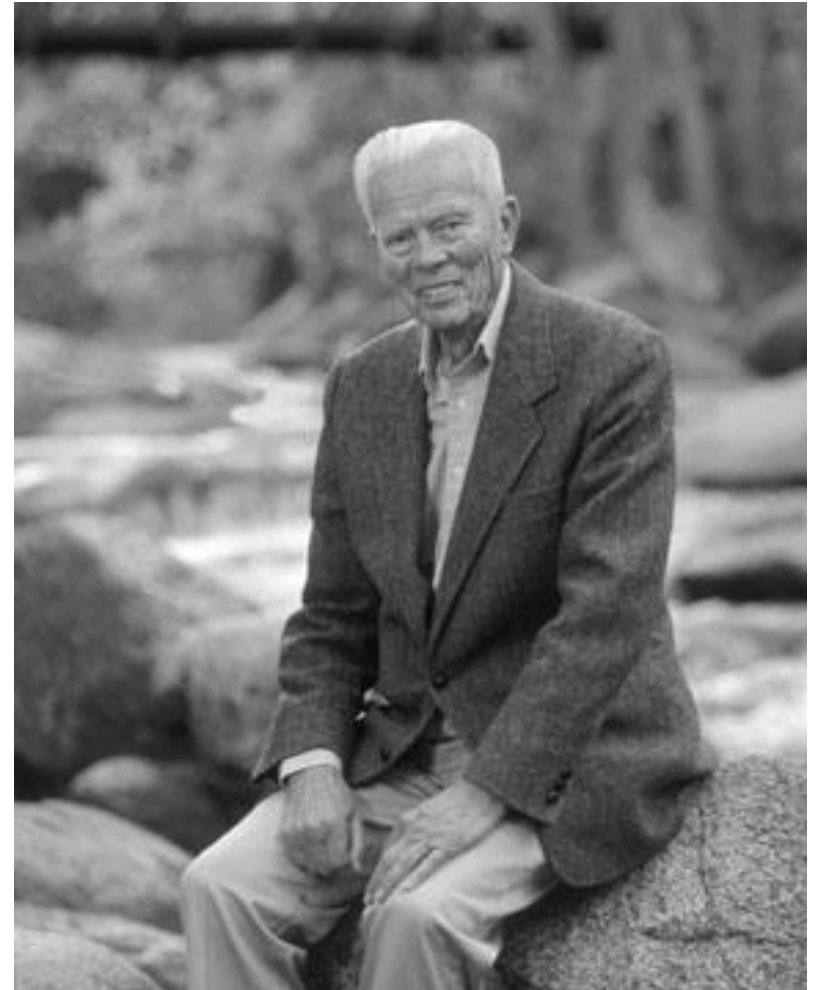


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“Floods are acts of God,  
but flood losses are  
largely acts of man.”

- Dr. Gilbert White  
the father of floodplain  
management



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# FAF Toolkit – search [www.floodsmart.gov](http://www.floodsmart.gov)

## Flood After Fire



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Did you know wildfires dramatically alter the terrain and increase the risk of floods? Excessive amounts of rainfall can happen throughout the year. And properties directly affected by fires and those located below or downstream of burn areas are most at risk for flooding.

- 1 During normal conditions, vegetation helps absorb rainwater.
- 2 But after an intense wildfire, burned vegetation and charred soil form a water repellent layer, blocking water absorption.
- 3 During the next rainfall, water bounces off of the soil.
- 4 As a result, properties located below or downstream of the burn areas are at an increased risk for flooding.

### Degree of Land Slope

Higher degrees of land slope speed up water flow and increase flood risk.

### Flash Floods

Intense rainfall can flood low-lying areas in less than six hours. Flash floods roll boulders, tear out trees and destroy buildings and bridges.

### Mudflows

Rivers of liquid and flowing mud are caused by a combination of brush loss and subsequent heavy rains. Rapid snowmelt can also trigger mudflows.

Reduce your risk. The time to buy flood insurance is now. Contact your local insurance agent for more information or visit the National Flood Insurance Program at [FloodSmart.gov/wildfire](http://FloodSmart.gov/wildfire).

