Basic Appraisal Procedures

PC101GRCHM

FOR General & Residential APPRAISERS

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The Appraisal Institute was established when the American Institute of Real Estate Appraisers (AIREA) and the Society of Real Estate Appraisers (Society) unified in January 1991. AIREA and the Society, founded in 1932 and 1935, respectively, were created to help standardize the appraisal process by promoting professional education and upholding high ethical standards.

1932
AIREA is formed as an affiliate of the National Association of Realtors. *The Appraisal Journal* is launched. The Metro New Jersey Chapter becomes the first chartered chapter.

1935
The U.S. Building and Loan League sponsors the Society, which establishes appraisal guidelines and standards. After completing education and experience requirements, the first SRA designation is conferred.

1945
The MAI designation program is introduced (AIREA's MAI designation dates back to the 1930s)

1951
The first edition of *The Appraisal of Real Estate* is published.

1961
The Society opens a Washington, DC, office to establish a voice among the leaders of Congress and the federal government.

1969
The Society initiates the Young Advisory Council (YAC), a series of roundtable discussions on topics of interest to appraisers and analysts, now known as LDAC.

1981
The Appraisal of Real Estate is translated and published in German. 14 additional international editions have been published since then.

1987
AIREA and the Society are founding sponsors of The Appraisal Foundation, which is established to work with the government to create a self-regulatory system.

1989
Congress passes the Financial Institutions Reform, Recovery and Enforcement Act (FIRREA), which establishes state appraisal certification/licensing for federally related transactions.

1991
AIREA and the Society formally merge into the Appraisal Institute.

1992
The Y. T. and Louise Lee Lum Library is established.

1996
The first quarterly issue of *Valuation Insights & Perspectives* (now *Valuation*) is introduced.

2000
The Appraisal Institute introduces *Appraiser News Online* (ANO).

2003
The first MAI designations are conferred upon Korean appraisers.

2014
The Appraisal Institute begins issuing two review designations: the AI-GRS and AI-RRS.

With more than 85 years of history, the Appraisal Institute continues to serve as the nation's largest professional organization of real estate appraisers. Through its designation programs, educational offerings, advocacy efforts and publishing endeavors, the Appraisal Institute maintains its leadership position within the real estate industry and continues to be a leader in the global valuation profession.

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The Appraiser Qualifications Board (AQB) has reviewed and approved

Basic Appraisal Procedures

30 hours Qualifying Education (QE)
30 hours Continuing Education/Education (CE/E)
28 hours Continuing Education (CE)
Classroom version

ENTER COURSE TITLE HERE	**15 hours**
Topics	***Hours***
Overview of Approaches to Value	11.00
Valuation Process	1.00
▪ Defining the Problem	0.50
▪ Collecting and Selecting Data	2.75
▪ Analyzing	1.50
▪ Reconciling and Final Value Opinions	0.75
▪ Communicating the Appraisal	0.50
Property Description	1.00
▪ Geographic Characteristics of the Land/Site	0.50
▪ Geologic Characteristics of the Land/Site	0.25
▪ Location and Neighborhood Characteristics	0.50
▪ Land/Site Considerations for Highest & Best Use	0.50
▪ Improvements-Architectural Styles & Types of Construction	1.25
Residential Applications	6.00
Examination	2.00

The content of this course has been approved under the Course Approval Program of the Appraiser Qualifications Board (AQB) of The Appraisal Foundation. Qualifying and Continuing Education were both approved through March 25, 2024.

The Course Approval Program is a voluntary national system for the approval of courses of instruction that satisfy the education criteria established by the AQB for licensure and certification of real estate appraisers pursuant to Title XI of the Financial Institutions Reform, Recovery and Enforcement Act (FIRREA).

All states require students to provide proof of education. Students must track their education on a matrix. The above breakdown of hours has been fulfilled for the Basic Appraisal Procedures core curriculum subtopic.

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The following contributors deserve recognition for their efforts in developing this material:

Course developer:	Craig M. Harrington, SRA, AI-RRS
Development team:	Ron D. DeVries, MAI, SRA
	Thomas R. Kirby, MAI, SRA
	Lee H. Waronker, MAI, SRA
Course reviewer:	Dawn M. Molitor-Gennrich, SRA, AI-RRS

The following Education Resources staff of the Appraisal Institute also contributed to the completion of these materials: Sue Siradas, Director, Education Resources; Anne Calek, Senior Manager, Classroom Education; Dawn Martin, Managing Editor, Classroom & Technology-Based Education; Linda Willet, Editor, Classroom & Technology-Based Education; Jeanie Yu, Senior Production Specialist, Classroom Education; Michael Brooks, Production Specialist, Classroom Education; Mallory Whaley, Education Development Coordinator; and Kristine Cesario-Price, Senior Classroom Education Specialist.

