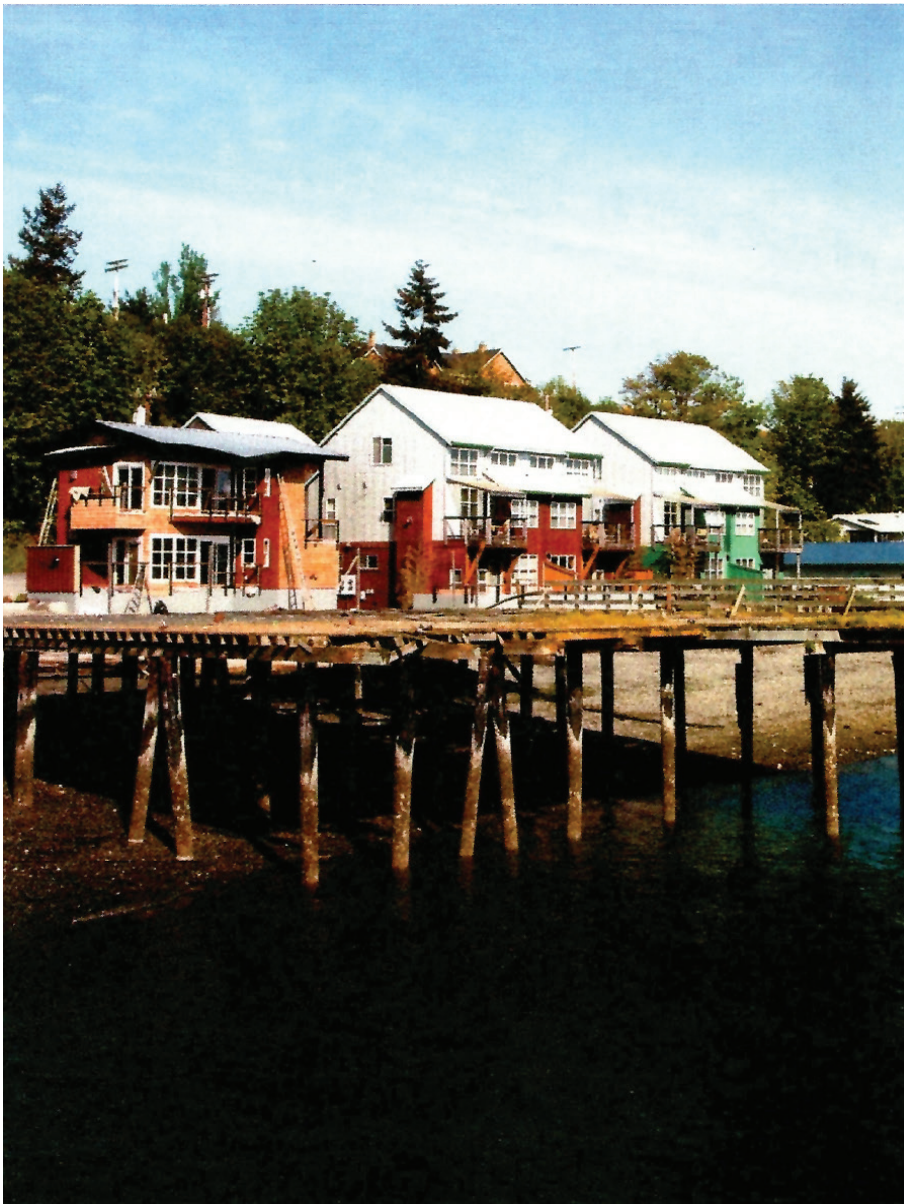


# The Appraisal Journal

FALL 2017  
Volume LXXXV, Number 4

 **Appraisal  
Institute®**  
*Professionals Providing  
Real Estate Solutions®*



## ◀ The 50% FEMA Rule Appraisal

by Patricia Staebler, SRA

**PAGE 261**

## Benford's Law in Appraisal

by Mark Pomykacz, MAI, AI-GRS,  
Chris Olmsted, and Katherine Tantanin

**PAGE 274**

## The Impact of Water Clarity on Home Value in Northern Wisconsin

by Thomas Kemp, PhD, Irene Ng,  
and Haikal Mohammad

**PAGE 285**

## Market Equilibrium Analysis

by Richard L. Parli, MAI, and  
Norman G. Miller, PhD

**PAGE 307**

## Winning Article: “The 50% FEMA Rule Appraisal”



**Patricia Staebler, SRA**

**Patricia Staebler, SRA**, is the winner of the 2017 Swango Award for her article, “The 50% FEMA Rule Appraisal,” published in the Fall 2017 issue of *The Appraisal Journal*.

*The Appraisal Journal*’s Editorial Board presents the Swango Award to the best article published during the previous year on residential, general, or technology-related topics, or for original research of benefit to real estate analysts and valuers. The article must be written by an appraisal practitioner. Articles are judged based on practicality and usefulness in addressing issues faced by appraisers in their day-to-day practice; logical analysis, perceptive reasoning, and clarity of presentation; and soundness of methodology used, especially in an area of original research.

In “The 50% FEMA Rule Appraisal,” Staebler discusses the unique aspects of appraisals of properties along coastlines and in flood zones, as regulated by the Federal Emergency Management Agency (FEMA). These 50% FEMA Rule appraisals provide building owners an understanding of how much money they are permitted to spend to improve or repair grandfathered structures without triggering compliance issues with the latest FEMA standards. The article outlines the components that should and should not be incorporated in the appraisal, as well as common errors in FEMA appraisals.

Patricia Staebler, SRA, concentrates her practice on the valuation of construction, including insurance replacement valuation, reserve studies, cost segregation analysis, and the 50% FEMA Rule appraisal. Her work in her family’s engineering office as a cost estimator, together with experience as an insurance claims adjuster and commercial appraiser, gives her a unique background as an expert in these fields. Staebler authors and teaches state-approved CEU classes in Florida for licensed community association managers and local chapters of the Appraisal Institute. She is the developer and presenter of the Appraisal Institute’s webinars, *50% FEMA Appraisal Rule* and *Insurance Replacement Valuation*. She has published articles in *Community*, the official journal of the Community Association Institute, West Florida Chapter; *Working RE*; *The Appraisal Journal*; and *The SunState Post*. Staebler currently serves on the Board of Directors for the Florida Gulf Coast Chapter of the Appraisal Institute and is chair of the chapter’s Bylaws Committee.

