THE ACV GUIDEBOOK

First Edition - 2022

Dedicated to clarifying the NFIP "market value"

For Appraisers & Floodplain Administrators

FLOODPOINT USA

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First Edition, 2022

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Dedicated to clarifying the NFIP "market value"

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FOREWORD

My father began his real estate career in 1968 while I was in middle school. By 1974 he was practicing as an independent fee appraiser. I joined him in 1975 after college graduation. During our years working together Dad and I heard about the National Flood Insurance Program, but usually we just reported the FIRM panel flood zone information without knowing or thinking much about the implications.

Beginning in 2010 Carroll & Carroll started receiving requests for appraisal services that our clients called “FEMA appraisals”. It was something to do with a “50 Percent Rule”. Those assignments fell to me, and I wanted to do the right thing. Being an Appraisal Institute USPAP instructor at the time was a big help sorting out 50 Percent Rule assignments.

In the summer of 2014, a particularly challenging 50 Percent Rule assignment resulted in rejection of an Actual Cash Value appraisal report. The local floodplain administrator had good cause to ask questions. We worked together and a revised report eventually passed examination. The incident caused me to think more deeply about 50 Percent Rule regulatory appraisal assignment conditions, and to seek a better way to estimate physical depreciation.

Upon consultation, the State of Florida NFIP Coordinator/Floodplain Manager suggested that I study FEMA’s guidance document for floodplain administrators, that I read other FEMA publications, and that I consider taking FEMA’s Course EO273, Managing Floodplain Development through the NFIP. During that 4-day course I came to realize that most floodplain administrators have no background in real estate, and they get no training preparing them to examine appraisal reports.

Today about 90% of my appraisal practice is 50 Percent Rule appraisals. Many have helped me along, and it is a pleasure now to offer something in return.

Ray Carroll

ACKNOWLEDGEMENTS

Thanks to my family and friends, especially my wife Patricia, and my sister Cindy, who've been patient and kind when I was overly enthusiastic.

I'll always appreciate that floodplain administrator Christa Carrera, CFM challenged that 2014 appraisal report causing me to dig deeper. Christa, in Naples, and Kelly DeFedericis, CFM, on Marco Island, made helpful suggestions for better appraisal work that found their way into this book.

My friend, Steve Martin, State of Florida NFIP Coordinator/Floodplain Manager from 2010 through 2020, was helpful and gave good advice at a time when it was needed. He has been that way since I first met him in 1965. Thank you, Steve.

Lisa Foster, CFM, Pinellas County Florida floodplain administrator, was the first to risk inviting me to instruct. She continues to lead the industry.

Rebecca Quinn, CFM, of RCQuinn Consulting, Inc., asked challenging questions, shared critical insights, and co-authored articles that helped develop this book.

DEDICATION

The ACV Guidebook is dedicated to the memory of William Ted Anglyn, appraisal industry thought leader, and friend.

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Introduction

This guidebook applies only to Actual Cash Value appraisal assignments.

It is a practical guide for anyone making or using an actual cash value (ACV) appraisal, commonly called a "50 Percent Rule appraisal" or a "FEMA appraisal". The book is intended to encourage competency, to clarify industry best practices, and to promote goodwill between floodplain administrators and appraisers.

50 Percent Rule appraisal assignments are about estimating depreciated building value to assist a local floodplain administrator who, relying on the appraisal, must determine whether the cost of proposed work requiring a permit (repairs or improvements) is less than some specified percentage (usually 50%) of the building value.

This kind of appraisal work is the consequence of a local community decision to join the National Flood Insurance Program (NFIP). In joining, a community (city, county, town, village, or tribal organization) agrees to adopt local flood insurance rate maps (FIRMs), and to enact ordinances that regulate floodplain administration including minimum standards for new construction in the floodplain, and for the repair and improvement of nonconforming buildings.

FEMA is the federal agency charged with implementing the federal law, with promulgating regulations, with training floodplain managers, and with ensuring compliance. The Substantial Improvement/Substantial Damage Desk Reference (the Desk Reference), published by FEMA, is a guide to local floodplain administrators.

To be competent in this specialized practice area, an appraiser should know how the Uniform Standards of Professional Appraisal Practice (USPAP) apply, should be aware of the assignment conditions explained in Section 4.5 of the Desk Reference, and should have some knowledge of what appraisal methods are allowed by local ordinance.

It is assumed that the floodplain administrator audience is familiar with the SI/SD Desk Reference, is willing to learn something about appraisal practice, and wants to be effective examining appraisal reports.

It is assumed that the appraiser audience is state-certified, has a working knowledge of USPAP, and acknowledges the responsibility to abide by assignment conditions set forth in the Desk Reference.

As used herein, "non-conforming" means in relation to a local floodplain management ordinance.

This book was written in 2022. USPAP is usually revised on a 2-year cycle. The next publication is due in 2023. FEMA's Desk Reference was published in 2010. A new publication is in process, but the prospective publication date is unknown.

GLOSSARY

The source for officially defined terms is given in parenthesis. Where no source is given, the comments following are explanatory or clarifying.

References to USPAP are to the 2020-21 edition.[1]

References to The Dictionary of Real Estate Appraisal are to the Seventh Edition.[2]

NFIP regulatory definitions are published at 44 CFR § 59.1 – Definitions.

50 Percent Rule
Basically, the 50 Percent Rule means that when a building permit is required for repairs or improvements to a nonconforming structure, before issuing a permit the community must determine whether the cost of the proposed repairs or improvements is less than 50 percent of the building value. Fifty percent is the federal minimum.

50 Percent Rule Appraisal
As used in The ACV Guidebook, an appraisal made to support a building permit application subject to significant improvement/significant damage determination, regardless of the local ordinance percentage.

Client (USPAP)
The party or parties (i.e., individual, group, or entity) who engage an appraiser by employment or contract in a specific assignment, whether directly or through an agent.

Conforming
As used in The ACV Guidebook, "conforming" means in keeping with building code requirements in effect (including floodplain management requirements) as of the appraisal effective date. (See also "non-conforming")

Credible (USPAP)
Worthy of belief. (Credible assignment results require support, by relevant evidence and logic, to the degree necessary for the intended use.)

Date of Inspection
The date the appraiser, or the appraiser's assistant, was present at the building to gather information.

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[2] Reprinted with permission from The Dictionary of Real Estate Appraisal, 7th ed. (Chicago: Appraisal Institute, 2022)

Deferred Maintenance (The Dictionary of Real Estate Appraisal)
Items of wear and tear on a property that should be fixed now to protect the value or income-producing ability of the property, such as a broken window, a dead tree, a leak in the roof, or a faulty roof that must be completely replaced. These items are almost always curable.

Depreciation (The Dictionary of Real Estate Appraisal)
Appraisers define depreciation as a loss in the value of improvements from any cause.

Development (The Dictionary of Real Estate Appraisal)
The transformation of formerly raw land into improved property through the application of labor, capital, and entrepreneurship.

Effective Date (USPAP)
The date to which an appraiser's analyses, opinions, and conclusions apply. This is sometimes referred to as the date of value. (See also Date of Inspection and Report Date)

Extraordinary Assumption (USPAP)
An assignment-specific assumption as of the effective date regarding uncertain information used in an analysis which, if found to be false, could alter the appraiser's opinions or conclusions.

Feasibility Analysis (The Dictionary of Real Estate Appraisal)
A study of the cost-benefit relationship of an economic endeavor.

FEMA
The Federal Emergency Management Agency (FEMA) is the parent agency charged with implementing the National Flood Insurance Program. This is accomplished by promulgating regulations, training floodplain managers, and ensuring compliance.

Flood Insurance Rate Maps (FIRMs)
Digital or hard copy maps created to depict flood zones. Originally used to rate flood insurance premiums and to assist building code compliance. Now used only for building code compliance.

Floodplain Administrator
The community staff position responsible for floodplain management, or a delegate. Synonymous with Local Official. The position might be in any department including emergency management, the building department, planning, or environmental. In small communities one person might have many responsibilities including floodplain management.

Hypothetical Condition (USPAP)
A condition, directly related to a specific assignment, which is contrary to what is known by the appraiser to exist on the effective date of the assignment results, but is used for the purpose of analysis.

Intended Use (USPAP)
Intended use(s) of an appraiser's reported appraisal or appraisal review assignment results, as identified by the appraiser based on communication with the client at the time of the assignment.

Intended User (USPAP)
The client, and any other party as identified, by name or type, as users of the appraisal report by the appraiser, based on communication with the client at the time of the assignment.

Local Official
See Floodplain Administrator

Long-lived Item (The Dictionary of Real Estate Appraisal)
A building component or site improvement expected to have the same useful life as the entire structure.

"market value"
As used in The ACV Guidebook, "market value" (when lower case and in quotes) should be understood to mean what the NFIP intends in its definitions of Substantial Improvement and Substantial Damage. The meaning is not like any of the market value definitions to which real estate practitioners are accustomed.

Multiple Listing Service (MLS)
A system for exchanging property listing and sale information with other participating members. Usually a paid subscription service, and often associated with one or more Boards of Realtors.

Neglect
When a building owner or manager fails to keep up with regular maintenance needs. The same as deferred maintenance.

Nonconforming
As used in The ACV Guidebook, "non-conforming" means particularly in relation to a local floodplain management ordinance, but also possibly in relation to other building code requirements.