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Table of Contents

Overview ix

Course Schedule xiii

SECTION 1

Introduction 1

Part 1. The Valuation Process

Preview Part 1. 3
The Valuation Process—Chart 5
Introduction to the Valuation Process 6
Identification of the Problem 7
Scope of Work 13
Data Collection and Property Description 15
Data Analysis 17
Review Part 1. 19
Review Quiz 20

Part 2. From Analysis to Solutions

Preview Part 2 21
Land Value Opinion 23
Application of the Three Approaches 26
Reconciliation of Value Indications and Final Opinion of Value 30
Report of Defined Value 30
Review of the Valuation Process 32
Review Part 2. 33
Review Quiz 34

Part 3. Introduction to Income Capitalization

Preview Part 3. 35
Getting Started with the HP 12C Calculator 36
Income Capitalization Approach—Setting the Stage 39
Terms and Definitions 46
Income Capitalization Methods 51
Review Part 3. 53
PRACTICE TEST—Section 1 55

SECTION 2

Part 4. Income Capitalization Formulas

Preview Part 4. 59
Capitalization Formulas Without Fear 61
Income Multipliers 67
Income Rates 71
Review Part 4 73
Review Quiz 75

Part 5. Income and Expense Analysis

Preview Part 5. 77
Lease Analysis 79
Developing Income and Expense Estimates 84
Review Part 5 91
Review Quiz 92

Part 6. Application—Problem Solving

Preview Part 6. 93
Application—Problem Solving 95
Review Part 6 99

SECTION 3

Part 7. Construction and Design Basics

Preview Part 7. 101
Introduction to Appraisal Observation 103
Appraisal Observation from the Ground Up 104
House Design for Appraisers 113
Review Part 7 117
Review Quiz 118

Part 8. Introduction to the Cost Approach

Preview Part 8. 119
Getting Started with Cost 121
The Basics of Estimating Cost 124
Measurement of the Structure 131
Review Part 8. 137
Review Quiz 138

Part 9. Components in Cost Analysis

Preview Part 9. 141
Analyzing Component Costs 143
Oak Street Case Study (Part I)—Cost Analysis 145
Square Foot Appraisal Form 151
Review Part 9. 155
PRACTICE TEST—Section 3 157

SECTION 4

Part 10. Cost Analysis—Case Study

Preview Part 10. 161
Completion of the Case Study 163
Breaking Down the Costs 163
Review Part 10. 169

Part 11. Commercial Costs and Depreciation Basics

Preview Part 11. 171
Quality Classifications for Commercial Structures 173
Depreciation Basics 176
Review Part 11. 181
Review Quiz 183

Part 12. Applied Depreciation

Preview Part 12. 185
Market Extraction Method 187
Age-Life Method of Depreciation 189
Breakdown Method of Depreciation 193
Review Part 12. 201
PRACTICE TEST—Section 4 203

SECTION 5

Part 13. Land or Site Valuation

Preview Part 13. 207
Overview of Land or Site Valuation 209
Land or Site Valuation Procedures 211
Oak Street Case Study (Part II)—Sales Comparison and Site Valuation 222
Review Part 13 225
Review Quiz 227

Part 14. Property Description

Preview Part 14. 229
The Valuation Process in a Form 231
Oak Street Case Study (Part III)—Property Description 233
Manufactured Homes 246
Cost Approach on the URAR 248
Review Part 14 249

Part 15. Sales Comparison Approach

Preview Part 15. 253
Overview of the Sales Comparison Approach 255
Review Part 15 265
PRACTICE TEST—Section 5 267

SECTION 6

Part 16. Comparable Property Selection

Preview Part 16. 271
Preliminary Selection Process 273
Oak Street Case Study (Part IV)—Comparable Sale Selection 275
Review Part 16 291

Part 17. Adjustments

Preview Part 17 293
Identification and Measurement of Adjustments 295
Types of Adjustments 297
Adjustment Process 299
Reconciliation of the Sales Comparison Approach 300
Oak Street Case Study (Part V)—Market Grid Adjustments 302
Review Part 17 305

Part 18. Oak Street Case Study—Market Grid Application

Preview Part 18 307
Oak Street Case Study (Part VI)—Instructions for Market Grid 309
Guide Notes for the Market Grid 310
Review Part 18 317
PRACTICE TEST—Section 6 319

SECTION 7

Part 19. Oak Street Case Study—Sales Comparison (Market Grid Application, cont.)

Preview Part 19 323
Oak Street Case Study (Part VII)—Sales Comparison 325
Review of Adjustments 325

Part 20. Reconciliation and Communication

Preview Part 20 327
Reconciliation 329
Oak Street Case Study (Part VIII)—Reconciliation 332
Communication 332
Reporting Formats 334
Report Documentation and Work File 337
Certification 337
Review Part 20 345
PRACTICE TEST—Section 7 347

SECTION 8

Part 21. Exam Content Review

Preparing for the Exam..... 351
Content Covered in Course..... 350

Appendix

Definition of *Effective Date*
Example of Yield Capitalization—Commercial
Further Insight on Mortgage Capitalization Rate
Self-Study Project—Reconstructing an Operating Statement
Mechanical Systems
Electrical System
Plumbing System
Residential Green and Energy-Efficient Addendum
Commercial Green and Energy-Efficient Addendum

Overview

Course Description

Basic Appraisal Procedures is designed as an introductory course for individuals preparing for a career as a valuation professional. The course provides the second 30 hours of qualifying prelicense education that is commonly required by states for individuals seeking appraisal licensure.

Participants learn the basic appraisal procedures that can be used to build a foundation for an ethical and competent appraisal practice. The theme of the course is focused on the valuation process. All eight steps of the valuation process are examined with added detail in each of the three approaches to value. In-depth case studies are used to apply the concepts presented in the classroom. They will help participants develop their problem-solving skills.

Learning Enhancements

The course has been designed with a variety of elements to enhance your learning experience.