To read the award-winning article, go to <http://bit.ly/TAJarticles>.

# The 50% FEMA Rule Appraisal

by Patricia Staebler, SRA

## Abstract

Appraisers may have valuation assignments related to properties along coastlines and in flood zones. These assignments come with many special considerations. Appraisers conducting “50% FEMA Rule” appraisals of properties in flood-prone areas must be well acquainted with numerous and varying rules and regulations set forth by the Federal Emergency Management Agency (FEMA). Appraisers need an understanding of construction techniques and materials as well as the appropriate valuation methods and the components that should and should not be incorporated in the appraisal. This article discusses the unique aspects of a 50% FEMA Rule appraisal related to a determination of whether substantial improvements or damages equal or exceed 50% of a structure’s value.

## Introduction

Along US coastlines and in federally designated flood zones, there are numerous structures constructed directly on the ground, before elevation of structures in these areas was required. Such structures vary in age, condition, elevation, and construction quality. The Federal Emergency Management Agency (FEMA) regulations provide that for these structures if the cost of improvements or the cost to repair equals or exceeds 50% of the depreciated value of the structure, the property must be brought up to current floodplain management standards. This provision is referred to as “the 50% FEMA Rule.” This rule gives property owners an understanding of how much money they are allowed to spend to improve or repair a property without elevating or otherwise bringing the structure into compliance with current FEMA standards. Therefore, an owner wishing to make improvements or repairs to a structure that does not comply with FEMA requirements must ascertain the value of the building.

A FEMA-related appraisal is not a simple undertaking. It requires extensive knowledge, not only of FEMA and the regulations it sets forth, but also of construction methods and materials, and local construction markets. This article will discuss the 50% FEMA Rule appraisal and associated FEMA regulations in general. It also explores different valuation methods and their appropriateness, establishes the required contents of a 50% FEMA Rule appraisal, and gives insight into professional issues that may arise in completing these assignments.

## Literature and Terminology

FEMA publishes extensive literature, not only about flood zones, mapping, and insurance but also about construction and design in coastal areas and floodplains. In addition to published materials, FEMA has an online presence, which provides vast amounts of information. The most important resource for a 50% FEMA Rule appraisal is FEMA’s *Substantial Improvement/Substantial Damage Desk Reference*.<sup>1</sup> Other helpful FEMA resources include the following:

1. FEMA, *Substantial Improvement/Substantial Damage Desk Reference* (FEMA P-758, May 2010), <http://bit.ly/FEMASubstantial>.

- *Local Officials Guide for Coastal Construction*<sup>2</sup>
- *Recommended Residential Construction for Coastal Areas*<sup>3</sup>
- *Coastal Construction Manual*<sup>4</sup>
- “Region II Coastal Analysis and Mapping”<sup>5</sup>
- *Home Builder’s Guide to Coastal Construction*<sup>6</sup>

In regard to construction knowledge, an excellent source for further learning is *The Journal of Light Construction*, published by Hanley Wood, which includes useful information on construction.<sup>7</sup>

There is specialized terminology related to FEMA and flood zones. The below provides an overview of some terms and concepts appraisers may encounter as part of a 50% FEMA Rule appraisal.<sup>8</sup>

- **Actual Cash Value (ACV).** “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.”<sup>9</sup>
- **Base Flood Elevation (BFE).** “The elevation of surface water resulting from a flood that has a 1% chance of equaling or exceeding that level in any given year. The BFE is shown on the Flood Insurance Rate Map (FIRM) for zones AE, AH, A1–A30, AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO, V1–V30 and VE.”<sup>10</sup>
- **Community Rating System (CRS).** “A program developed by FEMA to provide incentives for those communities in the Regular

Program that have gone beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding.”<sup>11</sup>

- **Elevation Certificate.** “A community’s permit file must have an official record that shows new buildings and substantial improvements in all identified Special Flood Hazard Areas (SFHAs) are properly elevated. This elevation information is needed to show compliance with the floodplain management ordinance. FEMA encourages communities to use the Elevation Certificate developed by FEMA to fulfill this requirement since it also can be used by the property owner to obtain flood insurance. Communities participating in the Community Rating System (CRS) are required to use the FEMA Elevation Certificate.”<sup>12</sup>
- **Flood Insurance Rate Map (FIRM).** “Official map of a community on which FEMA has delineated the Special Flood Hazard Areas (SFHAs), the Base Flood Elevations (BFEs) and the risk premium zones applicable to the community.”<sup>13</sup>
- **Floodplain.** “Any land area susceptible to being inundated by floodwaters from any source.”<sup>14</sup>
- **Floodplain Management.** “The operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to, emergency preparedness plans, flood-control works and floodplain management regulations.”<sup>15</sup>

2. FEMA, *Local Officials Guide for Coastal Construction* (FEMA P-762, February 2009), <http://bit.ly/LocalOfficials>.

3. FEMA, *Recommended Residential Construction for Coastal Areas* (FEMA P-550, 2nd ed., December 2009), <http://bit.ly/ResidentialConstruction>.

4. FEMA, *Coastal Construction Manual* (FEMA P-55, 4th ed., vol. 1, August 2011), <http://bit.ly/CoastalConstruction>.

5. FEMA, “Region II Coastal Analysis and Mapping,” April 6, 2015, <http://bit.ly/CoastalMapping>.

6. FEMA, *Home Builder’s Guide to Coastal Construction* (FEMA P-499, December 2010), <http://bit.ly/BuilderGuide>.

7. *The Journal of Light Construction*, <https://www.jlconline.com/>.

8. With all government programs and regulations, the definitions are key. Readers are encouraged to consult FEMA’s resources for additional information.