Physical Life (The Dictionary of Real Estate Appraisal)
1. An estimate of how old a building or improvement will be when it is worn out.
2. The total period a building lasts or is expected to last as opposed to its economic life.

Project
As used in The ACV Guidebook, see Development

Report Date
The date the appraisal report was transmitted to the client.

Replacement Cost (The Dictionary of Real Estate Appraisal)
The estimated cost to construct, at current prices as of a specific date, a substitute for a building or other improvements, **using modern materials and current standards, design, and layout.** (emphasis added)

Reproduction Cost (The Dictionary of Real Estate Appraisal)
The estimated cost to construct, at current prices as of the effective date of the appraisal, a duplicate or replica of the building being appraised, using the same or similar materials, construction standards, design, layout, and quality of workmanship and embodying all the deficiencies, superadequacies, and obsolescence of the subject building.

Short-lived Item (The Dictionary of Real Estate Appraisal)
An item that will probably be replaced one or more times during the life of the improvement.

USPAP
The Uniform Standards of Professional Appraisal Practice (USPAP) are binding regulations that apply to State-certified appraisers nationwide. The purpose of USPAP is to promote and maintain a high level of public trust in appraisal practice by establishing requirements for appraisers.

USPAP Competency Rule (USPAP)
The competency rule presents pre-assignment and assignment conditions for appraiser knowledge and experience.

USPAP Ethics Rule (USPAP)
The ethics rule sets forth the requirements for integrity, impartiality, objectivity, independent judgement, and ethical conduct.

USPAP Record Keeping Rule (USPAP)
The record keeping rule establishes the workfile requirements for appraisal assignments.

USPAP Scope of Work Rule (USPAP)
The scope of work rule presents obligations related to problem identification, research, and analysis.

ASSIGNMENT ELEMENTS & ASSIGNMENT CONDITIONS

1 - WHY IS AN APPRAISAL NEEDED?

Key Concepts:

- The National Flood Insurance Program (NFIP) is federal law administered locally in communities that opt into the NFIP.
- Independent appraisals are the best way to estimate the building value which is used in 50 Percent Rule determinations.

The appraisal report's intended use is to support a building permit application subject to significant improvement/significant damage determination as part of the National Flood Insurance Program (NFIP).

One of the purposes of the NFIP is to reduce flood damages by limiting floodplain development. Development can be many things including building a structure, placing fill, digging a ditch, or installing a culvert. In some flood-prone areas almost no development is permitted (think of the flow ways of rivers, creeks, and other drainage features), and in other flood zones new development is regulated with minimum floor elevations and special design standards.

When a building located in a flood-prone area does not conform to minimum floor elevation or design standards, then the NFIP would prefer that the building be elevated to a level out of the floodplain or demolished and removed. Most property owners view that is an extreme position. To avoid litigation, and to seek a reasonable compromise between private and public interests, NFIP regulations provide for continued use of nonconforming buildings by application of something commonly called the 50 Percent Rule.

Basically, the 50 Percent Rule means that when a building permit is required for repairs or improvements to a nonconforming structure, before issuing a permit the community must determine whether the cost of the proposed repairs or improvements is less than 50 percent[3] of the building value. The person charged with making that determination is a floodplain administrator.

There is more than one way to develop the building value. Sometimes ad valorem assessment information, properly adjusted, can be used. The other way is to obtain an independent professional appraisal.

Local communities require building permit applicants with nonconforming buildings in the floodplain to submit a project budget detailing the project cost. The 50 percent rule determination is made by comparing the project budget with the building value and calculating the percentage.

[3] 50 Percent is the federal minimum. Some communities establish a more restrictive requirement with a percentage less than 50 percent.

The Substantial Improvement/Substantial Damage Desk Reference (the Desk Reference), published by FEMA as a guide to local floodplain administrators, says that appraisals prepared by a professional appraiser according to standard practices of the profession are the most accurate and reliable method for determining the NFIP “market value”.

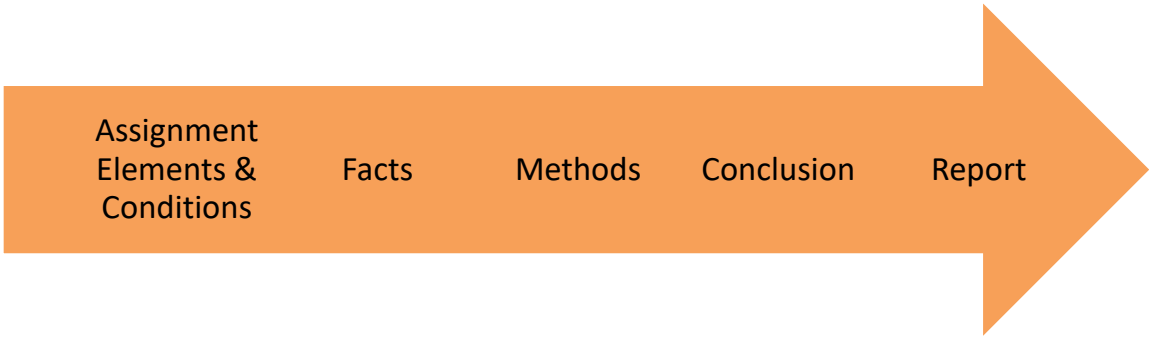
2 -GETTING STARTED

Key Concepts

- 50 Percent Rule appraisal assignments require a different kind of appraiser competency than traditional market value appraisals.
- With 50 Percent Rule assignments the usual sources of information about assignment elements and assignment conditions might not work.
- The appraisal is only about the building.

The Valuation Process

The valuation process flows from asking a value question, to the reporting of an answer. The answer reported is the consequence of an appraiser identifying assignment elements and conditions, finding pertinent facts, applying appropriate valuation methods, reaching a conclusion, and reporting results.



One who knows the answer before applying the process is not acting as an appraiser.

Appraiser Competency

The Uniform Standards of Professional Appraisal Practice (USPAP) requires appraisers to be competent to perform an assignment, to acquire the necessary competency to perform, or to decline and withdraw.

Competency requires:

1. The ability to properly identify the problem to be addressed.
2. The knowledge and experience to complete the assignment competently.
3. Recognition of, and compliance with, laws and regulations that apply to the appraiser or to the assignment.

If, prior to agreeing to perform an assignment, an appraiser knows that he or she is not competent the appraiser must:

1. Disclose the lack of knowledge and/or experience to the client before agreeing to perform the assignment.
2. Take all steps necessary or appropriate to complete the assignment competently.
3. Describe, in the report, the lack of knowledge and/or experience and the steps taken to complete the assignment competently.

When facts or conditions are discovered during an assignment that cause an appraiser to determine, at that time, that he or she lacks the required knowledge and experience to complete the assignment competently, then the appraiser must:

1. Notify the client.
2. Take all steps necessary or appropriate to complete the assignment competently.
3. Describe, in the report, the lack of knowledge and/or experience and the steps taken to complete the assignment competently.

Analysis of appraisal reports submitted to support 50 Percent Rule determinations indicates that many appraisers were not competent to perform, did not know it, and proceeded anyway. Also, some appraisal reports that were prepared for other intended uses were submitted, probably without the appraiser's knowledge.

Appraisal Requirements

Every appraisal assignment begins with identifying the problem. It is the appraiser's responsibility to find out what scope of work is required to deliver credible results through some type of report.

To identify the problem an appraiser must know:

- Who is the client and who are other intended users?
- What is the intended use of the appraisal report?
- What is the type and definition of the value sought?
- What is the appraisal effective date?
- What is the Subject of the assignment and its relevant characteristics?
- What are the assignment conditions?

Appraisers should not rely solely on the client for information about assignment conditions.

These assignment element questions are familiar, but the answers, and the source of the answers, is likely to be different than what appraisers expect. Often, no one in the process, especially the appraiser's client, is well suited to discuss 50 Percent Rule appraisal assignment conditions. Assignment conditions are established by what is written in FEMA's Desk Reference.

Chapter 3 details the discussion of assignment elements and how they are affected by NFIP regulatory assignment conditions.

NFIP Regulatory Requirements & FEMA Guidance

The National Flood Insurance Program is a creation of the Congress of the United States. The purpose of the NFIP is to reduce flood damages by limiting floodplain development, and to share the risk of flood losses through flood insurance. The Federal Emergency Management Agency (FEMA) is responsible for program administration.

The NFIP is implemented locally through resolutions that adopt local Flood Insurance Rate Maps (FIRMs), and through ordinances that establish mechanisms for floodplain management. Local ordinances must meet or exceed the federal regulatory minimums.

This has resulted in a highly technical environment for everyone involved. Local floodplain administrators are trained, but often without covering matters related to appraisal or appraisal examination.

Familiarity with the applicable community ordinance is important because compliance and enforcement are at the local level. This will be the floodplain management ordinance of the city, county, town, village, or tribal organization in which the building is located.

Some floodplain administration terminology sounds familiar to appraiser ears, but beware, the meaning is sometimes not what you think. The NFIP use of the term "market value" is perhaps the best example.

Look for the local ordinance definition of market value. An ordinance definition is necessary because there is no NFIP definition of market value, and the term "market value" is included in the NFIP definitions of Substantial Improvement and Substantial Damage which drive the entire process.

It is essential that the ordinance market value definition allows the building value to be estimated by professional appraisal. Some community ordinances don't have a definition of market value but are written to allow building valuation by professional appraisal. Search the internet or request a copy of the local ordinance from the community floodplain administrator.