- ***Preview.*** To give you a taste of what is to come, you will find a *Preview* page that begins each part. Included on the *Preview* page is a brief overview of the content, learning objectives to consider as you move through the content, and learning tips that will assist you in understanding the information you're about to learn.
- ***Learning Objectives.*** Each learning objective covers essential information you need to know to fully understand the concepts in the course. Look them over before the part begins so that you have a frame of reference as you move through the material. At the end of each part, reread the objectives. Are you able to do what is stated? If not, this is the time to ask your instructor for help. Or, review the concepts that you do not understand.
- ***Case Study.*** The case study contains real-world exercises that provide practice in applying the methodologies presented in the course.
- ***Examples & Problems.*** Supplementing the discussions, we've included examples and problems to help you visualize and practice what you are learning.
- ***Fill-in-the-Blanks.*** It is a proven fact that when you write something down, you are more apt to remember it. The Course Handbook has "missing" content in the outline that you will need to add in the space provided in your handbook as the instructor goes over the content.

- ***Review.*** Each part concludes with a review. Included in the review are the learning objectives and key terms and concepts that have been covered. Also, we've provided recommended readings from textbooks that will reinforce what you have learned in class.
- ***Practice Quizzes and Section Tests.*** Short practice quizzes are included at the end of most parts, and Section Tests are included at the end of each section in the review. The questions are similar to the types of questions you might find on the exam. By answering the true/false questions, fill-in-the-blanks, or multiple-choice questions, etc., you will know whether or not you really know the information that was covered in that part. The Review Quizzes and Practice Tests are intended for self-study and answers are found in the Solutions Booklets, which will be distributed by the instructor.
- ***Digging Deeper.*** **Digging Deeper information goes beyond the scope of the course and is not intended to be covered in class. It is not tested on the course exam; however, appraisers preparing for the comprehensive exam should be familiar with it, as well as all other material contained in the Course Handbook, whether or not it is presented in class.**

Classroom Guidelines

To make the learning environment a positive experience for everyone attending, please follow these guidelines:

- 100% attendance is required. No exceptions.
- Limit use of laptops to classroom projects.
- Communicate with business associates during break time instead of class time.
- Put away reading materials such as newspapers and books that are not used in class.
- Silence cell phones.
- Use recording devices only if prior permission has been granted.
- Refrain from ongoing conversations with those seated near you and other distracting behavior.

General Information

- **Calculators.** A financial calculator is required. The accepted model used in the course is the HP 12C.
- **Important Note.** Laptops, cellular phones, tablets, iPads, wearable technology (smart watch, Apple Watch, Google Glass, etc.) and other devices that can store data or connect to the Internet are ***NOT*** permitted during the exam. In addition, all watches, wallets, bags, and purses must be removed and stored out of reach prior to taking the exam.
- **Breaks.** There will be two 10-minute breaks during the morning session and two 10-minute breaks during the afternoon session unless noted otherwise by the course sponsor or instructor. The lunch break is one hour.
- **Attendance sheets** will be distributed during class to verify your attendance during the morning and afternoon sessions.
- **Certificates of completion** may be downloaded after completion of the course, and attendance during the entire course is required.

USPAP References in This Handbook

All references to the Uniform Standards of Professional Appraisal Practice (USPAP) are taken from the 2020-2021 edition (Washington, D.C.: The Appraisal Foundation).

Recommended Texts

- *The Appraisal of Real Estate*, 15th ed.
- *The Dictionary of Real Estate Appraisal*, 6th ed.
- *Appraising Residential Properties*, 4th ed.

Schedule

Course Schedule

SECTION 1. (Day 1 Morning)

Overview	
	Registration
Introduction	
	Classroom Procedures Introduction to the Course
Part 1. The Valuation Process	
	Introduction to the Valuation Process Step 1: Identification of the Problem Step 2: Scope of Work Step 3: Data Collection and Property Description Step 4: Data Analysis Questions and Review Morning Break
Part 2. From Analysis to Solutions	
	Step 5: Land Value Opinion Step 6: Application of the Three Approaches Step 7: Reconciliation of Value Indications and Final Opinion of Value Step 8: Report of Defined Value Review of the Valuation Process Questions and Review Morning Break
Part 3. Introduction to Income Capitalization	
	Income Capitalization Approach—Setting the Stage Terms and Definitions Income Capitalization Methods Questions and Review—Self-Study Practice Test (Section 1) Lunch

SECTION 2. (Day 1 Afternoon)

Part 4. Income Capitalization Formulas

Capitalization Formulas Without Fear
Income Multipliers
Income Rates
Questions and Review
Afternoon Break

Part 5. Income and Expense Analysis

Lease Analysis
Developing Income and Expense Estimates
Questions and Review
Afternoon Break

Part 6. Application—Problem Solving

Application—Problem Solving
Questions and Review

SECTION 3. (Day 2 Morning)

Part 7. Construction and Design Basics
Introduction to Appraisal Observation
Appraisal Observation from the Ground Up
House Design for Appraisers
Questions and Review
Morning Break
Part 8. Introduction to the Cost Approach
Getting Started with Cost
The Basics of Estimating Cost
Measurement of the Structure
Questions and Review
Morning Break
Part 9. Components in Cost Analysis
Analyzing Component Costs
Oak Street Case Study—Cost Analysis
Questions and Review—Self-Study Practice Test (Section 3)
Lunch

SECTION 4. (Day 2 Afternoon)

Part 10. Cost Analysis—Case Study
Completion of the Case Study (from Part 9)
Breaking Down the Costs
Questions and Review
Afternoon Break
Part 11. Commercial Costs and Depreciation Basics
Quality Classifications for Commercial Structures
Depreciation Basics
Questions and Review
Afternoon Break
Part 12. Applied Depreciation
Market Extraction Method
Age-Life Method of Depreciation
Breakdown Method of Depreciation
Questions and Review—Self-Study Practice Test (Section 4)

SECTION 5. (Day 3 Morning)

