



By Rebecca Quinn, CFM

Definitions Are More Important Than You Might Think

Take a look at your floodplain management regulations — if yours are like most I've seen, about a third or more is definitions. When I'm asked a question, the first thing I do is check definitions. How often have you had someone argue that some type of development isn't regulated because it's not covered by NFIP flood insurance? That was the basis for an association representing the swimming pool industry trying to justify why communities that participate in the NFIP weren't supposed to regulate swimming pools and equipment that serves pools. Nope, that's not a valid argument. Just take a look at the definition for development: "any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials."

Yes, I know, we spend 99.9 percent of our time regulating buildings. So I can understand that many local floodplain managers don't have much experience regulating what I call "non-building structures" such as gazebos, viewing stands, utility towers, salt domes, solar farms, outdoor sculptures and the like. See the November 2018 Insider for the Notebook column about requirements for non-building structures and July 2020 and March 2022 for pools.

But Let's Get Back to Definitions ...

Most states and communities that adopt building codes base their codes on the International Code® that is developed and maintained by the International Code Council, Inc. The I-Codes have provisions that apply to buildings and structures in flood hazard areas. FEMA considers the flood provisions of the 2018, 2021, and upcoming 2024 editions to meet or exceed the NFIP requirements for buildings and structures.

FEMA encourages states and communities that enforce building codes with flood requirements to make a careful comparison with their local floodplain management regulations to identify differences and determine ahead of time how to resolve those differences to avoid conflict. Those who are interested in relying on the building codes should look at [Reducing Flood Losses Through the International Codes: Coordinating Building Codes and Floodplain Management Regulations](#). And as always, communities should check with their state NFIP coordinators for help preparing ordinance amendments.

Many local building officials are also designated as their community's floodplain administrator. However, many of us don't regularly deal with both codes and floodplain management regulations. As the two disciplines are brought together, I've become aware that some terms used in the building codes and by building officials are similar to terms that floodplain managers have used for years. But there are some important differences and nuances to keep in mind. Let's take a look at some of the more significant ones.

Special Flood Hazard Area and Flood Hazard Area. The NFIP regulations actually define "area of special flood hazard," but we all call it the SFHA. It's the area shown on Flood Insurance Rate Maps as subject to a one-percent or greater chance of flooding. The I-Codes use the term "flood hazard area" (FHA) which allows communities to adopt a map (or designate an area) other than what's shown on FIRMs. Enforcement of the flood provisions of the I-Codes is required within flood hazard areas — and at a minimum, FHAs are SFHAs. Why might a community adopt another map? Well, a growing number of communities are developing "future condition" maps that take into consideration anticipated sea level rise or upland development. And

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Resources

- [44 Code of Federal Regulations, Sec. 59.1 Definitions](#)
- International Code definitions: [Chapter 2](#) in each volume (IBC, IRC, IEBC, etc.)
- [2021 I-Code: Excerpts of the Flood Provisions](#)
- [2018 I-Code Excerpts of the Flood Provisions](#)
- [Highlights of ASCE 24-14](#)

sometimes, when significant events exceed the boundaries shown on FIRMs, some communities decide to regulate based on the flood of record. Communities that use other maps regulate the FHA (or a combination of FHA and SFHA). However, for most communities, the FIRM is the adopted map, which means the FHA is the same as the SFHA.

Base Flood Elevation and Design Flood Elevation. These terms often cause confusion. Base Flood Elevation is the elevation of the base flood, which is the 1%-annual-chance (100-year) flood. The I-Codes use both BFE and Design Flood Elevation (DFE). The DFE traces back many years, originating in two standards developed by the American Society of Civil Engineers and referenced by the codes: *ASCE 7 Minimum Design Loads for Buildings and Other Structures* and the first edition of *ASCE 24 Flood Resistant Design and Construction*.

Similar to the BFE, the DFE is the elevation of the design flood, and just as the SFHA is related to the FHA, the BFE is related to the DFE. The DFE is always at least the BFE — indeed, the two are exactly the same in the vast majority of communities because those communities adopt FIRMs as the basis for floodplain management. The DFE is higher than the BFE only in communities that adopt a map that shows flood hazard areas that are greater than the SFHAs shown on their FIRMs. Another twist has started to appear, and that is related to freeboard. Some jurisdictions have modified the I-Codes by putting freeboard into the definition of DFE, for example defining the DFE as $BFE+1'$ or $2'$. You may recall from the January 2022 Insider when I wrote about delineating and regulating the land area under the freeboard.