The official guidance for floodplain administrators is the Desk Reference which was first published in 2010. As of mid-year 2022, a new edition was in process, but of uncertain publication date.

Appraisers should focus on Desk Reference Section 4.5 Determining Market Value. Note that in the first sentence "market value" is written in quotes. That is a clue that the NFIP "market value" is something different than what most people think. When in this guidebook "market value" is written lower case and in quotes, it should be understood to mean what the NFIP intends in its definitions of Substantial Improvement and Substantial Damage. The meaning is not like any of the other market value definitions to which real estate practitioners are accustomed.

Reading further it becomes clear that what is needed is the valuation of an existing building or structure before it was damaged, or before the start of an improvement to an existing building. Only the value of the building or structure is pertinent, and the FEMA guidance cautions against including any special value associated with use and occupancy. Probably, this special value associated with use and occupancy is what appraisers sometimes find in connection with a nonconforming building that enjoys a competitive economic advantage over new, code compliant construction[4].

[4] Here building nonconformity can be due to any cause including floodplain regulations

Other valuation methods are mentioned including the adjusted assessed value method and Actual Cash Value (ACV).

A detailed discussion of the adjusted assessed value method can be found in the September 2020 *Insider* magazine available at floodpointusa.com.

There is no citable NFIP "market value" definition. That creates a conflict because appraisers estimating value are required under USPAP to state the type and definition of value and cite the source of the definition[5]. That it has a citable value definition is one of the many reasons why the ACV is a better valuation method. (**See Chapter 3 – Assignment Elements)**

Assignment conditions established, or clearly implied, in the Desk Reference are found at Section 4.5.1:

- The appraiser must be a professional and qualified to appraise the property type.
- The appraiser must be state-certified or licensed.
- USPAP compliance is required.
- A statement of USPAP compliance is required in the appraisal report.
- The appraisal report should identify intended users, including the property owner.
- When work is an improvement, the appraisal effective date should be close-to and before the permit application date. In the event of a permit application to repair damage, the retrospective appraisal effective date must reflect the pre-damage building condition.
- The income approach is not acceptable.

These are binding requirements that should not be ignored.

Desk Reference Section 4.5.1 was written with traditional, whole-property market value appraisals in mind, as though that is the only valuation methodology open to an appraiser. The context can be confusing.

Other Published Guidance

Appraisal Industry Publications - The first professional publication about making an ACV appraisal to support substantial improvement/substantial damage determinations was a Fall 2017, *The Appraisal Journal* article entitled "The 50% FEMA Rule Appraisal", by Patricia Staebler, SRA. *The Appraisal Journal* is a publication of the Appraisal Institute.

The article is an excellent starting place for appraisers seeking competency in this specialized practice area. Ms. Staebler makes sound arguments in favor of ACV as the best valuation methodology. A follow up letter to The Appraisal Journal editor (Winter 2018) commented on a method to estimate depreciation.

[5] USPAP Standards Rule 2-2(a)(vi)

Appraisers and the public who are not members of the Appraisal Institute can access Appraisal Journal articles through library databases and article resellers such as EBSCO. As a membership benefit, all Appraisal Institute members have free, open access to Appraisal Journal articles.

The Local Official ACV Appraisal Checklist – The Desk Reference charges local officials to examine appraisals submitted with building permit applications to determine that the appraisals are reasonable for the specific building characteristics, that no value is included for use or occupancy, and that the structure does not appear to be overvalued. Despite this responsibility, standardized floodplain administrator training includes nothing about technique for examining appraisal reports.

In the process of developing floodplain administrator training, the Author created an appraisal checklist for local officials. The checklist is focused on USPAP Scope of Work requirements, and the specific assignment conditions established in the Desk Reference. The checklist is a practical tool to assist floodplain administrators examining appraisals. The blank checklist can be used as a handout to floodplain administrators, permit applicants, and their appraisers. Guidance and regulatory documents are evolving, so be sure to use the latest checklist version.

A free download of the Local Official ACV Appraisal Checklist is available at floodpointusa.com.

Magazine Articles Published by the ASFPM - Available for free download at floodpointusa.com are articles that originally appeared in *The Insider*. These are available with permission from the Association of State Floodplain Managers (ASFPM). The articles were co-authored by Ray Carroll and Rebecca Quinn. Ms. Quinn is a consultant to FEMA, and a contributor to sections of FEMA's Desk Reference. The articles explore the concepts and methods behind estimating the NFIP "market value".

3 - ASSIGNMENT ELEMENTS

Key Concepts:

- The local floodplain administrator should always be named as an intended user.
- The intended use of a 50 Percent Rule appraisal is to support a building permit application subject to significant improvement/significant damage determination.
- The appropriate value definition is that of Actual Cash Value.
- The appraisal effective date is set by regulation and is not necessarily the same as the date of the building inspection.
- The appraisal is of the under-roof portion of the existing building.
- For estimates of ACV, only physical deterioration is deducted.

Assignment elements are specific information needed to identify the appraisal problem:

1. The client and any other intended users.
2. The intended use of the appraiser's opinions and conclusions.
3. The type and definition of value.
4. The effective date of the appraiser's opinions and conclusions.
5. The subject of the assignment and its relevant characteristics.
6. Any assignment conditions.

Client
The client is the party or parties (i.e., individual, group, or entity) who engage an appraiser by employment or contract in a specific assignment, whether directly or through an agent.

> It's good practice for appraisers to qualify prospective clients and issue written proposals.

The appraiser's client is not always the property owner. Sometimes, as a convenience to property owners, building contractors package the permit application process, including engaging an appraiser. Real estate brokers with listings or pending sales of nonconforming buildings are sometimes the appraiser's client because they want to show sellers and prospective purchasers how much can be spent on renovations and remodeling. From time to time an architect, engineer, or attorney might be the client. The appraiser's client is always an intended user.

Intended Users
Intended users are the client, and any other party as identified, by name or type, as users of the appraisal report by the appraiser, based on communication with the client at the time of the assignment.

For 50 Percent Rule appraisal assignments, the floodplain administrator is also an intended user. The floodplain administrator is an intended user because specialized assignment conditions make it so. Often, the floodplain administrator and the appraiser are the only parties competent to sort out

> It's good practice for appraisers, at inception of the assignment, to get the client's permission to discuss the appraisal with the floodplain administrator.

the assignment conditions. To make a 50 Percent Rule determination, the floodplain administrator must be able to rely on the appraisal report.

Other intended users might be the property owner, contractor, architect, engineer, attorney, or a real estate broker/agent. Intended users are the "audience" to whom the appraiser is reporting. The floodplain administrator might be the most important intended user. The appraisal report should be written to clearly communicate with the appraiser's audience.

Intended Use
Intended use is the use(s) of an appraiser's reported appraisal assignment results, as identified by the appraiser based on communication with the client at the time of the assignment.

The intended use of a 50 Percent Rule appraisal is to support a building permit application subject to significant improvement/significant damage determination.

A surprising percentage of 50 Percent Rule appraisal reports could be rejected because the intended use is incorrect, or because an intended use is not reported at all.

Actual Cash Value Definition
Actual Cash Value is an insurance industry concept for which there is more than one definition. This is because the concept was developed out of statutes and case law that differs from state to state.

With respect to 50 Percent Rule appraisals, in Section 4.5.3 the Desk Reference says:

> *"Actual Cash Value 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."*

Appraisers can cite the definition above, but further clarification is prudent. Be careful not to get caught in a terminology trap. The ACV meaning of "cost to replace" is not the same as "replacement cost".

As used in the definition of Actual Cash Value, "cost to replace" probably derives from the NFIP insurance-side definition of "Replacement Cost Value" which is:

> *"The cost to replace property with the* ***same kind of material and construction*** *without deduction for depreciation."* (emphasis added)

Conceptually, "replacement cost value" is very similar to the appraisal industry definition of "reproduction cost" as defined in The Dictionary of Real Estate Appraisal, Seventh Edition, which reads:

"The estimated cost to construct, at current prices as of the effective date of the appraisal, a duplicate or replica of the building being appraised, using the same or similar materials, construction standards, design, layout, and quality of workmanship and embodying all the deficiencies, superadequacies, and obsolescence of the subject building."

In writing an appraisal report the appraiser might be wise to cite the Desk Reference ACV definition, then clarify the meaning of "cost to replace" by reference to the appraisal industry definition of reproduction cost.

The key ACV concepts are:

- ACV is a reproduction cost estimate for the existing building.
- Depreciation is deducted only for age, use, and neglect.

For estimates of ACV, only physical deterioration is deducted. Obsolescence, which is often greater than physical deterioration, is not considered. Physical deterioration, and how to estimate it, will be covered in Chapter 7.

The best part of Section 4.5.3 is where it is written:

"In most situations, ACV is a reasonable approximation of market value."

The market value reference is to the NFIP "market value". The statement from the Desk Reference quoted above is the authority that empowers appraisers to use ACV methodology provided the local ordinance allows.

Effective Date
The appraisal effective date is the date to which an appraiser's analyses, opinions, and conclusions apply. This is sometimes referred to as the date of value.

At this point assignment conditions come into play (Desk Reference, Section 4.5, 1st paragraph). The effective date of a 50 Percent Rule appraisal depends on whether the work proposed is an improvement, or the repair of damage.