9. FEMA, *Substantial Improvement/Substantial Damage Desk Reference*, 4.5.3.

10. FEMA, “Definitions,” National Flood Insurance Program, <http://bit.ly/FEMAdefinitions>.

11. FEMA, “Definitions.”

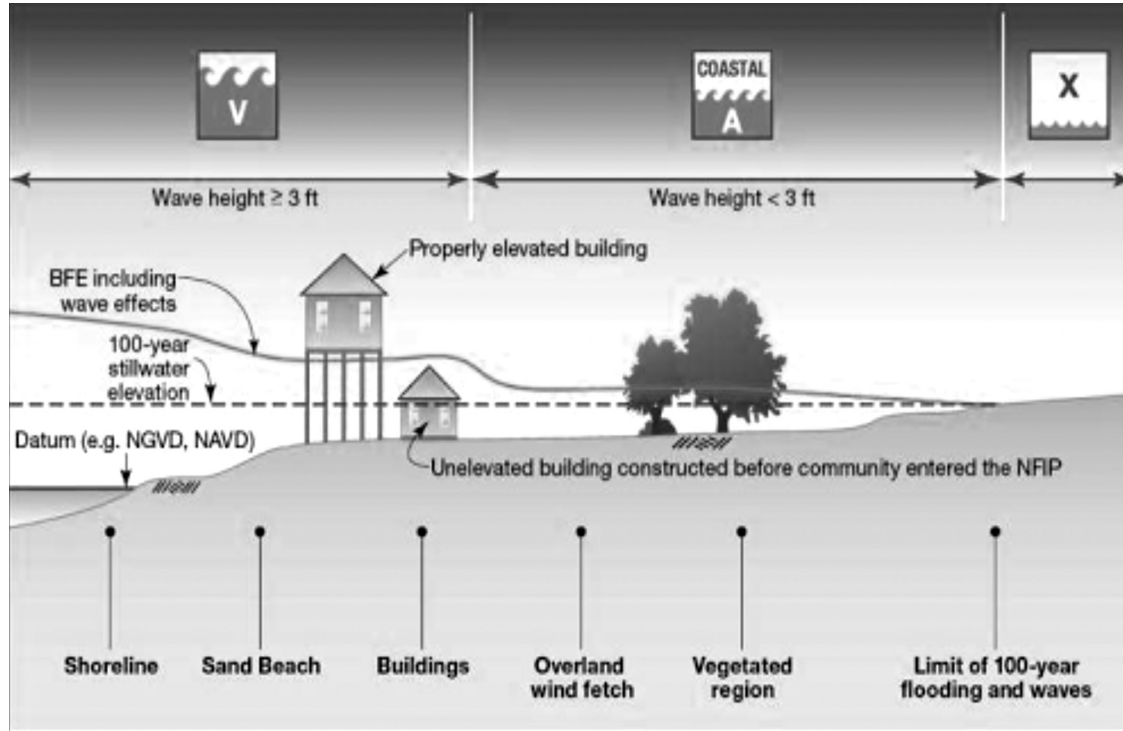
12. FEMA, “Elevation Certificate,” <https://www.fema.gov/elevation-certificate>.

13. FEMA, “Definitions.”

14. FEMA, “Definitions.”

15. FEMA, “Definitions.”



**Exhibit 1** Coastal V and A Zones Effects of Waves

Source: FEMA, "Region II Coastal Analysis and Mapping," <http://bit.ly/CoastalMapping>.

- **National Flood Insurance Program (NFIP).** "The program of flood insurance coverage and floodplain management administered under the Act and applicable federal regulations promulgated in Title 44 of the Code of Federal Regulations, Subchapter B."<sup>16</sup>
- **Replacement Cost Value (RCV).** "The cost to replace property with the same kind of material and construction without consideration of depreciation."<sup>17</sup>
- **Special Flood Hazard Area (SFHA).** "The area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood."<sup>18</sup>

There are different flood zones in which a 50% FEMA Rule appraisal is needed; these include Zones A, AE, A1-30, AH, AO, V, VE, and V1-30. The zones are related to base flood elevations and different construction requirements may apply. In general, the V flood zones differ from the A zones in that V zones have added high-velocity wind risk and wave load.<sup>19</sup> Together with the base flood elevation, the flood insurance rate map regulates how a structure can be built or rebuilt in these zones. The base flood elevations are the regulatory requirements for elevation or flood-proofing of structures, and these are shown on flood insurance rate maps and on the flood profiles. Exhibit 1 illustrates the base flood elevation and different levels of flood zones.

16. FEMA, "Definitions."

17. FEMA, "Definitions."

18. FEMA, "Flood Zones—Definition/Description," <https://www.fema.gov/flood-zones>.

19. FEMA, "Flood Zones—Definition/Description."

## FEMA and the National Flood Insurance Program

Most people are familiar with the work that FEMA is known for, namely serving the public during and after disasters with response, recovery, and financial aid. In addition to this, FEMA is also the official source for flood hazard information in support of the National Flood Insurance Program (NFIP), which it administers.<sup>20</sup> The NFIP includes floodplain management regulations that establish the minimum requirements communities must meet for new and existing structures in flood hazard areas.

When buildings undergo repair or improvement, it is an opportunity for local floodplain management programs to reduce future flood damage to existing structures. More than 21,000 communities participate in the NFIP. To participate in the NFIP, communities must adopt and enforce regulations and codes that apply to new development in the Special Flood Hazard Areas (SFHAs). Local floodplain management regulations and codes contain minimum NFIP requirements that apply not only to new structures, but also to existing structures that are “substantially improved” (SI) or “substantially damaged” (SD). Enforcing the SI/SD requirements is a very important part of a community’s floodplain management responsibility. There are many factors and scenarios that local officials will consider while implementing the SI/SD requirements.<sup>21</sup> FEMA’s *Substantial Improvement/Substantial Damage Desk Reference* provides municipalities with guidance on the minimum requirements of the NFIP regulations. Local flood ordinances that are more restrictive supersede these guidelines.<sup>22</sup>

Most communities participate in FEMA’s community rating system (CRS),<sup>23</sup> a voluntary incentive program that recognizes and encourages community floodplain management that complies with or exceeds NFIP requirements. In participating communities, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community’s actions. The goals of the CRS are to (1) reduce flood

damage to insurable property, (2) strengthen and support the insurance aspects of the NFIP, and (3) encourage a comprehensive approach to floodplain management.