Part 13. Land or Site Valuation	
	Overview of Land or Site Valuation Land or Site Valuation Procedures Oak Street Case Study (Part II)—Sales Comparison and Site Valuation Questions and Review Morning Break
Part 14. Property Description	
	The Valuation Process in a Form Oak Street Case Study (Part III)—Property Description Manufactured Homes; Cost Approach on the URAR Questions and Review (no review quiz) Morning Break
Part 15. Sales Comparison Approach	
	Overview of the Sales Comparison Approach Questions and Review—Self-Study Practice Test (Section 5) Lunch

SECTION 6. (Day 3 Afternoon)

Part 16. Comparable Property Selection	
	Preliminary Selection Process Oak Street Case Study (Part IV)—Comparable Sales Selection Questions and Review (no review quiz) Afternoon Break
Part 17. Adjustments	
	Identification and Measurement of Adjustments Types of Adjustments Adjustment Process Reconciliation of the Sales Comparison Approach Oak Street Case Study (Part V)—Market Grid Adjustments Afternoon Break
Part 18. Oak Street Case Study—Market Grid Application	
	Oak Street Case Study (Part VI)—Instructions for Market Grid Guide Notes for the Market Grid Questions and Review—Self-Study Practice Test (Section 6)

SECTION 7. (Day 4 Morning)

Part 19. Oak Street Case Study—Sales Comparison (Market Grid Application, cont.)	
	Oak Street Case Study (Part VII)—Sales Comparison
	Review of Adjustments
	Morning Break
	Oak Street Case Study (Part VII)—Sales Comparison, cont.
	Morning Break
Part 20. Reconciliation and Communication	
	Reconciliation
	Oak Street Case Study (Part VIII)—Reconciliation
	Communication
	Reporting Formats
	Report Documentation and Work File
	Certification
	Questions and Review—Self-Study Practice Test (Section 7)
	Lunch

SECTION 8. (Day 4 Afternoon)

Part 21. Exam Content Review	
	Preparing for the Exam (Instructor's Course Review)
	Content Covered in Course (Participants' Course Review—Self-Study)
	Afternoon Break
	Instructions
Exam	
	Exam

Section 1

1

Introduction

Part 1. The Valuation Process

Part 2. From Analysis to Solutions

Part 3. Introduction to Income Capitalization

Introduction

Welcome to the second course in our series. In *Basic Appraisal Principles,* you learned about the fundamental concepts and principles of real estate. In *Basic Appraisal Procedures,* we're going to put that knowledge to work. Everything you've learned thus far functions within a process. This is the process you will use throughout your appraisal career. Think about it. If a client came to you with a real estate problem, wouldn't you feel more confident knowing that there is a logical method designed to solve that problem?

In this course, we're going to look at the valuation process step-by-step and show you how to analyze real estate problems. In time, the valuation process will become so natural in your everyday work that you won't even think about it. The more you understand and follow it, the greater success you will have in providing credible solutions to client problems.

This interactive exercise gives you the opportunity to write down your thoughts on problem solving.

1. ***If a client came to you with a real estate valuation problem, what would you ask that client in order to determine the problem?***

2. ***What type of data would you need to analyze and where would you look for it?***

3. ***What kind of analysis would you undertake?***

4. ***How would you reconcile (i.e., bring together) all your research and analyses?***

5. ***How would you communicate the assignment results to the client?'***

Part 1 Preview

The Valuation Process

We begin the course with a big picture view of *The Valuation Process,* which is the central theme. The overview will take us through the first two sessions (Parts 1 and 2), identifying each of the eight steps in the process. Application of the valuation process will be discussed in more detail throughout the remainder of the course.

Learning Objectives

To prepare for Part 1, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Identify the first four steps of the valuation process.
- ☐ Recognize and differentiate among six assignment elements that identify a client's problem.
- ☐ Identify three data types in the valuation process: market area data, subject property data, and comparable property data.
- ☐ Distinguish between two types of data analysis: market analysis and highest and best use analysis.

Learning Tips

We recommend that you concentrate your efforts on understanding the flowchart for the valuation process. Keep referring back to it as your instructor adds detail and "color analysis" to the process. Don't be afraid to ask, "Where does this fit in on the chart?" The goal of Part 1 is to provide a **broad overview** of the valuation process, in particular the first four steps. This overview will enable you to see how the various parts integrate with the whole.

Self-study tip. Each day after class, we encourage you to thoroughly review the day's contents. The Course Handbook contains much more information than can be covered by the instructor during the class sessions. In some instances, you will find additional background information or examples in the Solutions Booklet that will assist you in understanding specific concepts and principles. While the instructor might highlight a particular issue, the Course Handbook often provides additional definitions and details on that same topic. By carefully reviewing the day's contents in the Course Handbook after each class (such as during an evening study time), you will be building the foundation for the content you will learn the next day.

Solutions Booklet. Your course materials include a booklet that contains solutions to the review quizzes and practice tests. The booklet provides additional terms and examples to round out your review of specific topics addressed in the Course Handbook. In some instances, practice problems have been added to the Solutions Booklet to help you in your review.

Please use the Solutions Booklet for its intended purpose. The quizzes, practice tests, and problems provided in the Course Handbook will help you comprehend and review content necessary to pass the final exam. So it is in your best interest to check solutions only after you have challenged the questions. The review quizzes and practice tests are intended as aids in your personal study time.



Digging Deeper

Throughout the course, you will notice content that is designated with a book-and-pencil graphic. Treat this material as a resource tool. On some topics, we may want to provide additional terms related to the topic. However, you won't be tested on these additional terms.