When Proposed Work is an Improvement - The appraisal effective date must be before the start of construction of the improvement. That is before any demolition or site preparation.

What happens when the appraiser arrives for an inspection to find demolition already underway, or worse, unpermitted new construction? Appraisers can explain to the client that:

- The appraisal must be made as of a date prior to the start of work.
- The appraiser must document in the appraisal report the building condition and finishes prior to the start of work.
- The appraiser might have to consult the local floodplain administrator for guidance on how the community handles such matters.

Usually, it is best that the appraiser proceeds with the inspection. Make a complete set of images and note everything that can be discerned about the building condition and finishes as they were prior to start of work. Find out when demolition/construction began and ask if anyone took images before the start of work. If necessary, describe the situation to the floodplain administrator and get instructions.

In such situations, the appraiser must decide whether building information and documentation is sufficient to develop a credible appraisal and deliver a reliable report. Ultimately, the floodplain administrator must be satisfied.

When Proposed Work is the Repair of Damage – In this case the appraisal effective date is before damage occurred.

The appraiser must determine when the damage occurred, and what was the building condition and finishes before damage. Sometimes this is hard to document.

If time has passed and repairs were not made in a timely fashion, then the damage might become deferred maintenance (neglect) and the appraisal effective date will shift to a current date (prior to improvement). If there is doubt, contact the local floodplain administrator for advice about the effective date.

The context of this assignment is retrospective. Be sure the building description, the reproduction cost estimate, and the depreciation calculations are appropriate for the appraisal frame of reference.

Subject of the Assignment (and its Relevant Characteristics)
The subject of a 50 Percent Rule appraisal assignment is the building for which a building permit is sought.

Here, assignment conditions established in the Desk Reference, and certain defined terminology, are important.

The Desk Reference uses the terms "Building" and "Structure" somewhat interchangeably. For floodplain management purposes, the NFIP regulatory definition of structure is:

> *"A walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home[6]."*

When the Desk Reference refers to the "market value" of a building or structure it means the under-roof portion of the building. Attachments to a building that are not under roof (i.e., swimming pools and pool screen enclosures, open patios, screened patios without a roof, etc.), are not part of the building.

[6] 44 CFR Part 59.1 Definitions

The relevant characteristics of the building are its physical address, actual age, size, design, quality of construction, its permit history, and physical condition. The entire foundation, including in-ground pilings, is part of the building.

4 – OTHER ASSIGNMENT CONDITIONS

Key Concepts:

- Except in very unusual situations, a 50 Percent Rule appraisal should not be subject to any extraordinary assumption or hypothetical condition.
- If they exist, extraordinary assumptions or hypothetical conditions must be clearly and accurately disclosed in the appraisal report.

Extraordinary Assumptions
An extraordinary assumption is an assignment-specific assumption as of the effective date regarding uncertain information used in an analysis which, if found to be false, could alter the appraiser's opinions or conclusions.

The floodplain administrator should not accept a value estimate based on an unreasonable assumption.

An example of when an extraordinary assumption might be appropriate is associated with inspection of a multi-unit building type (apartments, hotel/motel, hospital, offices, etc.). It might be impractical, or perhaps impossible, for an appraiser to get inside all the units. In such building types, the appraiser should strive to inspect a representative sample of the units. It is good practice to report the extent of the building inspection. In a case like this, an extraordinary assumption might read:

> "The building inspection covered all the public areas, but the appraiser was unable to inspect all unit spaces. A representative sample of units (x%) were inspected and the appraisal was made with the assumption that the uninspected units are generally similar in condition and finishes to the units inspected."

There is a limit to assumptions like this. In situations where a small sample was inspected consultation with a floodplain administrator might be necessary to determine whether an extraordinary assumption will be acceptable.

A related example is associated with a situation where work began before the appraisal inspection, and there is little documentation of the building condition and finishes prior to the start of work. Again, prudence dictates a conference with the floodplain administrator.

In examples like these, if relevant information is unavailable because the building inspection was severely limited, or the ability to research was severely constrained, then an appraiser should consider withdrawing from the assignment.

Hypothetical Conditions
A condition, directly related to a specific assignment, which is contrary to what is known by the appraiser to exist on the effective date of the assignment results but is used for the purpose of analysis.

For 50 Percent Rule appraisal assignments, adoption of a hypothetical condition is inappropriate unless the assignment is intended to assist in the calculation of an insurance settlement, or the situation involves litigation where a hypothetical condition is required for reasonable analysis.

Situations requiring adoption of a hypothetical condition have an intended use broader than the typical use of 50 Percent Rule appraisals.

PERTINENT FACTS

5 – THE BUILDING INSPECTION

Key Concepts:

- Capture the information necessary to make a reliable cost estimate, to estimate depreciation, and ultimately to satisfy the intended users.
- Make a note of deferred maintenance (neglect) and estimate the cost to cure.

USPAP does not require an appraiser to make a personal building inspection, and it does not directly regulate the nature of the inspection. It is good practice for appraisers to report the nature and extent of the inspection process, to disclose any limitations on the inspection, and to credit in the appraisal report anyone who assisted in the inspection.

What is the building?
The question arises when work commences without a building permit, or when work exceeds the scope of an issued permit. For work that is an improvement, the appraisal effective date is supposed to be before the start of work.

It is not unusual to arrive for a building inspection and find that work has started. Apparently, in some jurisdictions no permit is required for interior demolition. Provided there is adequate documentation of the building condition and finishes, the appraisal effective date should be a date immediately before demolition began.

It is a different problem when work exceeds the scope of an issued permit. There may be no obvious appraisal effective date. It is possible the community will not allow another permit application before issues with the first permit are resolved. There can be many variations on this theme. Usually, it is best to seek the advice of the floodplain administrator.

The cost of small advertising signs affixed to a building can usually be ignored. However, specific architectural features intended to identify a brand are part of the building.

Inspection Preparation
Information on file with the local assessor/auditor/property appraiser is a good starting place. Floodplain administrators are generally familiar with such records because assessment data is used in the adjusted assessed value method. Most of the time the assessor's building sketch is sufficient documentation of building size. Other possible information sources include:

- Information from public sources available on request
- Original and subsequent building construction plans
- Building inspection reports from others, including home inspectors and insurance adjustors
- Prior appraisal reports
- Multiple Listing System (MLS) images
- Boundary survey depicting the building

In-person inspections
Establish a procedure for thorough information gathering. Document with images and make notes. The goal is to capture the information necessary to make a reliable cost estimate, to estimate depreciation, and ultimately to satisfy the intended users.

If the building differs significantly from what public records indicate, be prepared to confirm measurements, and make field notes. The appraisal report should contain a dimensioned sketch sufficient to calculate area. Sometimes it is useful, and an aid to communication, to make field notes on a copy of the assessor's building sketch.

All buildings are not assessed. There might not be an assessor's sketch to use as a starting place, so be prepared to measure and make a field sketch, and to collect detailed construction information. The client or property owner might be a source of useful information.

If the assignment is to estimate the building value before damage occurred, then look for evidence of the building condition and finishes prior to damage. Images taken before the building was damaged are crucial. Take advantage of the presence during inspection of any reliable witnesses who have personal knowledge or documentation of the building condition and finishes.

Make a note of deferred maintenance (neglect) and estimate the cost to cure. Typical items of deferred maintenance include:

- Worn out or leaking roofs
- Cracked, chalky, faded, or peeling paint
- Rotten wood
- Broken windows or doors
- Holes in walls or missing drywall
- Lack of floor covering (exposed subfloor)
- Structural failure such as wall cracks, floors out of level, sagging roofs, etc.
- Broken or inoperative systems (plumbing, mechanical systems, electrical)

Identifying deferred maintenance is essential to estimating depreciation. Document with images and, if possible, get repair costs from a contractor.

Some deterioration is incurable and might not be the result of neglect. Structural problems like sagging roofs and floors might be incurable, or the cost to cure might be very high.

Inspections by others
Inspections by others are acceptable provided:

- The independent inspector is competent to do the work.
- The appraiser determines the building independent inspection report to be complete and reliable.
- The building inspection report is published in the appraisal report or retained in the appraiser's workfile.
- Credit is given in the appraisal report certification for the significant professional assistance of the person who made the physical inspection.

It is good practice for the appraiser to provide an independent inspector with an inspection checklist.

Cost Components Sometimes Missed
A reproduction cost estimate should include all direct costs. Building components sometimes overlooked include:

- In-ground piling foundations
- Basements and safe rooms
- Layered flooring materials like terrazzo or vinyl
- Fixtures like security systems, central vacuum systems, storm shutters, sound systems, elevators, backup generator systems, fire suppression systems, under-roof outdoor kitchens, water purification systems, special lighting, cabinetry & shelving, exterior architectural applications, etc.
- Superadequacies, like a 1-story building with a roof designed to support multi-story construction

Post-inspection Research
A building inspection might uncover unusual building characteristics that require additional research. Some communities maintain public records that include construction plans and building permit history. When the information is readily available, it makes sense to review and report the pertinent building permit history.

APPRAISAL PROCESS

6 - THE REPRODUCTION COST ESTIMATE

Key Concepts:

- Estimate reproduction cost not replacement cost.
- Include only direct costs.
- Calibrate the published cost service with known local costs.
- Developer profit must not be included.