Municipalities have ample motivation to utilize the 50% FEMA Rule as basis for compliance with FEMA regulations. Communities that do not comply are likely to have comparatively higher insurance risk rating. Sarasota, Florida, is one example of a community that benefited from participation in the CRS program; in Sarasota, residents earned a 20% discount on flood insurance premiums in 2016 (total savings \$1.6 million) through community participation in the CRS program.<sup>24</sup>

Keep in mind that in addition to FEMA regulations, local governments may have their own, unique flood ordinances. The rules implemented by cities or counties can be more stringent than FEMA requirements, or in some cases, less stringent. Also, the actual application of FEMA requirements may vary by community. For example, municipalities may interpret FEMA guidelines differently regarding improvements—some allow property rehabilitation/remodeling up to 50% only once, some allow 50% every ten years, some allow 50% every ten years with the oldest year dropping out of the equation, and so forth. In the end, this is not in the appraiser’s scope of work and not required knowledge to prepare a 50% FEMA Rule appraisal, but an appraiser should at least be aware that there is some variation in 50% FEMA Rule interpretation.

## FEMA Valuations

The 50% FEMA Rule appraisal is a tool that is frequently used in coastal areas, but these valuations also may be needed for properties located in flood zones and subject to floodplain management. A 50% FEMA Rule appraisal gives the property owner an understanding of how much money can be spent to improve a structure without triggering FEMA compliance. If the 50% level is reached or exceeded, the property owner faces significant additional costs related to ensur-

20. FEMA, “The National Flood Insurance Program,” <http://bit.ly/FEMAProgram>.

21. FEMA, *Substantial Improvement/Substantial Damage Desk Reference*.

22. For example, a community may voluntarily increase the base flood elevation found in flood maps.

23. FEMA, “National Flood Insurance Program Community Rating System,” <http://bit.ly/NFIPrating>.

24. City of Sarasota, Twitter, September 19, 2016, 6:51 p.m., <http://bit.ly/SarasotaTwitter>.

ing compliance, including elevating the structure to meet FEMA standards. Communities must require that all new construction and substantial improvements of residential and commercial structures within Zones A1-30, AE, and AH have the lowest floor (including basement) elevated to or above the base flood elevation. Common elevation techniques include elevation of buildings on piles, piers, or columns. All new construction and substantial improvements in Zones V1-30, VE, and also Zone V (if base flood elevation data is available), must be elevated exclusively on pilings and columns, so that the bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood elevation.

Appraisers usually do not deal with new construction in regard to flood management. However, an existing property built before FEMA standards were established requires a 50% FEMA Rule appraisal for remodeling, rehabilitation, additions, repair, or partial reconstruction. Residential, commercial, and industrial properties all must comply with FEMA rules and regulations and an appraiser can be faced with all kinds of different property types in a 50% FEMA Rule appraisal. As previously noted, the 50% FEMA Rule states that if the cost of improvements or repair equals or exceeds 50% of the depreciated value of the structure, the property must be brought up to current floodplain management standards.<sup>25</sup> This can be represented as the following equation:

$$\frac{\text{Cost of repair/renovation/addition}}{\text{Depreciated market value of building}} \geq 50\%$$

Affected projects can be those voluntarily undertaken or ones that are necessary after a catastrophe (e.g., wind, flood, fire, etc.): FEMA's *Substantial Improvement/Substantial Damage Desk Reference* indicates there are four ways to estimate the depreciated market value of a building for the purpose of a 50% FEMA Rule appraisal:

1. Professional Property Appraisal
2. Adjusted Assessed Value
3. Qualified Estimates
4. Actual Cash Value

### Professional Property Appraisal

The professional property appraisal described in FEMA's *Desk Reference* refers to the typical market valuation based on sales comparables.<sup>26</sup> Because the 50% Rule only deals with buildings, FEMA specifies that the valuation excludes land and site improvements, such as pools, detached structures, etc. There are some disadvantages when using professional property appraisal for valuation in a 50% FEMA Rule appraisal. First, in built-out coastal areas, it might be difficult to find appropriate land sales to establish land value for the subject property to deduct the land from the market value. Second, market value can vary significantly depending on the economy, and this can impact whether the 50% threshold is met or exceeded. During a recession, a property is likely to have a much lower market value, allowing for much less construction expense based on the 50% FEMA Rule than during the upper end of the economic cycle. Also, construction costs do not increase or decrease proportionally to the market value of real estate, which suggests that the typical market value technique is not the best method in a 50% FEMA Rule appraisal.

Exhibit 2 uses the assessed value of a property in Manatee County, Florida, to illustrate that market value and construction cost changes are not correlated and how this can affect the outcome of a 50% FEMA Rule appraisal. Although assessed value is not market value, it is used here as a proxy to show an economic pattern of value. One notable example in this spreadsheet is the comparison of value and cost changes for the years 2008–2010. While the value dropped 2.5% in 2008, construction costs increased by 17.6%. In 2009, the assessed value caught up with recessionary conditions in the market and dropped by 17.8%, while the construction cost index increased 12.0%. In 2010, the value continued to drop, whereas the construction cost index returned to approximately the 2008 level of increase. The graph in Exhibit 3 illustrates the disconnect between value and cost trends.