Residential and Nonresidential. The NFIP regulations require all new construction of buildings, and buildings that are substantially improved (or that incur substantial damage), to be elevated to or above the BFE. But in zones on FIRMs labeled as Zone A, AE, AO, AH, and A1-30, nonresidential buildings must either be elevated or dry floodproofed to or above the BFE. You might have noticed your local regulations — and the NFIP regulations — do not define “residential” and “nonresidential.” While the distinction seems clear at first, there are examples of buildings that aren’t easy to classify. The building codes use a different way to distinguish which code applies to which buildings. The International Residential Code is used to regulate one- and two-family dwellings and townhomes, all limited to three stories high. The International Building Code (sometimes called the “commercial” code) applies to all other buildings, and each must be classified by occupancy.

On the surface, it looks like the two codes line up with the NFIP’s distinction between residential and nonresidential. But it’s not so simple. The Use and Occupancy Classifications spelled out in the IBC include Assembly, Business, Educational, Factory, High-hazard, Institutional, Mercantile, Storage, Utility & Miscellaneous, and Residential. That last classification, Residential, includes all residential occupancies other than the dwellings that are within the scope of the IRC. What might those be? Well, residential occupancies include boarding houses, hotels, motels, apartment buildings, convents, monasteries, dormitories, vacation timeshares, and certain residential care/assisted living facilities. So the question when applying the IBC is whether those residential occupancies governed by the commercial code can be dry floodproofed. Since we know FEMA deems the flood provisions of the I-Codes to be consistent with the NFIP, we can be assured the answer is no. But where do we find that limitation? IBC Sec. 1612.4 refers to ASCE 24, which includes all the familiar design requirements (and more), including dry floodproofing. It’s important to note that ASCE 24 does define the terms “residential” and “nonresidential” to make clear which buildings or portions of buildings can be dry floodproofed. Only nonresidential buildings and nonresidential portions of mixed-use buildings may be dry floodproofed. You’ll find the definition for “mixed-use” in the ASCE 24 commentary.

The lesson here is that those of us who deal primarily with NFIP-based regulations should be aware that when we say “residential,” our building code colleagues might think of the IRC, and not realize that dry floodproofing cannot be used for buildings that are classified “Residential” under the IBC.

Critical Facilities and Essential Facilities. FEMA has done a lot of post-disaster examination of critical facilities — a term that is not defined in NFIP or disaster regulations, but is generally considered to include buildings occupied by important services that should remain functional even after significant disasters. The NFIP doesn’t have specific requirements for buildings and facilities that serve those vital functions. The IBC defines “essential facilities” as “buildings and other structures that are intended to remain operational in the event of extreme environmental loading from flood, wind, snow or earthquakes.” In addition, the IBC requires that each building be assigned a risk category according to a table that describes four risk categories. Risk Category IV includes buildings and structures that the emergency management community considers to be

critical and essential facilities. But look closely and you'll see that Risk Category III includes some that we also consider critical, including many schools, health care facilities, water treatment facilities for potable water, wastewater treatment facilities, power generation stations, and some buildings containing specific quantities of toxic or explosive materials.

However, when it comes to flood, IBC Sec. 1603.1.7 requires each building in flood hazard areas also to be assigned a Flood Design Class according to ASCE 24. The IBC, by reference to ASCE 24, requires all buildings to be elevated or protected to at least BFE + 1 foot. However, Flood Design Class 4 critical and essential facilities must be elevated or protected to or above the 500-year flood elevation or the BFE + 2 feet, whichever is higher. Of course, the floodplain managers among us would prefer to see critical and essential facilities located on higher ground outside of flood hazard areas whenever possible. The "Highlights of ASCE 24" prepared by FEMA includes a table that describes the four Flood Design Classes and a table that summarizes all of the elevation requirements.