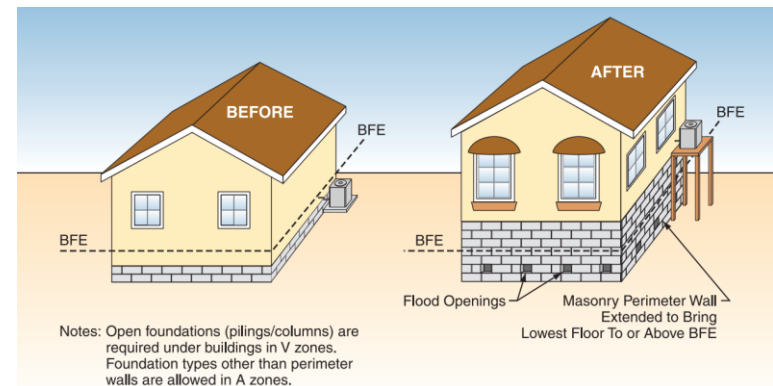


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# Intent of Substantial Damage Provision

## Reduce Risk to Existing Structures

- Break the cycle of disaster damage, reconstruction, and repeated damage.
- Reduce future costs associated with property damages
- Opportunity to build stronger, safer, and smarter communities that are better able to reduce impacts from future flooding and disasters.
- Communities that participate in the NFIP are **REQUIRED** to determine whether damages to structures within the Special Flood Hazard Area (SFHA) meet criteria for substantial damage.



# Substantial Damage

$$\frac{\text{Repair Cost}}{\text{Building Value}} > 50\%$$



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# Definition of Substantial Damage

Damage of **ANY ORIGIN** sustained by a structure whereby the cost of restoring the structure to its pre-damage condition would **EQUAL OR EXCEED 50%** of the market value of the structure before the damage occurred

$$\left(\frac{B}{A}\right) \times 100 \geq C$$

Any Origin:

Flood, Fire, Wind, Tornado, Earthquake, Termite/insect/Vehicular Damage

B= Cost of Repairs

A= Pre-Damage Market Value of Structure

C= Percent Damage



# Community SD Responsibilities

Administering Substantial Damage requires local officials to perform four major actions:

1. Determine costs
2. Determine market value
3. Make SD determination and notify residents
4. Require property owners to obtain permits to bring SD buildings into compliance with local floodplain management requirements

**BE CONSISTENT:** document decisions and retain all information in community's permit file



# Included Costs

- ▶ Contractor Estimate
- ▶ Owner Construction Estimate
- ▶ Line Item Damage Costs

Foundations

Monolithic or other types of concrete slabs

Bearing walls, tie beams, trusses

Joists, beams, sub-flooring, framing, ceiling

Interior non-bearing walls

Exterior finishes (brick, stucco, painting, trim,

Windows and exterior doors

Roof, gutters, downspouts

Hardware

Attached decks and porches

All utilities



Substantial Improvement/  
Substantial Damage  
Desk Reference

FEMA P-758 / May 2010

[FEMA P-758](#)



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# Excluded Costs

## **The following costs may be excluded from SD Determinations:**

- Clean up and trash removal
- Costs to temporarily stabilize a building to safely enter and evaluate
- Costs to obtain or prepare plans
- Land survey costs
- Permit and inspection fees
- Carpeting installed over finished flooring such as wood or tiling
- Outside improvements
- Costs required for the minimum necessary work to correct existing violations to health, safety, and sanitary codes
- Plug in appliances – washing machines, dryers, toasters, etc.

# Determining Market Value

Two important NFIP requirements as it pertains to market value:

- Market value must always be based on the condition of the structure **before the damage occurred**
- **Only the market value of the structure** is pertinent. The value of the land and site improvements (landscaping, driveway, detached accessory structures, etc.) and the value of the use and occupancy (business income) are not included

Three Options for Market Value

1. Professional Property Appraisal
2. Adjusted Tax Assessed Value
3. Actual Cash Value (ACV)



# 1. Professional Property Appraisals

Property appraisals that are prepared by a professional appraiser according to standard practices of the profession are the most accurate and reliable method for determining market value.