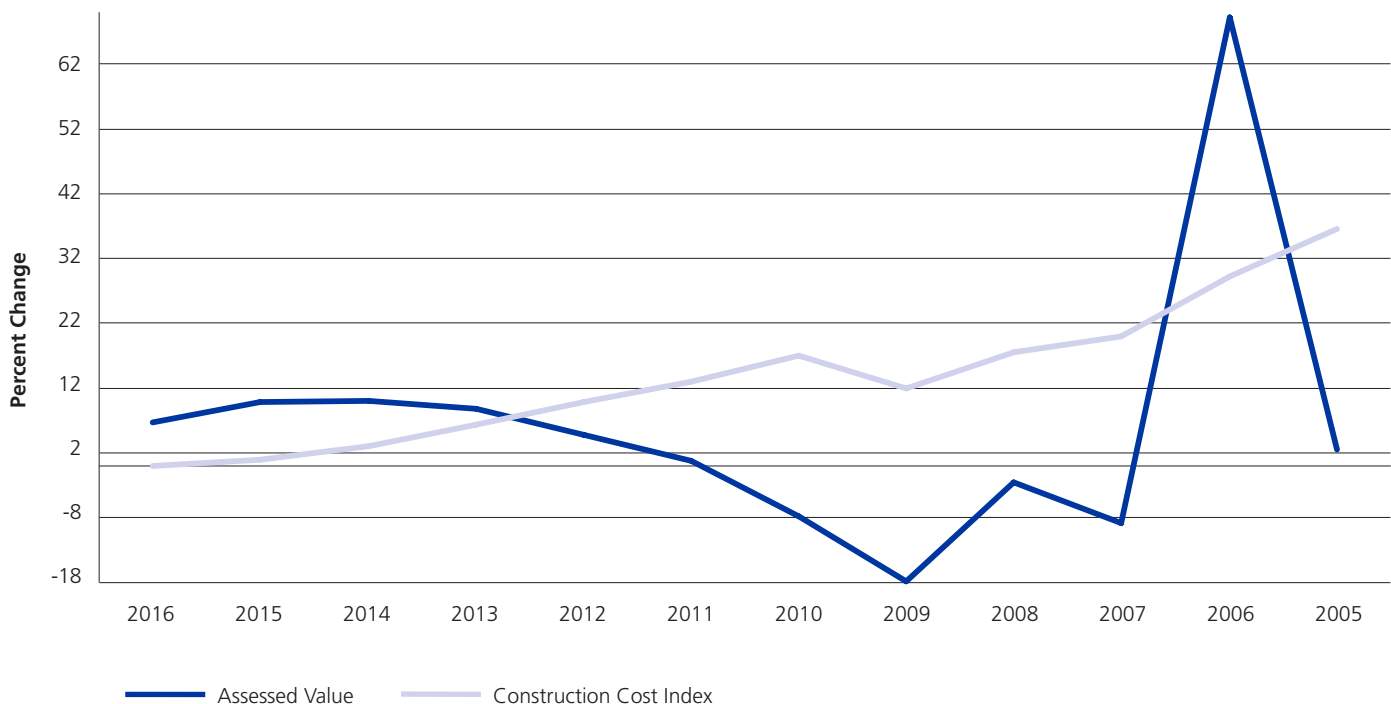
25. FEMA, "Making Substantial Improvement and Substantial Determinations," chapter 4 in *Substantial Improvement/Substantial Damage Desk Reference*.

26. FEMA, *Substantial Improvement/Substantial Damage Desk Reference*, 4.5.1.

**Exhibit 2** Annual Percent Change Assessed Value and Construction Cost Index

Year	Assessed Value (\$)	Assessed Value (% Change)	Marshall & Swift Construction Cost Index (% Change)
2004	260,000		
2005	266,461	2.49	36.50
2006	450,758	69.16	29.20
2007	410,900	-8.84	19.90
2008	400,592	-2.51	17.60
2009	329,269	-17.80	12.00
2010	303,445	-7.84	17.00
2011	305,764	0.76	13.00
2012	320,640	4.87	9.90
2013	348,765	8.77	6.40
2014	383,876	10.07	3.10
2015	421,998	9.93	0.90
2016	450,500	6.75	0.00

Sources: Assessed value data from [www.manateepao.com](http://www.manateepao.com). Construction Cost Index data from Marshall and Swift Cost Book.

**Exhibit 3** Comparison Percent Change Assessed Value and Construction Cost Index



The divergence between value and cost trends affects the dollar amount needed to reach the 50% threshold for a property. The Exhibit 4 spreadsheet shows the practical effect of fluctuating values and construction costs on the maximum dollar amount under the 50% FEMA Rule. The columns to the right side of the chart show the difference between FEMA allowance based on values and based on construction costs, expressed in dollars and percentages. Exhibit 5 depicts this information in graph form.

As the data shows, in 2004 and 2006–2008 the building owner in the example would have received a greater FEMA allowance based on the simulated market value; in all other years, there would have been 6% to 28% less in FEMA allowance. In many instances, a couple thousand dollars can make or break the decision to restore or repair an older building subject to the 50% FEMA Rule. Appraisers do not look to fix a value or appraisal report, but should consider whether the traditional market value approach is the proper methodology in this circumstance and whether construction cost-based information may be more appropriate and yield more credible results.

### Adjusted Assessed Value

The adjusted assessed value permitted under FEMA guidelines is based on the property assessor's value.<sup>27</sup> This type of valuation, however, has potential limitations.

As can be seen in the previous example, the assessed value can fluctuate—following market patterns—at rates different than the construction cost index. The assessed value can be much lower than the market value if the assessed value does not reflect a rising market. Also, there may be idiosyncrasies in local assessment techniques that make assessed value an unreliable basis for a 50% FEMA Rule appraisal.<sup>28</sup> In addition, not all jurisdictions provide separate land and improvement values in their assessments. This leaves the preparer of the valuation with the

problem of finding appropriate land comparables or data that may not be easily found. However, the assessed value is generally useful in a post-disaster scenario and as a tool to quickly filter those properties that could be eligible for the 50% FEMA Rule.

### Qualified Estimates

FEMA also permits qualified estimates as the basis of a 50% FEMA Rule valuation.<sup>29</sup> Qualified estimates can be developed by a “qualified official” of the building department. This may give rise to questions about the impartiality of such an estimate however. For example, municipalities may want to clear old properties to make way for new development and could use “qualified estimates” under the 50% FEMA Rule to discourage improvement of older buildings.

Qualified estimates may be based on “recent permit records, recent home sales, regional cost data, estimates of depreciation based on knowledge of the pre-damage condition of buildings, and adjustments for unique or distinctive features of individual buildings.”<sup>30</sup> This valuation technique is more likely to be used in a post-disaster period, when permits have to be processed quickly. In a typical day-to-day situation, building departments tend to avoid providing qualified estimates.

### Actual Cash Value

Actual cash value is the fourth method that can be used to determine value for the 50% FEMA Rule.<sup>31</sup> The benefits of this type of valuation method include the following:

- It estimates the cost of construction “as-built.”
- It allows for proper application of depreciation.
- It does not consider land value.
- It does not include any site improvements.
- It is easily understood by construction professionals, building contractors, and building officials alike.

27. FEMA, *Substantial Improvement/Substantial Damage Desk Reference*, 4.5.2.

28. For example, in Florida property assessors may adjust sale prices or market value by up to 15% without providing documented support. Florida Administrative Code, Rule 12D-8.002, <http://bit.ly/FLcode12D>.