In General
As a minimum, an ACV appraisal should include a reproduction cost estimate developed using a reputable published cost service. The appraisal report should disclose the cost system version, contain an explanation of how the cost system works, and include a copy of the detailed cost system report output.

The ACV method begins with an estimate of the direct cost, as of the appraisal effective date, to build a replica of the subject building. In appraisal terminology this is a reproduction cost estimate. Only direct costs of the building are included.

Cost System Requirements
It is essential that the appraiser use a published cost estimating service capable of generating a reproduction cost estimate compatible with 50 Percent Rule assignment conditions. The requirements of such a system include the ability to:

- Set a retroactive cost database (for effective dates prior to damage).
- Input a building address down to the local zip code.
- Input a variety of building occupancy types.
- Handle mixed-use buildings.
- Input exterior wall height by story or by building section.
- Input multiple ISO construction types.
- Select from an adequate range of construction quality levels.
- Input a perimeter shape or measurement.
- Account for substructures (stilts, crawl spaces, basements, etc.)
- Input site conditions.
- Make user adjustments.
- Input a variety of exterior and interior systems and finishes.
- Account for a variety of systems, equipment, and components.
- Generate a detailed output report suitable for inclusion in the appraisal report.

The published cost service database should update at least quarterly. The system can be manual, or internet based, provided it generates a report suitable for inclusion in the appraisal report.

Cost Estimating Products
There are several popular cost-estimating services including:

- CoreLogic – Commercial Express & Residential Xpress
- Craftsman Book Company
- Marshall & Swift Valuation Service – commercial & residential systems
- RSMeans

Most appraisers subscribe to one or more published cost services in connection with traditional appraisal practice. It is wise to choose a cost system that is easy to learn and easy to use, and one that has good technical support. Depending on an appraiser's professional practice needs, one cost service might be better than another, or maybe more than one system is required.

The author's favorite is CoreLogic Commercial Express. CoreLogic owns the Marshall & Swift Valuation Service with which I had many years of good experience, but Commercial Express is a more convenient, online subscription system that supports residential and commercial cost estimates. After a short learning period the advantages of this system are obvious. Commercial Express was designed to support insurable value estimates, so there is added benefit if that is part of an appraisal practice.

Cost System Adjustments
It is best to subscribe to a cost system that requires minimum user adjustment. When user adjustment is necessary, it should appear in the cost output report and there should be supporting discussion in the appraisal report.

For CoreLogic Commercial Express users, remember to set the system to "New Construction". The "Reconstruction" setting is for insurable value estimates.

Rapid Cost Increases/Decreases – When the first edition of The ACV Guidebook was being written, the interaction of construction material shortages, supply chain disruptions, and increasing labor rates resulted in rapidly increasing construction costs. During normal conditions all cost services have a built-in lag time resulting from their periodicity and the compiling/publication time. For several quarters it was necessary to manually adjust to account for the percentage the cost system was behind.

Care must be exercised when making manual adjustments to closely monitor the local market to avoid adjusting past the time after the cost service has caught up. Other cost estimating methods might require similar adjustment in fast-changing times.

Site Conditions – Occasionally, site conditions like slope angles, soil conditions, site size constraints, constraints on access, and external constraints on work schedules will affect cost. The cost system used should have input fields for such factors.

In-Ground Piling Foundations – The building foundation, even the part underground, is part of the building cost. It is the appraiser's responsibility to find out what kind of foundation exists, and to account for cost. Sometimes it is necessary to review

construction plans, to interview a knowledgeable building contractor or property owner, or to view images. Below-ground foundations are subject to depreciation.

Special Building Equipment – Cost system quality settings will account for differences in the cost of customary fixtures and equipment, but special items might require manual addition. Examples of this include fireplaces, backup generator systems, elevators, specialized fire suppression systems, and specialized industrial process systems.

Niche Market Cost Adjustments – From time to time even the best cost systems will require user adjustment to account for small, niche markets where the cost service doesn't account for unique factors affecting the availability of labor, materials, transportation, and construction management. Under such conditions a manual adjustment, adequately reasoned and supported, should be made.

Cost System Calibration

Regardless of which cost service is chosen, the appraiser should test results against known building costs to calibrate quality level options, and to confirm system results.

There are several ways to check cost system results and calibrate system quality level settings. Among these are collecting direct cost comparables, using market extraction techniques, and contractor cost estimates.

Direct Cost Comparables – This is the process of collecting detailed cost information for examples of recent construction directly comparable to the building being appraised. This is a good method provided:

- A detailed summary of actual costs is obtained from a reliable source.
- The comparable building is documented by personal inspection or images, and by a set of construction plans.
- The detailed cost summary is reviewed and adjusted for indirect costs and other costs that should not be included.
- Sufficient cost examples are obtained to be convincing.
- The cost examples are a close physical match to the building being appraised.

A drawback of this method is that it is very difficult to obtain well documented information from contractors and architects unless the building is a current project, and the appraiser has a valid reason to know.

Sometimes, if a building being appraised is outside the capabilities of the appraiser's cost service, or if the building is a one-off design, even one direct cost comparable is the best available information.

Appraisers utilizing this method should keep the detailed documentation and analysis as part of their workfile and be prepared to produce it upon request.

Market-Extracted Cost Comparables – This method works when there is an active speculative market in residential construction, and detailed information about the product,

and product sales, is available through the Multiple Listing Service (MLS). As with direct cost comparables, to differentiate quality levels the appraiser must collect numerous cost comparables.

The data can be organized using a spreadsheet application to capture identifying property information such as, MLS #, Address, Year Built & Date Sold.

A calculation block can be set up like the example below. Space should be devoted to retaining and analyzing comparable land sales information to support a site value estimate.

Research and analysis will be required to support deductions for furniture package costs and the profit margin. This is not the contractor's overhead and profit, but a profit margin expected by the entrepreneur who takes the risks of securing land, developing the building design, hiring a contractor, coordinating the process, and marketing the finished product.

The spreadsheet calculation block might look something like this:

Whole Property Purchase Price	$475,000
Less: Furniture Package	(25,000)
Less: Site Value	(75,000)
Residual	$375,000
Less: Entrepreneurial Profit	(41,250)
Less: Swimming Pool & Enclosure	(30,000)
Less: Boat Dock & Lift	(25,000)
Less: Other Site Improvements	(5,500)
Less: Landscaping	(2,500)
Residual to Building	$270,750
Building sq. ft. (living area)	2,166
Building Cost per sq. ft.	$125.00

After enough comparables are analyzed, the data can be organized by date and quality level. The MLS information must be rich in property data, particularly images, for the appraiser to make meaningful comparisons.

This method is particularly useful for calibrating cost system quality levels. Sometimes, if subject building is relatively new construction, there will be enough information of this kind to serve as a second method for estimating the building reproduction cost.

The appraiser should exercise caution to ensure that the extracted cost comparables are truly like the building under analysis. Subject building will always be nonconforming, and new construction comparables will always be conforming.

Drawbacks of this method are that there is usually no speculative construction commercial resale market, the speculative construction residential market comes and goes, and the full residential cost range is usually not represented.

Contractor Cost Estimates – Special cases might justify the appraiser hiring a contractor, or a professional cost estimator, to prepare an independent cost estimate. Detailed construction plans should be made available to the contractor/estimator, and specific instruction should be given about the cost estimate scope of work, especially that the cost estimate needed is the cost to build a replica of the building, and that only direct costs should be included.

Contractor cost estimates are particularly useful when the building is a one-off design, or when the building is a special type not supported by the appraiser's cost service.

Indirect Costs

When the Desk Reference explains the NFIP "market value" it refers to the structure or building, never to the development or the project. From this and other context, it is clear that the building or structure cost estimated in the ACV method is only the direct cost at the general contractor level. General contractor level direct costs properly include the contractor's overhead and profit.

Indirect costs (sometimes called soft costs) are expenditures or allowances for items other than labor and materials that are necessary for construction but are not typically part of the construction contract. These development or project costs are usually paid by the developer. Things like permit fees, project administrative costs, professional fees, financing costs and interest paid on construction loans, taxes, the developer's all-risk insurance during construction, and marketing, sales, and lease-up costs incurred to achieve full occupancy or sale are not part of the building cost estimate.

Indirect costs and developer profit should not be included in ACV building cost estimates.

Many cost estimating systems automatically include a percentage for architect's fee. Information about how the cost system works should be clear about whether an architect fee is included. If so, then the architect fee and any other indirect costs should be deducted. The appraisal report should disclose whether an architect fee is included in the cost estimate and show the calculations for its removal.

There is no universal agreement about cost terminology, and cost system output reports sometimes default to inappropriate terminology. Appraisers should be aware of this and, if necessary, clarify in the appraisal report.

Developer profit (sometimes called entrepreneurial incentive or entrepreneurial profit) is a category of development or project costs that is compensation to a developer for risk, management, and coordination. Developer profit should not be included in an ACV cost estimate.

Reconciliation
Whenever two or more building cost estimates are developed, they must be reconciled to a conclusion.

7 - ESTIMATING DEPRECIATION

Key Concepts:

- Depreciation is only physical deterioration.
- The terms “effective age”, “economic life”, and “remaining economic life” have no place in ACV.
- Use the Physical Life Calculator.
- Adjust straight-line physical deterioration for deferred maintenance.

Regulatory Requirements
In discussing ACV, the Desk Reference is clear that depreciation applied to the reproduction cost estimate is only depreciation due to age, use, and neglect. Appraisers call this physical deterioration. ACV does not consider loss in value due to outmoded design or location factors which appraisers call obsolescence.