- Professional appraisers are qualified & licensed in the State or community in which the property is located

To Be Aware of:

- Appraisal must be recent (1 – 3 years)
- Pre-damage condition of the structure
- Strictly the building value
- Do not include the value of the land, land improvement (landscaping), and accessory structures, etc.

## 2. Adjusted Tax Assessed Value

3 limitations to Be Aware of:

- Appraisal Cycle: how often are the appraisals done and when was the date of the last appraisal?
- Land values: land values and the value of improvements (structures) are typically assessed separately. If not, a determination of the value of land must be made and subtracted from the total assessed value
- Assessment level: States and local taxing authorities vary in assessment levels (an established statutory ratio between the assessor's estimate of value and the true fair market value).

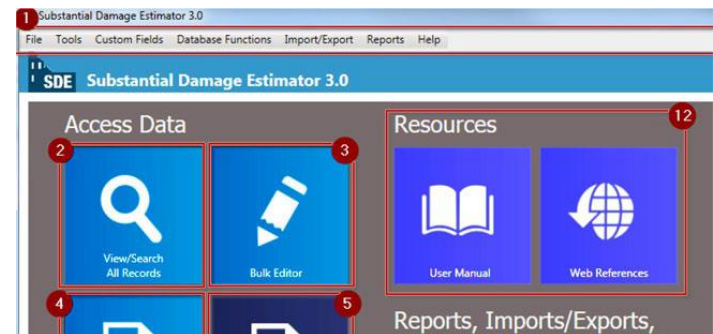
Local officials who elect to use assessed values for making SI/SD determinations should consult the authority that prepares the assessment values to understand the limitations on use of the data.

### 3. Actual Cash Value

Actual cash value (ACV) is the cost to replace a building on the same parcel with a new building of like-kind and quality, minus depreciation due to age, use, and neglect.

Depreciation accounts for the physical condition of the structure. Depreciation does not take into account functional obsolescence (e.g., outmoded design or construction that pre-dates current codes) or factors that are external to the structure (e.g. reputation of schools or distance to shopping and parks).

SDE tool 3.0 provides a Computed ACV which is a summation of the base cost and all cost adjustments and depreciation percentage.



# The Community Role Overall for Floodplain Management

- Designate an administering agency
- Regulate proposed development in the SFHA
- Require compliance with floodplain codes and ordinances
- Issue or deny floodplain development permits
- Inspect development in the SFHA
- Maintain records
- Assist to prepare and revise floodmaps
- Provide assistance to constituents
- Substantial Damage/Substantial Improvement (Plan/Policy)



## The FPM's Role (continued)

\*Does not matter what kind of disaster  
flood, fire, earthquake. You must do SD  
in SFHA!



## Where to Find Regulations

- Community Ordinance
- Based on:
  - 44 CFR
  - State standards
  - IBC, IRC, ASCE 24,7



# I-Codes

- Building codes published by International Code Council, Inc.
- Include provisions related to Substantial Improvement and Substantial Damage.
- Pertinent codes are:
  - The International Building Code® (IBC®),
  - International Residential Code® (IRC®),
  - International Existing Building Code® (IEBC®).
- Terms used in I-Codes and floodplain management can differ.



# What does Utah Have:

Code Books <https://up.codes/codes/utah>

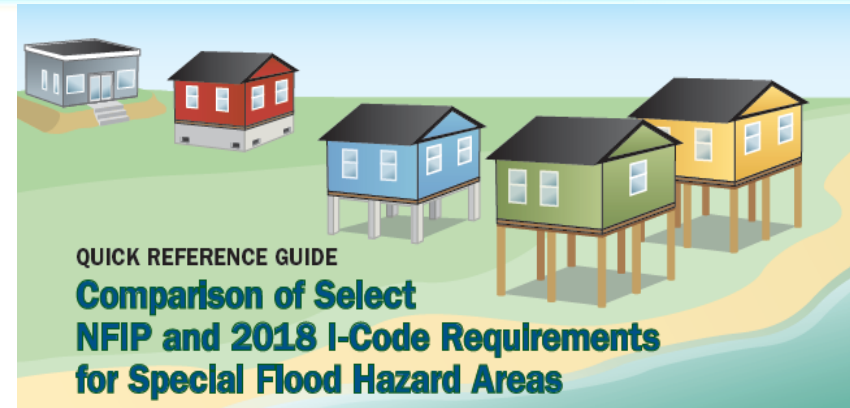
Building Code 2018 of Utah  
adopts the IBC 2018 with amendments