In various parts of the course, you may find a problem or quiz question that is labeled as *Digging Deeper.* That means the question is more advanced and you're welcome to challenge it, but don't get discouraged if you can't solve it. Answers and solutions to such problems are provided in the Solutions Booklet.

End Digging Deeper

Part 1.
The Valuation Process

The Valuation Process

Identification of the Problem					
Identify the client and intended users	Identify the intended use	Identify the type and definition of value	Identify the effective date of the opinion	Identify the relevant characteristics of the property	Identify any assignment conditions

Scope of Work Determination

Data Collection and Property Description		
Market Area Data General characteristics of region, city, and neighborhood	**Subject Property Data** Subject characteristics of land use and improvements, personal property, business assets, etc.	**Comparable Property Data** Sales, listings, offers, vacancies, cost and depreciation, income and expenses, capitalization rates, etc.

Data Analysis	
Market Analysis Demand studies Supply studies Marketability studies	**Highest and Best Use Analysis** Land as though vacant Ideal improvement Property as improved

Land Value Opinion

Application of the Approaches to Value		
Sales Comparison Approach	Income Capitalization Approach	Cost Approach

Reconciliation of Value Indications and Final Opinion of Value

Report of Defined Value

Source: Adapted from *The Appraisal of Real Estate*, 15th ed., Chapter 34, 632.

I. Introduction to the Valuation Process

When a client comes to you with a real estate problem, it is reassuring to know that there is a logical strategy for solving that problem. Appraisers refer to this strategy as the valuation process, and it is a time-proven system for solving client problems.

A. Definition

> **Valuation process.** *A systematic set of procedures an appraiser follows to provide answers to a client's questions about real property value.*[1]

1. The valuation process begins when the appraiser agrees to perform an assignment and ends when the conclusions are reported to the client.

2. The valuation process is accomplished through specific steps.

    a. The number of steps employed will depend on the nature of the appraisal assignment and available data.

    b. The process is **ideally suited for market value opinions**, but it also provides the framework for developing an opinion of other defined values.

B. Use of the valuation process in appraisal assignments

1. The valuation process is the blueprint used in forming an opinion of market value, as well as other types of value.

2. It provides a model for performing market research, analyzing data, applying appraisal techniques, and integrating all of these into a value opinion.

3. The process provides a **checklist** for both appraisers and users of appraisal services—and covers the requirements of an appraisal that complies with professional appraisal standards.

C. The first step in the valuation process is to identify the client's problem, which logically leads to the second step—the scope of work decision. These two steps are an **exercise in judgment** designed to produce credible assignment results.

D. Once the assignment's scope of work is determined, the remaining steps are an **exercise in execution**. To be sure, competency and decisions of judgment are required throughout the remaining steps, but the analytical paths have been largely predetermined by the appraiser's scope of work decision.

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1. Unless otherwise noted, all definitions in *italics* are taken from *The Dictionary of Real Estate Appraisal,* 6th ed. Chicago: Appraisal Institute, 2015.

Identification of the Problem					
Identify the client and intended users	Identify the intended use	Identify the type and definition of value	Identify the effective date of the opinion	Identify the relevant characteristics of the property	Identify any assignment conditions

II. Step 1: Identification of the Problem

A. Identify the client and other intended users.

> **Client.** "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." (USPAP, DEFINITIONS) Also, see SVP, Definitions section.

> **Intended user.** "The client and any other party as identified, by name or type, as users of the appraisal or appraisal review report by the appraiser, based on communication with the client at the time of the assignment." (USPAP, DEFINITIONS) Also, see SVP, Definitions section.

1. The client is the party (or parties) with whom the appraiser has an **appraiser-client relationship** in the related assignment. The client may be an individual, group, or entity. The appraiser's identification of the client is important so that **confidential information provided by the client is treated properly.**

2. **Identification of other intended users** goes beyond simply recognizing who they are, although that is certainly an important first step. So let's see if we can properly recognize the client and other intended users in a typical assignment.

   Example. Identify the role of the following parties in an FHA assignment for a bank with the intended use of assisting the bank in a lending decision:

   - Bank and its representatives — *Client and other intended user*
   - HUD/FHA — _____
   - Appraisal management company (AMC) — _____
   - Borrower — _____

Each assignment type in the previous example presents unique issues in properly identifying the client and other intended users.

3. The appraiser determines who the client is, and through communication with the client, the appraiser also determines who the other intended users will be. This is why the appraiser must communicate with the client to properly identify these parties at the time the appraiser agrees to perform the assignment.

4. Identification of any other intended user(s) includes finding out the other intended user's level of knowledge and experience with regard to the appraised property and its market—including the competition within that market.

    a. If the client is the property owner, the assignment may have a different emphasis than an appraisal in which the client is an out-of-state buyer.

    b. The appraiser needs to have adequate information about the client and other intended users to ensure the scope of work is sufficient for their intended use. Indeed, some intended users may have informational needs that differ from the client—the appraiser must be aware of such issues, which are best communicated through the client.

B. Identify the intended use of the appraiser's opinions and conclusions.

> **Intended use.** "The 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." (USPAP, DEFINITIONS) Also, see SVP, Definitions section.

1. The appraiser and the client must reach an understanding concerning the intended use and ownership of the appraisal report.

2. How the client intends to use the results of the assignment will guide the appraiser's decision on the type and extent of research and analyses performed, as well as the report content and the level of information it contains. Intended use affects both appraisal development and reporting.

    a. An intended use to establish a value range for a preliminary decision on whether to pursue a tax appeal is significantly different from preparing an appraisal for tax court in which the appraiser will testify. The appraiser will certainly follow many of the same steps in each assignment, but the research and analyses will be more involved in the second assignment.