Liveable and Habitable. Many people use the term "liveable" to refer to portions of buildings in which people live or occupy, but that term is not defined in the I-Codes or the NFIP. The term "habitable" is defined in the I-Codes. The reason I draw your attention to this is because occasionally someone will say "in a floodplain all habitable (or liveable) spaces have to be elevated." So, take a close look at the code definition of habitable space: "A space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces." We're all familiar with the NFIP limitation on enclosures below the BFE — they may be used only for parking of vehicles, building access and storage. It's easy to see the disconnect — there are certain uses that are not habitable spaces, but also are not allowed below the BFE. Therefore, it is incomplete and misleading to say habitable (or liveable) spaces have to be elevated. As repetitive as it may seem at times, when talking about enclosures below elevated buildings it's always best to repeat the allowed uses: parking of vehicles, building access, and storage.

Under-floor Space and Crawl Space. Both terms refer to a type of foundation that is surrounded by solid perimeter, load-bearing walls. We all know a crawl space when we see it — it's the space between the ground (whether earth or concrete/sealed) and the floor system above. But when that space gets taller than about three feet, what do we call it? It's rather awkward to refer to a 7-foot high space as a crawl space. This is where the term "under-floor space" is helpful. The I-Codes don't define "under-floor space," although it is described in IRC Section R408.1 as the "space between the bottom of the floor joists and the earth beneath any building (except space occupied by a basement)." The definition for "crawl space" was added in the 2018 IRC: "an under-floor space that is not a basement." NFIP Technical Bulletin 1, [Requirements for Flood Openings in Foundation Walls and Walls of Enclosures](#), uses the term "full-height under-floor space" to describe solid perimeter walls that have enough headroom that the enclosed area can be used for parking of vehicles, building access, and storage.

Registered Design Professional. The NFIP regulations require that certain things be done by a "registered professional engineer or architect," but do not specifically state that elevations should be certified by licensed surveyors. Individual states regulate the professions of engineering, architecture, and land surveying. States may call them licensed professionals or registered professionals. Each state also specifies what constitutes the scope of what it means to "practice" each profession. For example, in some states engineers can't do land or elevation surveys and architects can't do structural engineering. To make it easier all around, the I-Codes use the collective noun "registered design professional" which is defined as "an individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed."

So, when you read in the I-Codes that documentation prepared by a registered design professional must be submitted, it doesn't automatically mean that architects and engineers can do the surveys, or that architects and surveyors can do floodway encroachment analyses. Whether they can depends on the applicable laws of the state where the project is located. Note this also applies to the NFIP Elevation Certificate and NFIP Non-Residential Floodproofing Certificate. For example, the Elevation Certificate states that the form "is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information." Because there are no federal laws governing those professions, it falls to the laws of each state.

Submit your own items or suggestions for future topics to column editor Rebecca Quinn, CFM, at rcquinn@earthlink.net. Comments welcomed! Explore back issues of the [Floodplain Manager's Notebook](#).

By Ray Carroll, MAI, SRA, CFM

New Resources for Actual Cash Value Practitioners

This month I have the pleasure of sharing with you a new website created for floodplain administrators and licensed professional property appraisers who are engaged by property owners to develop appraisal reports to provide Actual Cash Value (ACV) estimates of market value. Market value is needed to calculate whether work on existing buildings meets the definitions of Substantial Improvement or Substantial Damage.

FloodPointUSA.com

Launched in late July 2022, www.floodpointusa.com is an educational website designed specifically for appraisers, floodplain administrators, and the public. The site is dedicated to clarifying the “market value” used in the NFIP definitions for Substantial Improvement and Substantial Damage. On the site, everyone can find free downloads of the Local Official Appraisal Checklists and the Physical Life Calculator, two tools I’ve written about in previous ASFPM Insider Market Value Supplements articles. Also available for the first time is a free download of The ACV Guidebook (1st edition). I prepared it as a common guide for appraisers and floodplain administrators. Filling out a single contact information form is all you need to do to get the downloads.

Why A Website About Actual Cash Value?

Floodpointusa.com is the culmination of a mission that started in the summer of 2014 when a particularly challenging 50 Percent Rule appraisal assignment drove me to seek help. I found help from then Florida NFIP Coordinator/State Floodplain Manager Steve Martin. Steve suggested some reading material (the SI/SD Desk Reference) and some education (FEMA’s Course EO 273). During that training course I came to realize that most floodplain administrators have no real estate background and get no training in reviewing appraisals. Since then, my objective has been to understand and rectify the disconnects between floodplain administrators and appraisers. I want the website to be common ground where appraisers and floodplain administrators can agree on what is needed and how to get it done. This will help communities meet the expectations of the NFIP and enforce their floodplain management regulations. When that happens, floodplain administrators, appraisers, and the public will benefit.