Residential Code 2015 of Utah  
adopts the IRC 2015 with amendments

Plumbing Code 2018 of Utah  
adopts the IPC 2018 with amendments

Mechanical Code 2018 of Utah  
adopts the IMC 2018 with amendments

Fuel Gas Code 2018 of Utah  
adopts the IFGC 2018 with amendments



Using this Quick Reference Guide	
Flood Zone Map	Page 2
NFIP and 2018 IRC (residential)	Page 3 (Zone A & CAZ) and Page 4 (Zone V)
NFIP and 2018 IBC and ASCE 24-14 (non-residential)	Page 5-6 (Zone A & CAZ) and Page 7-8 (Zone V)
Existing Buildings	Page 8



## DID YOU KNOW?

The NFIP refers to the Base Flood Elevation (BFE) for lowest floor elevation and other requirements, while the I-Codes and ASCE 24 refer to the BFE or Design Flood Elevation (DFE). The DFE is always the BFE or higher.

Additional height above the BFE is known as "freeboard."

The IBC/ASCE 24 limits construction in high risk flood hazard areas, including alluvial fan, flash flood, mudslide, erosion-prone, high velocity flow, ice jam, and debris areas.

Communities that participate in the National Flood Insurance Program (NFIP) adopt and enforce floodplain management regulations and codes that govern development in Special Flood Hazard Areas.

The International Residential Code® (IRC) and International Building Code® (IBC), by reference to ASCE 24, *Flood Resistant Design and Construction*, a design standard developed by the American Society of Civil Engineers (ASCE), include requirements that govern the design and construction of buildings and structures in flood hazard areas.

FEMA has determined that the flood provisions in the 2018 edition of the International Codes® (I-Codes) meet or exceed the minimum NFIP requirements (44 CFR §60.3). In some respects, the IRC and IBC/ASCE 24 expand on NFIP requirements with more specificity, additional requirements, and some limitations not found in NFIP regulations.

This Quick Reference Guide illustrates some of the key similarities and differences between the requirements of the NFIP and the requirements in the 2018 I-Codes and ASCE 24-14 for dwellings and buildings assigned Flood Design Class 2 in the IBC/ASCE 24. The similarities and differences shown in this guide are in foundation types, lowest floor elevations, enclosures below elevated buildings, and attendant utilities and equipment.



# Utah's NFIP Substantial Damage Plan & how it helps

- ▶ **How can it help your community?**
- ▶ **What's included in it?**
- ▶ **Download from the webinar now!**
- ▶ **Make Your Communities Substantial Damage Plan/Policy!**
- ▶ **Make sure you are complaint with your ordinance, FEMA/Federal Code, IBC CODE, IRC Code, ASCE 24, ASCE 7.**

# Other SD items

- **Phased Work**
- **Higher Standards – cumulative and lower threshold than 50%**
- **Historic Structures**
- **Substantial Damage Estimator Software**
- **Section 1206 DRRA (Presidentially declared disaster Help with SD and I-CODES)**
- **40%-60%**
- **ICC**
- **Keep good records!**

# SD Resources

## FEMA SDE Video Modules

[https://www.youtube.com/playlist?list=PL720Kw\\_OoJlKaUGLcplGiC2Gw9-lutGHt](https://www.youtube.com/playlist?list=PL720Kw_OoJlKaUGLcplGiC2Gw9-lutGHt)