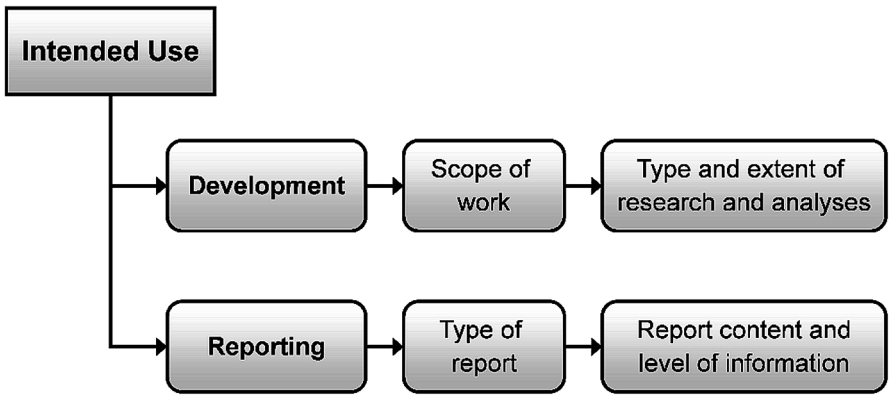
    b. Intended use can affect the opinions and conclusions developed. Here are two contrasting scenarios:

- A lender requests an exterior-only appraisal of an owner's property to be used for collateral purposes in an equity loan.

- A month later, the owner of the same property retains an appraiser with an intended use to resolve a legal dispute in a jury trial.

In the **first scenario,** the appraiser will carry out the research/analyses at a *level commensurate with the intended use of an exterior-only appraisal.* In the **second scenario,** the appraiser's research and analyses would be at *a higher level under this new intended use,* and the value opinion might differ from the one reached under the prior intended use.

c. If the intended use changes the scope of work, the opinions and conclusions developed might also change. Here is how intended use can affect the development and reporting aspects of an appraisal assignment.



Source: Adapted from materials of The Appraisal Foundation

C. Identify the purpose of the assignment. As noted in *Basic Appraisal Principles*, identifying the *purpose* is the same as identifying the **type and definition of value** to be developed. The appraiser should also cite the source of the value definition.

> **Purpose of an assignment.** *The objective of an assignment—e.g., in an appraisal assignment, to develop an opinion of the defined value of a specified interest in real estate.*

1. The purpose of an appraisal is usually to develop an opinion of a certain type of value. These could include (but are not limited to):

   a. Market value

   b. Use value

   c. Investment value

d. Insurable value

e. Assessed value

f. Fair value

2. The appraiser must provide a statement of the defined value to be developed in the assignment. This statement is intended to answer the core question that will lead to a resolution of the problem.

   a. The value defined in the appraisal must address whether the opinion is reported in terms of cash, cash equivalency, or other precisely defined terms.

   b. If the value opinion is based on non-market financing or financing with unusual conditions or incentives, the terms of such financing must be identified; and the appraiser's opinion of their effect on value (positively or negatively) must be developed by the analysis of relevant market data and any influences on value.

3. The appraiser has a responsibility to ensure that the purpose of the appraisal is consistent with its intended use.

   Example. A client's intended use might be to establish *replacement cost*, but the purpose (or type of value) is to develop an *opinion of insurable value*.

D. Identify the **effective date** of the appraiser's opinions and conclusions.

1. The appraiser must specify the date of the value opinion. This is because the forces that influence value are subject to change.

2. An opinion of value is valid only for the exact date specified. The effective date is the date of the value opinion, and it may be a past, current, or future date depending on the intended use and purpose of the appraisal, i.e., also referred to as the *date of value*.

   a. **Current.** The effective date is contemporaneous with the date of the report.

      - This doesn't mean the effective date has to be the same as the appraisal report date, but the two dates should be fairly close.

      - Appraisers often use the inspection date (that is, the date the property was last viewed) as the effective date—particularly in mortgage lending assignments.

   b. **Retrospective.** Appraisals with an effective date in the past are commonly used for estates (such as for probate), casualty loss, property tax appeal, and marriage dissolution.

c. **Prospective.** Appraisals as of a future date are needed in assignments for proposed or renovated improvements when the value date is based on completion or stabilized occupancy. Prospective dates are also used in reversions at the end of a cash flow projection.

3. **Statement of dates.** Professional standards require the appraiser to state two dates in each appraisal report: the effective date of the appraisal and the date of the report (which is the date the report is completed and transmitted to the client). This helps to establish whether the appraisal report represents a retrospective, prospective, or current opinion. For some assignments, the two dates are the same.