Terminology
The “physical depreciation” referred to in Desk Reference Section 4.5.3 is an outdated term that means the same as physical deterioration. Actual Cash Value estimates consider only physical deterioration.

Using inappropriate terminology is a tipoff that an appraiser might not be competent.

The terms “effective age”, “economic life”, and “remaining economic life” which relate to all forms of depreciation, including obsolescence, have no place in a discussion of ACV. Likewise, the life expectancy tables published by many cost services depict economic life expectancies and are not appropriate for ACV depreciation analysis.

Depreciation Theory – Physical Deterioration
Sometimes for the purpose of analysis appraisers separate physical deterioration into three categories, deferred maintenance, short-lived components, and long-lived components.

Deferred maintenance is items of wear and tear that should be fixed now to protect value. This is the “neglect” mentioned in the Desk Reference.

Short-lived building components are items that will probably be replaced one or more times during the life of the improvement. Examples are paint, flooring, heat and cooling systems, the water heater, the roof cover, etc.

Long-lived items are building components expected to have the same useful life as the entire structure. These are the “bones” of the building, things like the foundation, subfloor, wall and ceiling structure, and the roof framing and decking.

For some building designs the roof cover is not clearly in the short-lived or the long-lived category. The roof of a pre-engineered metal building might be designed to last the full

building physical life expectancy. On the other hand, residential roofs are usually replaced several times during a typical physical life.

Estimating Physical Deterioration
To develop an accurate ACV depreciation estimate it is essential to observe whether the property manager is keeping up with regular maintenance. Deferred maintenance items should be documented, and a list should be prepared with a cost to cure for each item. This was discussed this in some detail in Chapter 5 – The Building Inspection.

If a major short-lived component is not working (the furnace or air conditioning system) then a repair/replacement cost should be estimated and added to the list.

Let's leave for later a discussion of how to account for an aging roof cover (see Accounting for Neglect).

Estimating Straight-Line Physical Deterioration
Building Actual Age - Just subtract the year of original construction from the year of the appraisal effective date. Under unusual conditions, actual age can be reduced by major structural additions. Renovations can make a big difference in the appearance of the building, but renovations usually don't affect the building long-lived components in a way that changes the actual age.

> If the building age used is different than the age calculated from original construction, be careful, and provide adequate support for that conclusion.

Forecasting Building Physical Life – The Dictionary of Real Estate Appraisal defines physical life as:

> *"An estimate of how old a building or improvement will be when it is worn out. The total period a building lasts or is expected to last as opposed to its economic life."*

Forecasting the building physical life is answering the question:

> Assuming subject building was properly designed and constructed on the same site, occupied in the same way, and properly maintained, how long would the building stand?

Physical life is the absolute life of a properly designed, constructed, and maintained structure. It is a period that goes beyond when a building ceases to be economically useful. Lack of utility, not wear, is what causes most structures to be demolished.

What is a reasonable and supportable forecast? What factors make a difference? How can appraisers develop physical life forecasts reflecting the individual characteristics of subject buildings?

Many communities have buildings older than the 50 to 70 years typically estimated as total economic life. Observation and logic support a physical life forecast of not less than 75 years. Some North American communities have buildings still in use after more than

200 years, and in Europe, sometimes much longer. A reasonable upper limit for building physical life might be 250 years.

Citable Support - According to the sixth edition of Cost Studies of Buildings, by Allan Ashworth and Srinath Perera, published in 2015, by Routledge,

> *"Where a building has been carefully designed and constructed and properly maintained its physical life can be almost indefinite."*

From the paper entitled, "Survey on Actual Service Lives for North American Buildings", presented in 2004 at the Woodframe Housing Durability and Disaster Issues conference, Las Vegas, research scientist Jennifer O'Connor with Forintek Canada Corporation reported the results of a demolition survey in a major North American city that captured building age, building type, structural material, and the reason for demolition of 227 buildings.

O'Connor concluded that the kind of materials used in construction are not determinant of physical life. Instead, the reasons for demolition were related to changing land values, lack of suitability of the building for current needs (obsolescence), and lack of maintenance of various non-structural components (neglect). Only eight buildings (less than 4% of the sample studied) identified a specific structural failure. Over 50% of the buildings studied were residential.

This supports the assertion that most depreciation is some form of obsolescence, not physical deterioration.

In the 2011 conference paper entitled, "Estimating the Useful Life of Buildings", Professor Craig Langston of Bond University, Queensland, Australia, analyzed building obsolescence, and in doing so, developed estimates of building physical life using a new tool he called the Physical Life Calculator.

Professor Langston explains that the physical life calculator algorithm assumes a base life of 100 years, and then adds or deducts points (years) according to the responses to questions. It is similar in concept to the Living to 100 Life Expectancy Calculator that predicts human life span based on extensive medical and empirical data. Some conservatism is applied to the estimate and the forecast is rounded down to one of the following outcomes: 25, 50, 75, 100, 150, 200, 250 or 300 years. The physical life calculator is unsuitable for temporary structures or for iconic monuments, both of which require specialist judgment.

The Physical Life Calculator is available at floodpointusa.com together with detailed instructions for its use.

The physical life calculator tool generates a forecast based on answers to thirty Yes/No questions characterizing the building's environmental context, its occupational profile, and its structural integrity. The Calculator does not replace expert opinion, but it informs expert judgement.

PHYSICAL LIFE CALCULATOR

suggested forecast (years) =

			y/n ?
environmental context	Is the building located within 1 kilometre of the coast?		
	Is the building site characterised by stable soil conditions?	#	
	Does the building site have low rainfall (<500mm annual average)?		
	Is the building constructed on a 'greenfield' site?		
	Is the building exposed to potential flood or wash-away conditions?		
	Is the building exposed to severe storm activity?		
	Is the building exposed to earthquake damage?		
	Is the building located in a bushfire zone?		
	Is the building located in an area of civil unrest?	#	
	Are animals or insects present that can damage the building fabric?	#	
occupational profile	Is the building used mainly during normal working hours?		
	Are industrial type activities undertaken within the building?	#	
	Is the building open to the general public?		
	Does the building comprise tenant occupancy?		
	Is a building manager or caretaker usually present?	#	
	Is the building intended as a long-term asset?	#	
	Does the building support hazardous material storage or handling?		
	Is the building occupation density greater than 1 person per 10 m^2?		
	Is the building protected by security surveillance?		
	Is the building fully insured?		
structural integrity	Is the building design typified by elements of massive construction?		
	Is the main structure of the building significantly over designed?		
	Is the building structure complex or unconventional?		
	Are building components intended to be highly durable?	#	
	Are there other structures immediately adjacent to the building?		
	Is the building founded on solid rock?	#	
	Was the workmanship standard for the project high?		
	Is the roof suspectible to leaking in bad weather conditions?	#	
	Is the building protected against accidental fire events?		
	Is the building designed as a public monument or landmark?		

Notes:
Questions indicated (#) are double weighted
Blank responses are ignored

completed

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With the building actual age and a reliable forecast of physical life, straight-line physical deterioration can be calculated as a percentage and then applied to the building reproduction cost yielding the straight-line deterioration dollar amount. Assume a building reproduction cost of $250,000.

Building Actual Age ÷ the Forecast Building Physical Life

10 ÷ 150 = .0667

Or 6.67%

$250,000 × .0667 = $16,675 Straight-line Physical Deterioration

It is important to realize that if the estimate of straight-line physical deterioration is applied to building reproduction cost, then all building cost components, whether short-lived or long-lived, will be depreciated in an amount equal to the straight-line percentage. Later, when considering deferred maintenance items and their associated costs to cure, and the condition of the roof cover, we must account for straight-line depreciation already charged.

Accounting for Neglect

Deferred maintenance, or neglect, causes total physical deterioration to be more than the straight-line amount. If deferred maintenance is observed during the inspection process, the appraiser should itemize and estimate a cost to cure for each item. To simplify calculations let's assume no significant deferred maintenance was observed during inspection.

The roof cover is a special case because a roof is usually the single most expensive maintenance item, but it is replaced at long intervals. As the roof ages a significant amount of physical deterioration builds up even though roof replacement may be years in the future.