Using the Website Content

The Local Official Appraisal Checklists (one strictly for ACV and the other for traditional whole-property appraisals) were originally developed as training tools for floodplain administrators. The checklists have evolved, and the latest version is much improved. The checklists follow the same appraisal valuation process outlined in The ACV Guidebook. Be sure to use the latest checklist and download the correct checklist for the kind of appraisal report you’re examining. Floodplain administrators might find it helpful to share the checklist with permit applicants. That way, property owners can share with their appraisers who will see, in advance, what is expected. I’ll post new checklists when FEMA revises the SI/SD Desk Reference and when The Appraisal Foundation revises the *Uniform Standards of Professional Appraisal Practice* (USPAP).

Another tool available on the website, the Physical Life Calculator, is an appraisal tool to assist the process of estimating physical depreciation, a critical part of developing an Actual Cash Value. Chapter 7 in The ACV Guidebook is about depreciation, with a detailed discussion about what to do and how to use the Physical Life Calculator. The download offers the Calculator Excel document, and a PDF that details how the Calculator works and how to use it. Anyone who wants to use the Physical Life Calculator should download both files. Floodplain administrators might find the Physical Life Calculator a good “quick check” of depreciation estimates included in appraisal reports for Actual Cash Values.

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The ACV Guidebook is essentially a how-to guide that follows the ACV appraisal valuation process from beginning to end, merging the appraisal assignment conditions set by the SI/SD Desk Reference with the USPAP appraisal standards. In that way, the Guidebook offers insights for floodplain administrators and appraisers alike. The Guidebook helps appraisers become competent in this specialized practice area, and it is a supplement to the ACV checklist. It is my hope that appraisers and floodplain administrators will find that the Guidebook encourages communication and helps avoid misunderstandings. I'll update the Guidebook when FEMA revises the SI/SD Desk Reference and when the USPAP are revised.

The website homepage "Tools & Resources" tab offers downloads of the 10 Market Value Supplements published in the Floodplain Managers Notebook column since September 2020, together with some FAQs. There's even a "Read Our Blog" button under "Tools & Resources" where we can wrestle with questions of general interest. Send me a question. If it sparks a blog post, I'll anonymize the query before publication so no one's name is mentioned.

It would be a great help to me, other floodplain administrators, and professional appraisers if you let me know if and how the website is helpful and suggest changes to make the site, the checklists, and the ACV Guidebook better. You can also ask questions about the "market value" that you need to make your SI/SD determinations. Please get in touch at Rayman4454@gmail.com. I look forward to hearing from you.

NOAA Releases First Comprehensive Mitigation Policy

The National Oceanic and Atmospheric Administration (NOAA) has released its first comprehensive **Mitigation Policy for Trust Resources**, which aims to improve conservation through effective mitigation of adverse impacts to marine, estuarine, and freshwater resources.

Under the policy, NOAA will use climate resilient mitigation principles to reach its program objectives, expand best practices across the country, and incentivize private-sector investments in mitigation banks. The policy emphasizes collaborating with underserved communities and stakeholders to incorporate social equity objectives into mitigation planning.

Eight principles will guide NOAA's mitigation decisions:

1. Apply the mitigation sequence appropriately.
2. Employ the best scientific information available.
3. Apply a holistic landscape and/or seascape approach.
4. Promote mitigation strategies that have a high probability of success.
5. Consider climate change and climate resilience when evaluating and developing mitigation measures.
6. Implement mitigation that is proportional to impacts to NOAA trust resources and offsets those impacts to the full extent provided by NOAA authorities.
7. Use preservation of intact habitat as compensation appropriately, taking into account the high risk of habitat loss in many coastal and marine landscapes and seascapes.
8. Collaborate with partner agencies and stakeholders.

The draft policy was released for public comment in May 2021 and revisions were made based on input received from a wide range of stakeholders. [View the final policy.](#)