E. Identify the characteristics of the subject property that are relevant to the purpose and intended use of the appraisal, including

> **Relevant characteristics.** "Features that may affect a property's value or marketability such as legal, economic, or physical characteristics." (USPAP, DEFINITIONS)

> **Physical characteristics.** "Attributes of a property that are observable or measurable as a matter of fact, as distinguished from opinions and conclusions, which are the result of some level of analysis or judgment." (USPAP, DEFINITIONS)

1. Its location and physical, legal, and economic characteristics;

2. The real property interest to be valued such as a fee simple interest, leased fee interest, leasehold interest, or a partial interest;

3. Any personal property, trade fixtures, leased solar photovoltaic systems, or intangible assets that are not real property but are included in the appraisal;

4. Any known encumbrances, easements, leases, restrictions, reservations, covenants, contracts, declarations, special assessments, ordinances, or other items of a similar nature; and

5. Whether the subject of the appraisal is a fractional interest, physical segment, or partial holding of a property.

F. Identify assignment conditions, which might include

1. **Extraordinary assumption/Special assumption**

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

   Comment: Uncertain information might include physical, legal, or economic characteristics of the subject property; or conditions external to the property, such as market conditions or trends; or the integrity of data used in an analysis." (USPAP, DEFINITIONS)

   Special assumption. An assumption, directly applicable to a specific appraisal or review, which, if found to be false, could alter the opinions or conclusions in an appraisal or review. (SVP, Definitions section)

   Notice that an extraordinary/special assumption is an assumption directly related to a specific assignment/service. Assumptions in general are things taken to be true and are a normal part of every appraisal assignment. An extraordinary/special assumption is a unique assumption and must be treated more carefully by the appraiser.

2. **Hypothetical condition.** This is a condition that is contrary to what exists but is supposed for the purpose of analysis.

   A hypothetical condition is often a "what if" scenario intended to clarify a value issue such as the appraisal of proposed construction on a vacant site with the value opinion effective as of a current date.

3. **Other assignment conditions** might include laws, regulations, guidelines, and other conditions that can affect the scope of work. For example, an FHA appraisal assignment would have assignment conditions based on regulations issued by the Department of Housing and Urban Development (HUD).

Identification of the Problem					
Identify the client and intended users	Identify the intended use	Identify the type and definition of value	Identify the effective date of the opinion	Identify the relevant characteristics of the property	Identify any assignment conditions

Scope of Work Determination

III. Step 2: Scope of Work

> **Scope of work.** "The type and extent of research and analyses in an appraisal or appraisal review assignment." (USPAP, DEFINITIONS)
> Also, see SVP, Definitions section.

A. Once the problem is identified, the valuation process logically leads to the scope of work decision.

B. The appraiser's task in Step 2 is to determine the scope of work that is sufficient to produce credible assignment results.

   1. The scope of work identifies the extent to which the steps in the valuation process are carried out. The scope of work includes (but is not limited to):

      a. How extensively the property is identified

      b. The level and extent that the (tangible) property is inspected

      c. The amount of research data required (i.e., collected, confirmed, and reported) and what type of data

      d. The type and extent of analyses applied (i.e., approaches and techniques)

   2. The extent of the research and analyses varies according to the nature of the appraisal problem and the intended use of the assignment.

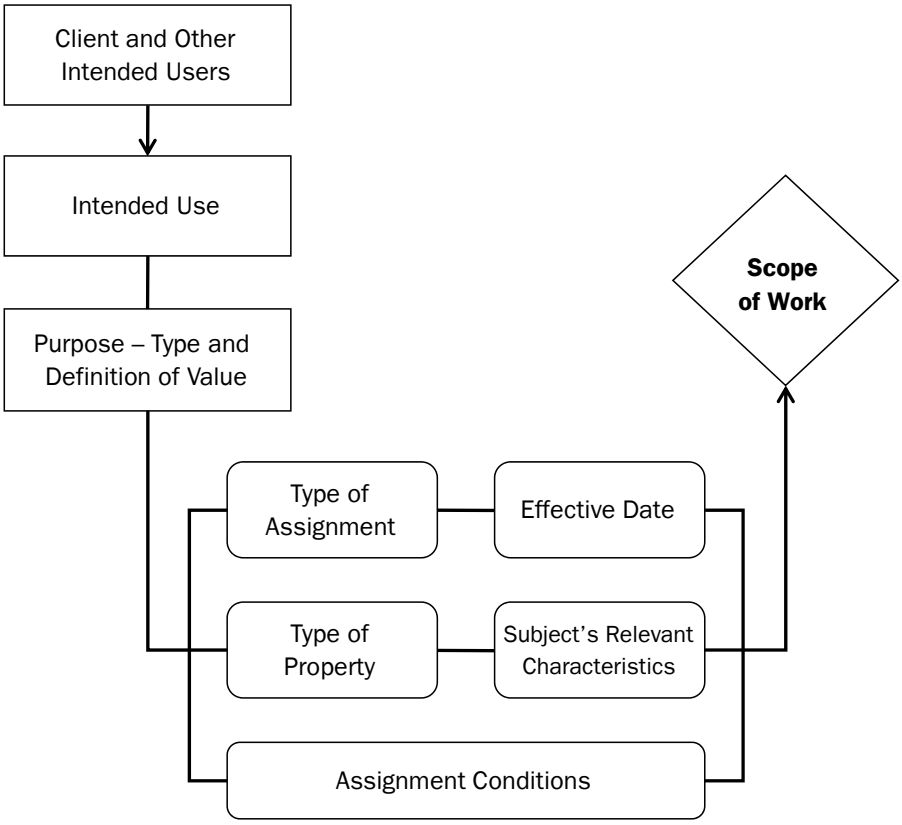
C. Appraisers have broad flexibility in determining the scope of work for a given assignment. However, the appraiser also has significant responsibility and must be prepared to demonstrate that the scope of work is sufficient to produce credible assignment results appropriate for the intended use. The appraiser may, but is not required to by USPAP, consolidate the disclosure of the scope of work under a section or section headers, or as necessary throughout the report.

D. In *Basic Appraisal Principles,* we noted two additional items that help the appraiser determine the scope of work. These items are extensions of intended use and relevant property characteristics, but it's worthwhile to specifically identify them.