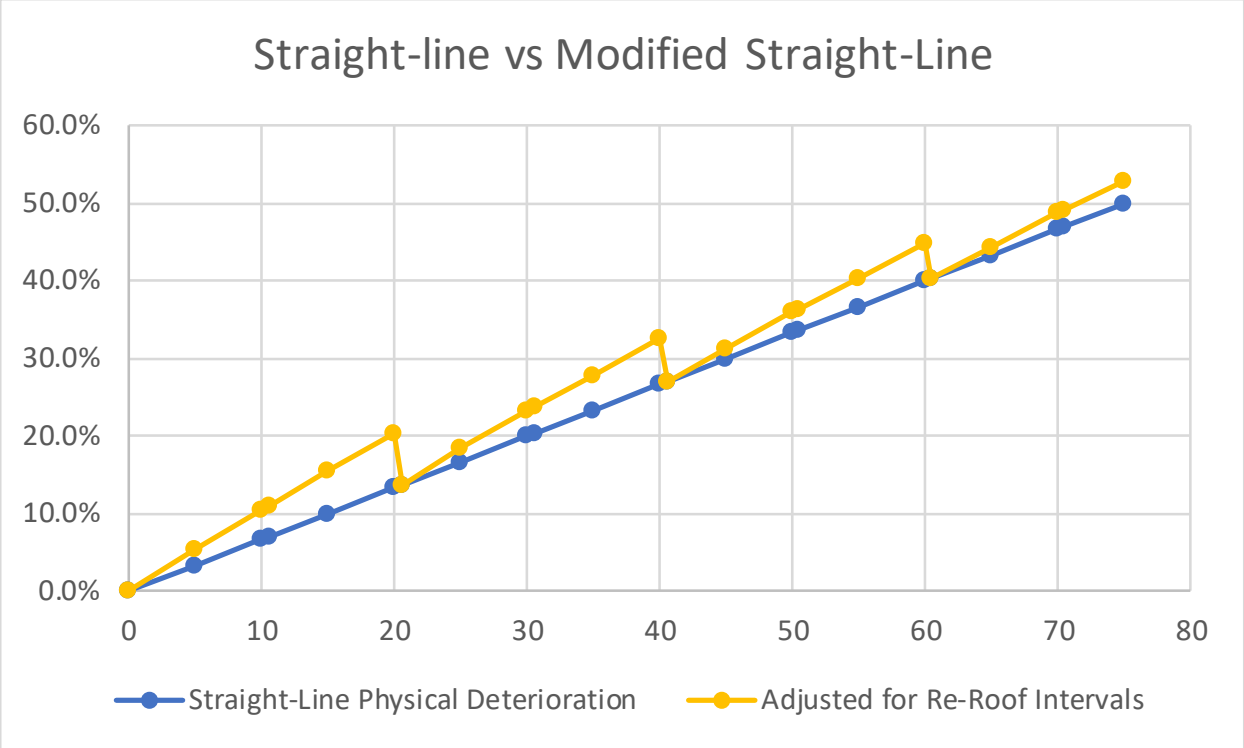
A properly built roof depreciates a little bit each year and it might have a physical life of 20 years or more. The question arises, when is it appropriate to make an adjustment for the condition of the roof? Roof life is unpredictable, and most appraisers are not roof experts. It is good practice for appraisers to:

- Find out the age of the roof cover.
- Observe the apparent condition of the roof.
- Look inside and outside for evidence of roof leaks or recent repairs.
- Ask if the roof cover is about to be replaced, and if so, at what cost?

Provided there are no leaks and no obvious roof defect, the roof cover has not been neglected, but it is wearing out. Account for roof wear this way:

Find out the age of the roof	10 years
Estimate the roof total useful life	20 years
Estimate the cost of a like-kind re-roof	$20,000

This roof is about 50% worn out (10/20). However, the roof cover has already been depreciated 6.67% by the straight-line method, so the percentage to apply to the re-roof cost is 43.33% (.50 - .0667 = .4333). To account for the age of the roof add $8,666 (.4333 × $20,000) to the straight-line physical deterioration amount.



The chart above compares the accumulation of straight-line physical deterioration (in blue) with an alternative plot depicting the impact of roof deterioration. In this example there is a re-roof at 20-year intervals. Because the cost of a re-roof is a significant percentage of reproduction cost, in this case 8%, roof deterioration causes noticeable additional depreciation. When the roof cover is replaced at year 20.5, the yellow line moves back to join the blue straight-line amount. As the building ages and total straight-line deterioration increases, the effect of roof wear is less and less. At some point the calculation for the condition of the roof will result in a positive adjustment to physical deterioration.

In this example it is not yet time to replace the roof, but an appraiser should account for the wearing out of such a high-cost component. An ACV appraisal must treat the roof realistically so that after the roof cover is replaced a subsequent appraisal will reflect the added value of the newer roof. The need for this is apparent when working in a community where application of the 50 Percent Rule is permit-to-permit.

When there is significant deferred maintenance a similar adjustment process is followed, and the adjusted amount of deferred maintenance is added to the amount of straight-line

physical deterioration. This must be done because the straight-line calculation is based on assumptions that the building was properly designed, properly constructed, and properly maintained.

Structural Issues
Things like large wall cracks, unlevel floors, sagging roofs, serious termite damage, and mold contamination, are often incurable. Incurable means it is not practical (financially feasible) to spend the cost to cure. Quantifying the cost to fix problems like these can be difficult, but in most cases the problem will be of such magnitude that professional judgement is enough to decide whether it is prudent to continue the appraisal process.

The Final Calculation
To account for neglect, the cost to cure all deferred maintenance items (including roof wear) must be added to the straight-line physical deterioration estimate.

Actual Cash Value Calculation

You have a 10-year-old building costing $250,000 to reproduce

The building physical life is forecast as 150 years

10-year-old bldg. ÷ 150 building life = .0667 or 6.67% straight-line physical deterioration

$250,000 reproduction cost × .0667 = $16,675 straight-line physical deterioration

In this example there was no significant deferred maintenance

The roof cover costing $20,000 is 50% worn out

So, total physical deterioration is $16,675 + $8,666 = $26,341

Reproduction Cost – Physical Deterioration = Actual Cash Value

$250,000 - $26,341 = $223,659

Best Practice
A logical, reasoned estimate of straight-line physical deterioration (actual age/forecast physical life), adjusted for deferred maintenance and neglect, is the most reliable and convincing method.

THE APPRAISAL REPORT

8 – REPORT DOCUMENTATION

Key Concepts:

- The purpose of every appraisal report is to communicate.
- For 50 Percent Rule assignments, the appraiser's primary audience is the floodplain administrator.
- An ACV appraisal report should not include economic analysis related to the real estate market, a description of any improvements except subject building, anything related to zoning or land use, a highest and best use analysis, or any comments intended for mortgage loan underwriters.

USPAP Reporting/Record Keeping Requirements
There are specific appraisal development and reporting requirements in USPAP Standards Rules 1 and 2. The standards rules detail an appraiser's obligations to meet the scope of work requirements mentioned in Chapter 2 – Getting Started.

The USPAP Record Keeping Rule requires appraisers to keep true copies of all written reports transmitted to the client. Once an appraisal report is issued, subsequent issuance of a revised report is a new report (in USPAP there are no "updates").

If, after feedback from a floodplain administrator, an appraiser decides to make report revisions, then the appraiser should keep true copies of the original report and any issued revised reports.

Report Type
Under USPAP each written appraisal report must be prepared as either an "Appraisal Report" or a "Restricted Appraisal Report", and the report type must be prominently stated (often on the report cover).

With very rare exceptions, 50 Percent Rule appraisal reports should be labeled as "Appraisal Report" and the report should be content rich. That is because the valuation process is governed by unusual assignment conditions, and ACV methodology is different than that to which most appraisers, and users of appraisal services, are accustomed.

A Restricted Appraisal Report is designed to be concise, and to limit the appraiser's professional liability. The report can be very concise if the client and other specifically identified intended users are knowledgeable of the subject matter and appraisal methodology.

A restricted appraisal report might be appropriate if the appraiser's client is the only intended user, but in that case the report can't be relied on by a floodplain administrator.

Verbal Reports
When an appraiser's client is developing a feasibility analysis to learn how much improvement is possible for a given nonconforming building in the floodplain, the

appraiser might conduct a scope of work that does not include a written report. It is the appraiser's responsibility to make a verbal report that meets the client's needs, but is not misleading, and to document the appraisal process in an appraisal workfile sufficient so that a written report could be issued.

Sometimes an appraiser will propose a phased assignment where the Phase I scope of work is everything necessary to make the appraisal and write the report, but the Phase I report is delivered verbally. Then, at the client's option, the Phase II scope of work is only to deliver a written appraisal report. The client and the appraiser should agree that the time interval for the client to elect to continue to Phase II will be short.

Report Format

There is no electronic form designed to report the results of a 50 Percent Rule appraisal. This is unfortunate because more than 90 percent of the appraisals of this type are about single unit residential buildings, and most residential appraisers are accustomed to form reports.

Until there is a form specifically designed for reporting a 50 Percent Rule appraisal (hopefully an ACV appraisal) a narrative appraisal report is best. The report can be simple and relatively short. Some of the key informational pages will not change from assignment to assignment, and a narrative report can be written so that many other factors that do change can be handled as simple inputs.

Level of Reporting Detail

Appraisers struggle deciding how much to write, and often they write too much. Given that the 50 Percent Rule practice is subject to unusual assignment conditions, and the client and other intended users sometimes don't understand the scope of work, it makes sense to provide clarity where there is apt to be misunderstanding.

Areas of the report that deserve special attention are:

- A page in the front summarizing Important Data & Conclusions.
- The appraiser's Certification page tailored to a 50 Percent Rule assignment.
- A page entitled Appraisal Problem & Method summarizing the logical process that leads to the use of ACV valuation methodology.
- A Definitions page developing the value concept with specific definitions for ACV and Reproduction Cost
- Building images, inside and out, relevant to the appraisal effective date, sufficient to understand the quality of construction, the construction finishes, and the building condition.
- A written Building Description section in sufficient detail to develop a reproduction cost estimate, including discussion of any significant deferred maintenance.
- A discussion of the cost estimating system, by name and version, and how it works, including discussion and support of any adjustments or direct user inputs.