## SI/SD Desk Reference:

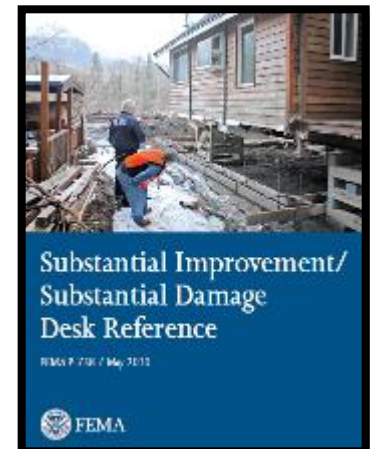
[https://www.fema.gov/media-library-data/20130726-1734-25045-2915/p\\_758\\_complete\\_r3.pdf](https://www.fema.gov/media-library-data/20130726-1734-25045-2915/p_758_complete_r3.pdf)

## Answers to Questions About Substantially Damaged and Substantially Improved Structures

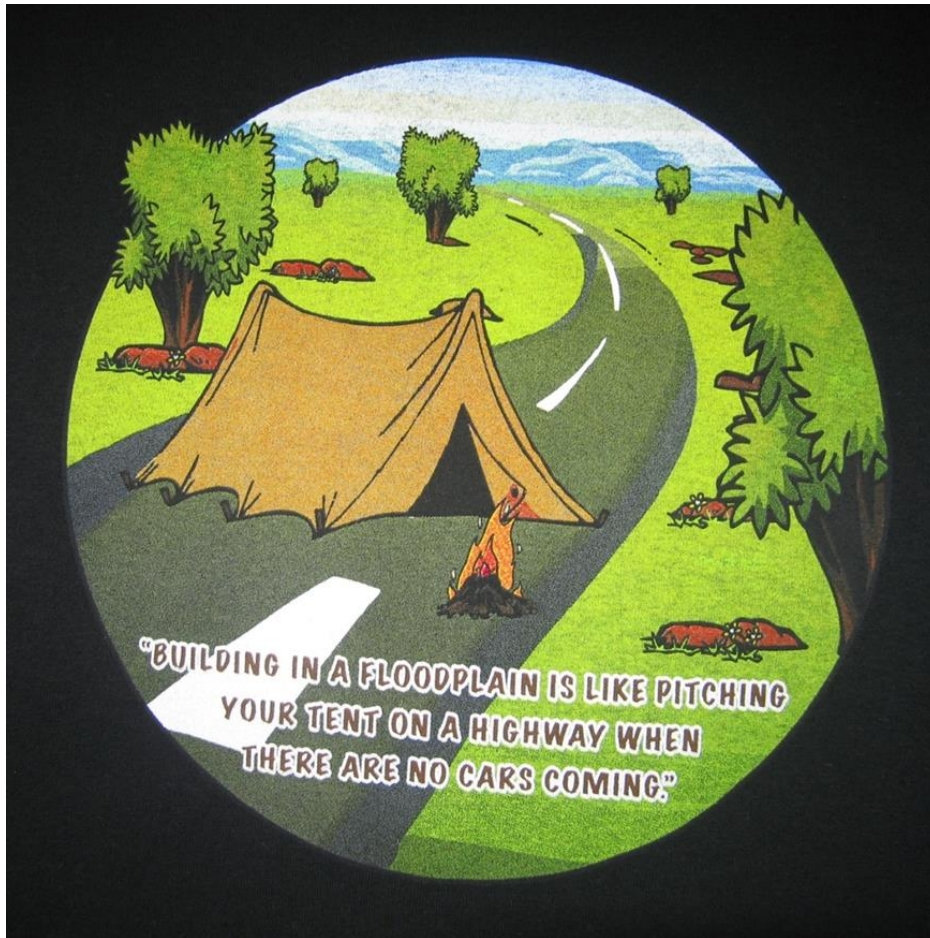
[https://www.fema.gov/media-library-data/1541603833704-2b9800c9c287c373db595cb2789ea78a/FEMA\\_P213\\_FINAL\\_08232018\\_508.pdf](https://www.fema.gov/media-library-data/1541603833704-2b9800c9c287c373db595cb2789ea78a/FEMA_P213_FINAL_08232018_508.pdf)

## SDE Software, Workbooks and Forms

<https://www.fema.gov/emergency-managers/risk-management/building-science/substantial-damage-estimator-tool>



# Questions



“Building in a floodplain is like pitching your tent on a highway when there are no cars coming.”

Dr. Vicki Miller, University of Montana



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# Contact Information

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