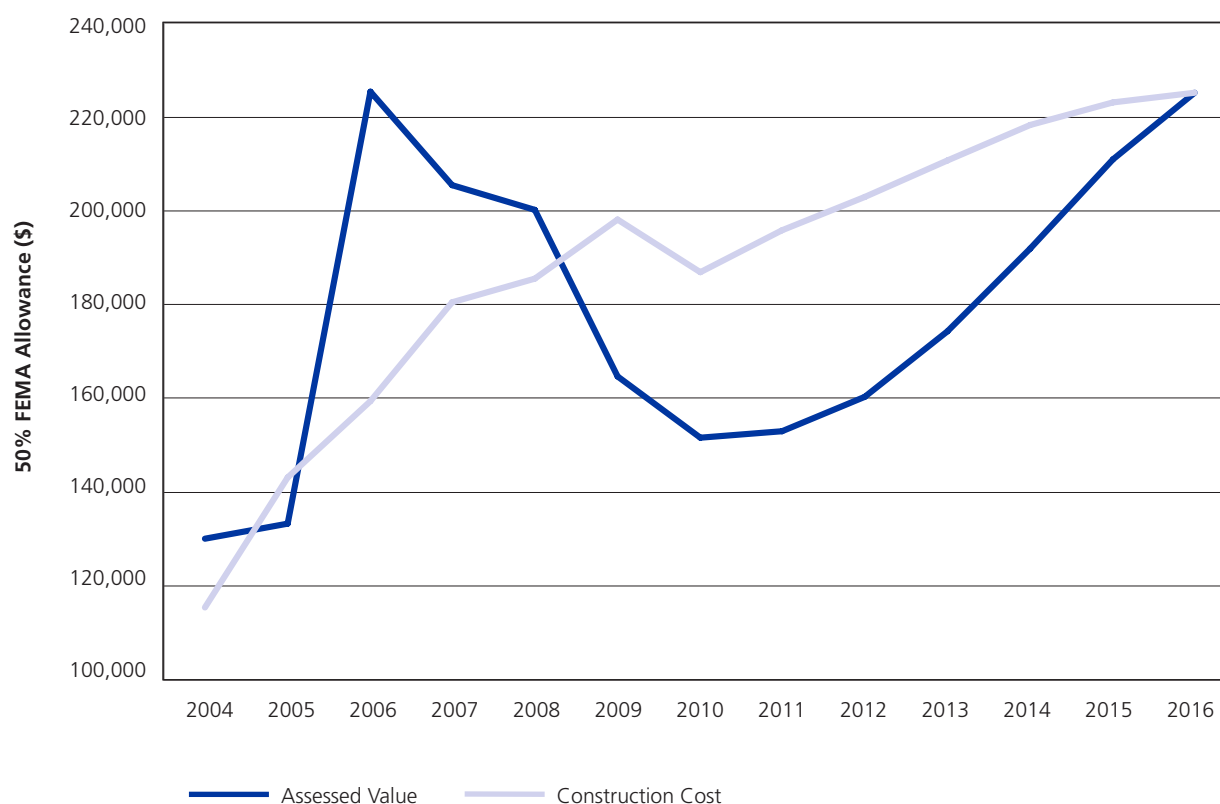
29. FEMA, *Substantial Improvement/Substantial Damage Desk Reference*, 4.5.4.

30. FEMA, *Substantial Improvement/Substantial Damage Desk Reference*, 4.5.4.

31. FEMA, *Substantial Improvement/Substantial Damage Desk Reference*, 4.5.3.

**Exhibit 4** Total FEMA Allowance Based on Assessed Value and Construction Cost

Year	50% FEMA Allowance Based on Assessed Value		50% FEMA Allowance Based on Construction Cost Index		Difference in FEMA Allowance Value and Cost	
	Assessed Value (\$)	50% (\$)	Value Construction Index (\$)	50% (\$)	Difference (\$)	In Percent (%)
2004	260,000	130,000	230,656	115,328	14,672	11.29
2005	266,461	133,231	286,068	143,034	-9,803	-7.36
2006	450,758	225,379	318,954	159,477	65,902	29.24
2007	410,900	205,450	360,851	180,425	25,025	12.18
2008	400,592	200,296	371,212	185,606	14,690	7.33
2009	329,269	164,635	396,440	198,220	-33,586	-20.40
2010	303,445	151,723	373,915	186,958	-35,235	-23.22
2011	305,764	152,882	391,935	195,968	-43,086	-28.18
2012	320,640	160,320	405,901	202,950	-42,630	-26.59
2013	348,765	174,383	421,668	210,834	-36,452	-20.90
2014	383,876	191,938	436,535	218,267	-26,329	-13.72
2015	421,998	210,999	446,446	223,223	-12,224	-5.79
2016	450,500	225,250	450,500	225,250		

**Exhibit 5** Comparison FEMA Allowance Based on Assessed Value and Construction Cost

As previously noted, FEMA defines *actual cash value* (ACV) as, “the cost to replace<sup>32</sup> a building on the same parcel with a new building of like-kind and quality, minus depreciation due to age, use, and neglect.” FEMA recognizes that “ACV is used in both the insurance industry and the construction industry,” and it states “in most situations, ACV is a reasonable approximation of market value.”<sup>33</sup>

Under the 50% FEMA Rule, depreciation takes into consideration the physical condition of a structure, but it does not take into account functional obsolescence (e.g., outmoded design or construction that pre-dates current codes) or external factors unrelated to the structure (e.g., reputation of schools or distance to shopping and parks). FEMA recognizes commercially available reference tables and formulas as objective and useful in calculating physical depreciation.