- A discussion of Depreciation, in concept and as applied to subject building, including the building actual age, the reasoning and support for the appraiser's forecast of building physical life, and the addition of any significant deferred maintenance.
- A final calculation (reproduction cost minus physical deterioration) yielding ACV, perhaps with a statement that this is the amount to which the 50 Percent Rule applies.
- A small Addendum depicting other information the appraiser relied on, like construction plans, building sketch, assessment information, etc.

Assuming the appraiser is competent and has correctly documented the assignment elements, the most important items to a floodplain administrator are the building images, the written building description, and the depreciation discussion.

The other intended users might find Appraisal Problem & Method, and the page developing a foundation for the definitions of ACV and Reproduction Cost helpful. Those pages also tend to support the assertion that the appraiser is competent.

A 50 Percent Rule appraisal report should **not** include:

- Discussion of economic trends, except as relates to changing construction costs.
- Discussion of neighborhoods, districts, and market areas.
- A statement of marketability or assumed marketing time.
- Census tract information.
- HOA or condominium project description.
- Description of the site, except as relates to extraordinary construction costs.
- Discussion of zoning and land development regulations.
- Highest and best use analysis.
- Comments intended for mortgage loan underwriters.

9- APPRAISAL REPORT EXAMINATION

Key Concept:

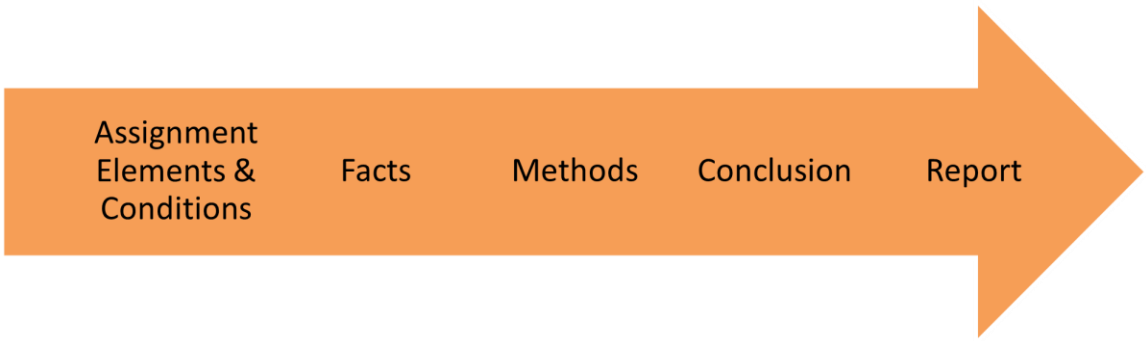
If they expect it and insist on it, floodplain administrators will get good appraisal work.

What is Appraisal Examination?
Appraisal examination is what a floodplain administrator does. It is not the same as appraisal review, which is a USPAP defined term; the process of one appraiser, working within the context of USPAP Standard 4, developing an opinion about the quality of another appraiser's work.

The Desk Reference charges local officials to examine appraisal reports to determine if the report is reasonable for the specific characteristics of the building and to check that the appraisal did not include the value of the land, land improvements (e.g., landscaping, paving), and accessory buildings.

Historically, most 50 Percent Rule appraisal reports have been the standardized form reports intended for mortgage loan underwriting. Usually, those appraisal reports aren't very helpful to floodplain administrators. That goes a long way to explain why some floodplain administrators are ambivalent, at best, about professional appraisals. Some communities discourage professional appraisals.

The Valuation Process
Remember this graphic from Chapter 2?



It appears here, again, as a reminder that appraised value is the consequence of an appraiser getting assignment elements and conditions right, finding the pertinent facts, applying the correct methodology to reach a conclusion, then reporting the results in a way that can be understood by intended users.

Examining an appraisal report follows the same process orientation. One doesn't start with the value estimate and work backwards.

A Checklist for Everyone
The Local Official Appraisal Checklist was originally developed as an instructional aid for local officials continuing education training. The checklist proved useful, and morphed into two checklists, one specifically for ACV appraisals and the other for use with traditional market value appraisals. Both checklists are available for download, free, at floodpointusa.com. The checklist was organized to follow the order of The ACV Guidebook and to supplement it.

In training, local officials learn to read real-world appraisal reports, and they use one or both checklists to make decisions about whether to accept or reject an appraisal report. ACV appraisal reports are easier to understand, and communities seem to be moving in that direction.

Be Proactive
The author being an appraiser himself, and having learned some about floodplain administrators, it is easy to see the disconnects. Floodplain administrators and appraisers are advised to be proactive. Talk to one another. Mutual feedback will result in better appraisal work and better working conditions.

The Local Floodplain Management Ordinance - In general, floodplain administrators would be well advised to develop a local ordinance that avoids confusion about professional appraisals by defining the NFIP "market value" as Actual Cash Value or the results of the adjusted assessed value method. Local administration should develop an in-house procedure for making SI/SD determinations including using an appropriate appraisal checklist.

Public Outreach - Make it a practice to share with appraisers, contractors, and architects the local floodplain management ordinance definition of "market value", the checklist that will be used to examine 50 Percent Rule appraisal reports, and a reference to the Guidebook.

Tell appraisers about the free information available at floodpointusa.com. Tell appraisers about training available to help understand the NFIP "market value". The Florida Floodplain Manager's Association (FFMA) offers virtual and in-person classes on the subject several times a year.

Appraiser/Client Confidentiality – The floodplain administrator is an intended user but is almost never the appraiser's client. Floodplain administrators need to know that confidentiality provisions of the USPAP Ethics Rule obligate appraisers to act in good faith regarding the legitimate interests of the client in the use of confidential information and in the communication of assignment results. Without permission from the client, an appraiser probably should not discuss the appraisal with a floodplain administrator even though (s)he has a copy of the appraisal report.

Usually, such discussions are in the best interest of the client. To avoid this dilemma, it is good practice for appraisers, at inception of the assignment, to get the client's permission to discuss the appraisal with the floodplain administrator.

In some states, Florida for example, appraisal reports submitted to a public agency become subject to the public records statute. This does not remove the appraiser's duty of confidentiality.

Relationships - The appraiser's client (a property owner, contractor, architect, etc.) has influence with the appraiser because:

- The client usually pays the appraisal fee.
- The client might use the appraiser's services again.
- The client might tell others about the appraiser.
- The client might complain about bad work.

> Insist on competent appraisal work and you are likely to get it.

Floodplain administrators are positioned to leverage a permit applicant's influence on the appraiser because the permit applicant is often the appraiser's client, and the applicant is likely to use the appraiser's services again. As the ultimate decider of whether an appraisal report is acceptable for its intended use, a floodplain administrator can be very influential in the process of educating appraisers to do better work.

Interacting with Appraisers – Most appraisers want to do what's right and will accept help when it is offered diplomatically. Floodplain administrators might organize appraisers into groups:

1. Appraisers who have already demonstrated competence and professionalism.
2. Appraisers who apparently want to do right but are not fully competent.

The object is to promote Group 1 and encourage improvement in Group 2.

Managing Deficient Appraisal Reports – It is paramount that floodplain administrators understand that the appraiser is the valuation expert. Floodplain administrators will not win arguments with appraisers by focusing on the appraiser's opinion of value. Focus instead on where the appraiser departed from what is required by the checklist. Look for support in The ACV Guidebook.

> The appraiser is the valuation expert. Floodplain administrators will not win arguments with appraisers by focusing on the appraiser's opinion of value.

Here are four suggestions for an effective approach:

- Use the latest version of the Local Official ACV Appraisal Checklist.
- If the appraisal report needs a minor revision, call the appraiser, compliment on the good work, and ask for the minor revision.
- If there are multiple deficiencies that can be cured, or if the report lacks sufficient documentation, call the appraiser and request "clarification" to make the report

acceptable. Focus on specific checklist items. Follow up by sending a blank copy of your checklist and suggest the appraiser look at the ACV Guidebook.

- If an appraiser refuses to listen, is uncooperative, or if the appraisal report is completely unacceptable, contact the permit applicant and inform of the intention to reject the report. Send the applicant a blank copy of the checklist and require that a new report be issued. Let the appraiser's client decide whether the appraiser can be rehabilitated.

Local communities should operate consistently during the appraisal examination process. Unless an examination must be handled at a higher level, the same local official should interact with the appraiser until the matter is resolved.

Be knowledgeable of the subject matter, put appraisal issues in writing, and require written responses. Once appraisal issues are reduced to writing don't raise new issues.

ADDENDUM

The Case for Being a 50 Percent Rule Appraiser

Fifty Percent Rule appraisals are worth knowing about, and executing professionally, because:

- Demand for this specialized appraisal service is growing.
- There are few qualified appraisers.
- Most of the work is residential, representing a new, growing practice area for residential appraisers.
- The methodology is easy to understand and develop.
- Guidance and useful tools are available free of charge.

The Case for Actual Cash Value Appraisals

Actual Cash Value (ACV) is the best valuation method for 50 Percent Rule appraisals because ACV:

- Is a direct valuation method that is easy to understand and develop.
- Results in an appraisal report that is uncomplicated and easy to understand.
- Works for all building types and occupancy types.
- Always avoids the forbidden value associated with use and occupancy.
- Usually yields better results than the adjusted tax assessment method.
- Helps avoid issues of bias and discrimination.
- Is relatively stable and reliable during changing market conditions.

Leading communities are moving to require ACV appraisals, and they expect professional appraisal reports.

The fact is, ACV is a method that always works, and it usually yields the best results for everyone involved.