In cases where large-scale events have caused damage to buildings, replacement cost value may be used to estimate building value. Replacement cost is the cost to replace property with the same kind of material and construction without deduction for depreciation. Replacement cost value (RCV) minus depreciation results in ACV. To calculate the RCV, the following approaches, tools, and commercially available cost estimators may be used:

- An entire building calculation based on a software application, such as Marshall and Swift/Boeckh Building Valuation System for commercial properties
- An estimate of cost based on square-foot cost data for commercial and residential properties, available through data aggregators such as the Marshall and Swift Cost Estimator
- A segregated cost method using data aggregators, such as the Marshall and Swift Cost Estimator for commercial and residential properties
- A cost guide for high-value residences, such as the SwiftEstimator from Marshall and Swift, when the property is in the luxury range
- A 16-division or 50-division cost estimate

- An estimate with per-square-foot data or cost comparables obtained from contractors working in the market area

The use of at least two of the above techniques will provide a more accurate value estimate. National databases should be reconciled with local contractor information. The local information may include local contractor data or interviews. Incorporating local data increases the validity of the appraisal report with the local building department. Working with local contractors also helps develop a more precise picture of the market and is essential in developing an appraisal for the 50% FEMA Rule.

The 16- or 50-division cost estimate is only a viable choice if the appraiser is trained in cost estimation or hires a contractor to assist with the appraisal assignment. For example, when an appraiser is retained for valuation of a complex property, it is helpful to enlist a contractor to write a division estimate.

Regardless of which information and techniques are used, a 50% FEMA Rule appraisal is a specialized area of valuation and competency to perform the appraisal includes a solid understanding of construction.

### Common Errors

A 50% FEMA Rule appraisal must take into consideration the precise requirements and definitions of the program. Considerable care and knowledge are needed to navigate the specifications of a 50% FEMA Rule appraisal. Below are some examples of common errors in valuation methodology in FEMA appraisals:

- Use of market value minus depreciation and minus the site value
- Use of market value minus the site value, forgetting the depreciation
- Adding two or more buildings together for a lump sum approach
- Using a general form report
- Using a Fannie Mae form report
- Defining the scope of work as for market value and financing

32. Here, cost to replace has the same meaning as replacement cost.

33. FEMA, *Substantial Improvement/Substantial Damage Desk Reference*, 4.5.3.

- Valuing the wrong construction method (masonry versus frame)
- Including site improvements, such as pools, landscaping, lighting, etc.
- Using the cost approach used in market valuation
- Including or excluding property elements other than as specified in FEMA guidelines

Appraisers specializing in FEMA appraisals should not hesitate to hire a contractor to learn more about construction. It is helpful to take a contractor (or subcontractors) on inspections and to learn construction terminology by talking shop on site visits. Roofers, electricians, HVAC crews, and painters all can provide worthwhile information.

### Recommended Contents of a 50% FEMA Rule Appraisal

Appraisers may have 50% FEMA Rule assignments for different property groups, ranging from simple residential to complex industrial properties. It is helpful to develop a report template that incorporates language that is easily understood by all types of users. The appraiser can tailor the report template to the situations and resources as needed. Below is a summary of the most important components to include in a FEMA appraisal template:

#### Report Narrative Elements

- Certification
- General and limiting conditions
- Purpose and function
- Client and user
- Extraordinary assumptions and hypothetical conditions
- Aerial photos and maps
- Flood maps with description of the flood zone, base flood elevation, and panel number
- Photo section with exterior and interior shots
- Scope of work description
- Sketch of the building or excerpts from the construction plans
- Calculation of the dimensions
- Detailed improvement description

#### Valuation Elements

- Improvement valuation using commercially available data
  - Marshall and Swift/Boeckh (CoreLogic)
  - Marshall and Swift Cost Estimator
  - 16- or 50-Division Estimate
  - Reconciliation, if more than one approach was used
- Estimate of economic life
  - Data from third-parties, such as Marshall and Swift tables
  - Age survey of comparable property in the market area
  - Economic life with market extraction
- Estimate of effective age
  - Appraiser's judgment and experience
- Calculation of percentage depreciation
  - Depreciation tables from third-parties, such as Marshall and Swift
  - Age/life comparison
  - Depreciation by breakdown method (this may not be necessary)
- Final Value

The final value of the appraisal report should be 100% of the depreciated value of the structure. The local building department will perform the 50% calculation for purposes of the 50% FEMA Rule. Remember, the scope of work is the depreciated value.

#### Costs to Include in Actual Cash Value Calculation

Recall that FEMA's definition of 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."<sup>34</sup> It is important to consider the distinction between replacement cost value and reproduction cost value. There are two perspectives on cost value. Following FEMA interpretations, municipalities generally want to see replacement cost value, whereas owners and contractors generally benefit from the reproduction cost value because it could potentially be a higher value than replacement cost. Language in FEMA literature does not ref-

34. Emphasis added. FEMA, *Substantial Improvement/Substantial Damage Desk Reference*.

erence reproduction cost, while “replacement with like-kind material” is used throughout. However, there is also no language in FEMA publications that prohibits use of reproduction value. Keep in mind that every municipality has its own flood ordinances, which may be more stringent or less stringent than standard FEMA regulations. Appraisers, therefore, need to use their best judgment in valuing construction techniques that are not commonly used anymore. Choosing reproduction cost over replacement cost value might raise red flags in an appraisal report, depending on the municipality in which the subject is located. Below is a summary of the construction-related elements to include and exclude in a 50% FEMA appraisal.<sup>35</sup>

### Elements to Include

#### *All structural elements*

- Foundation
- Slabs
- Bearing walls, tie beams, and trusses
- Floors and ceilings
- Attached decks and porches
- Interior partition walls
- Exterior wall finishes (brick, stucco, siding), including painting and moldings
- Windows and doors
- Hardware

#### *All interior finishing elements*

- Floor finishes
- Bathroom cabinets and fixtures
- Wall and ceiling finishes
- Kitchen cabinets and fixtures
- Built-in bookcases, cabinets, and furniture
- Hardware

#### *All utility and service equipment*

- HVAC equipment
- Plumbing and electrical services
- Light fixtures and ceiling fans
- Security systems
- Built-in kitchen appliances
- Central vacuum systems
- Water filtration, conditioning, or recirculation systems

#### *Miscellaneous*

- Overhead and profit

### Elements to Exclude

- Plans and specifications
- Survey costs
- Permit fees
- Post-storm debris removal and clean up
- Landscaping
- Sidewalks
- Fences
- Yard lights
- Swimming pools
- Screened pool enclosures
- Detached structures (including garages, sheds and gazebos)
- Landscape irrigation and lighting systems

When following these guidelines, the 50% FEMA Rule appraisal will comply with FEMA requirements. Additionally, be sure to comply with USPAP and Appraisal Institute guidelines to make every 50% FEMA Rule appraisal report—regardless of the size and value of a property—of the highest quality. As the discussion has shown, a 50% FEMA Rule assignment requires special expertise. Appraisers should only accept this type of assignment if they have a solid knowledge base. Appraisers should reconsider the acceptance of appraisal work that involves extensive construction knowledge if it is not in their purview. Valuation work in the construction realm can be fun and very rewarding, particularly if you are a “sticks and bricks” person. However, if your knowledge base is inadequate, there may be considerable consequences for both you and your clients.

### Liability

A 50% FEMA Rule appraisal can create liability exposure. Assume that a 50% FEMA Rule appraisal results in a value that forces the property owner to cancel the repair/renovation/remodeling project, raze the building to make room for a FEMA compliant structure, or sell the property due to lack of funds for new construction. If the appraiser who prepared the report utilized improper valuation techniques or failed to demonstrate an accurate understanding of construction features, they may have exposed themselves to liability and potential litigation.

Another scenario that may expose an appraiser conducting a 50% FEMA Rule appraisal to

35. The list of what should and should not be included is based on FEMA's *Substantial Improvement/Substantial Damage Desk Reference*.



potential liability occurs during the due diligence period of the purchase of coastal investment properties. Some real estate agents are informed enough to educate prospective buyers about the 50% FEMA Rule, encouraging their clients to order a 50% FEMA Rule appraisal as part of the due diligence efforts. Based on the outcome of the 50% FEMA Rule appraisal, the prospective buyer will make a purchase decision. Sometimes these transactions involve financing considerations, which will be based on the ability to improve the property. In these cases, the 50% FEMA Rule appraisal will make or break the deal, and the liability is certainly high. Assume, for instance, that a potential investor decides to complete a transaction based on a 50% FEMA Rule appraisal with a valuation amount that would permit the construction of an additional story. If the investor later is unable to acquire the necessary building permits because the valuation was not accepted by the local building department, the investor might look to the appraiser who prepared the report for legal recourse.

## Conclusion

The 50% FEMA Rule is one of many ways in which FEMA regulates improvements and reconstruction of properties in coastal areas and flood zones. A crucial aspect of complying with the 50% FEMA Rule is determining the depreciated value of a structure, which is where the appraisal comes in. As has been established, this

is an endeavor that requires specialized knowledge as well as an understanding of appropriate methods and approaches.

Actual cash value is the preeminent valuation methodology for the 50% FEMA Rule appraisal, as opposed to market value, assessed value, or qualified estimates, because it takes only the subject structure into account, without land value and site improvements. This allows for an estimate of the cost of construction as-built and proper application of depreciation that is unaffected by market fluctuations. In addition to knowing which valuation methodology is best to use as a standard, it is also important to allow for the fact that a case-by-case argument can be made for the applicability of assessed value and qualified estimates, most typically in post-disaster situations that affect multiple properties.

It is critical for the appraiser to know and understand the specific requirements of the 50% FEMA Rule, construction issues, and the local construction market. The appraiser also should understand the potential liabilities that arise with the various aspects of the 50% FEMA Rule and the accompanying appraisal. It is not a simple undertaking, as there are various types of knowledge that flow into the final product. If you find this type of work interesting, you are encouraged to reach out to other professionals, particularly in construction and local building departments, in order to improve your knowledge and to mitigate potential errors and liability. This type of work is an opportunity to challenge oneself professionally and personally.

## About the Author

**Patricia Staebler, SRA**, is a state-certified general appraiser in Bradenton, Florida. Her practice concentrates on the valuation of construction, including insurance replacement valuation, reserve studies, cost segregation analysis, and the 50% FEMA Rule appraisal. Her work in her family's engineering office as a cost estimator, together with experience as an insurance claims adjuster and commercial appraiser, gives her a unique background as an expert in these fields. She authors and teaches state-approved continuing education classes in Florida for licensed community association managers and local chapters of the Appraisal Institute, including *Reserve Studies—Overview and Discussion*; *Insurance Appraisals—Minimum Contents*; *Insurance Appraisals and Their Complexity*; *Reserves—From Measuring the Component to Pooling or Non-Pooling*; and *Flood Zones and Their Influence on Coastal Communities and Their Construction Projects*. She also was the developer of the Appraisal Institute webinars *The 50% FEMA Rule Appraisal* and *Insurance Replacement Valuation* and the Appraisal Institute seminar *Insurance Replacement Valuation I—An Emerging Appraisal Discipline*. She has published articles in *Community*, the official journal of the Community Association Institute, West Florida Chapter; *Working RE*; and *The SunState Post*. Staebler has served as public relations chair for the Florida Gulf Coast Chapter of the Appraisal Institute, member of the Leadership Development and Advisory Council (LDAC) of the Appraisal Institute, and Region X representative for her chapter. **Contact:** [patricia@staeblerappraisal.com](mailto:patricia@staeblerappraisal.com)

## Additional Resources

---

Suggested by the Y. T. and Louise Lee Lum Library

### Appraisal Institute

- **Lum Library, External Resources—Information Files [Login required]**
  - Land and Site/floodplains
  - Property Rights/easements and rights of way/floodplains
  - Real Estate Damages/natural disasters/hurricanes
- **Professional Practice**
  - Guide Note 10, *Development of an Opinion of Market Value in the Aftermath of a Disaster*  
<https://www.appraisalinstitute.org/assets/1/7/guide-note-10.pdf>

### Federal Emergency Management Agency (FEMA)

- **Floodplain Management Publications**  
<https://www.fema.gov/floodplain-management-publications>
- **Substantial Damage Estimator (SDE) User Manual and Field Workbook**  
<http://bit.ly/SDEmanual>
- **“Substantial Improvement and Substantial Damage”**  
[https://www.fema.gov/pdf/floodplain/nfip\\_sg\\_unit\\_8.pdf](https://www.fema.gov/pdf/floodplain/nfip_sg_unit_8.pdf)
- **Tutorial “How to Use a Flood Insurance Rate Map”**  
[https://www.fema.gov/media/fhm/firm/ot\\_firm.htm](https://www.fema.gov/media/fhm/firm/ot_firm.htm)