   1. **Type of assignment**. As the appraiser considers intended use, identification of the assignment type is part of that process. Does the valuation service require an appraisal or an appraisal review? The assignment may include one or both of these services, as well as other services performed while acting as an appraiser.

   2. **Type of property**. This helps the appraiser identify whether the assignment includes real property, personal property, intangible property, or more than one of these property types.

The Scope of Work Decision Process in Appraisal Practice—Revisited



Source: The scope of work flow chart is adapted from content published by The Appraisal Foundation.

Data Collection and Property Description		
Market Area Data General characteristics of region, city, and neighborhood	**Subject Property Data** Subject characteristics of land use and improvements, personal property, business assets, etc.	**Comparable Property Data** Sales, listings, offers, vacancies, cost and depreciation, income and expenses, capitalization rates, etc.

IV. Step 3: Data Collection and Property Description

A. The data needed by appraisers can be divided into general data and specific data.

1. **General data.** *Data that relates to the four forces that affect real property values—social, economic, governmental, and environmental forces.*

2. **Specific data.** *Details about the property being appraised, comparable sale and rental properties, and relevant local market characteristics.*

B. **Market area data**

1. Market area data falls into the category of general data and focuses on trends that are affected by the four forces that influence value.

> **Trend.** *A series of related changes brought about by a chain of causes and effects. Trends are forecast through economic base analysis, statistical analysis, market analysis, and analysis of economic indicators and surveys.*

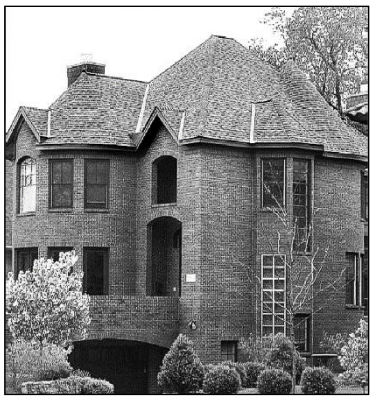
   a. A trend is a momentum or tendency in a general direction brought about by a series of interrelated changes.

   b. Market area trends analyzed as general data can include population shifts, declining office building occupancy rates, and increased housing starts.

2. Discussion and interpretation of the effects from the four forces influencing the use and value of the subject property are included in the appraisal report.

3. Supply and demand data on competing properties to the subject property is studied.

C. **Subject property data**



1. This specific data focuses on relevant geographic and geologic characteristics of the land or site and characteristics of the improvements (such as type of building, physical components, legal components, and personal property).

2. Ownership history

3. Cost and depreciation data

4. Income and expense data

D. **Comparable property data**—can be general data or specific data

> **Comparables.** *A shortened term for similar property sales, rentals, or operating expenses used for comparison in the valuation process. In best usage, the thing being compared should be specified, e.g., comparable sales, comparable properties, comparable rentals.*

1. Physical and legal components

2. Sale date and price, cost and depreciation data, income and expense data, capitalization rates



3. Financing arrangements that could affect selling prices

4. Supply and demand data pertaining to comparable properties

   a. Supply data includes inventories of existing and proposed competitive properties, vacancy rates, and absorption rates.

   b. Demand data may consist of population, income, and employment data pertaining to potential property users and the impact future demand might have on the present (or proposed) use of properties comparable to the subject property.

Data Analysis	
Market Analysis	**Highest and Best Use Analysis**
Demand studies Supply studies Marketability studies	Land as though vacant Ideal improvement Property as improved

V. Step 4: Data Analysis

A. Market analysis

> **Market analysis.** *The study of the supply and demand in a specific area for a specific type of property.*

1. Competitive supply and demand data is necessary to determine the present and future competitive position of the property in its market.

2. A description of prevalent market conditions helps the intended users of the appraisal to understand the motivations of participants in the market for the subject property.

3. The data and conclusions generated through market analysis are essential components to the other steps of the valuation process.

B. Highest and best use analysis

> **Highest and best use.** *The reasonably probable use of property that results in the highest value. The four criteria that the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum productivity.* Alternatively, the probable use of land or improved property--specific with respect to user and timing of the use--that is adequately supported and results in the highest present value.

1. Highest and best use analysis of **land as though vacant**

   a. Aids the appraiser in identifying comparable properties

      - The subject property should be compared (whenever possible) with similar properties that have sold recently in the same market.

      - Comparable properties that do not have the same highest and best use as the subject property are usually eliminated from further analysis.

b. Necessary to deriving an opinion of land value

c. Identifies the ideal improvement and use that maximizes the land income

2. Ideal improvement should meet the following criteria:

   a. Take maximum advantage of the land's potential to satisfy market demand

   b. Conform to current market standards and the character of the area

   c. Contain the most suitably priced components

3. Highest and best use analysis of **property as improved**

   a. Aids the appraiser in identifying comparable properties (the same as when vacant)

   b. Aids the appraiser in deciding which of the following options should be pursued for the property:

      - Maintain the improvements as is
      - Modify the improvements (for example, renovate, modernize, or convert to an alternative use)
      - Demolish the improvements

Review of the decision process for highest and best use

Land as though vacant
Options
▪ Improve ▪ Leave vacant

Property as improved
Options
▪ Leave as is ▪ Alter ▪ Demolish

4. Highest and best use conclusions should specify the following criteria:

   a. Use(s)

   b. Timing for the use(s)

   c. Typical market participants for the use

Review Part 1

Learning Objectives

Now that you've completed Part 1, you should be able to

- ☑ Identify the first four steps of the valuation process.
- ☑ Recognize and differentiate among six assignment elements that identify a client's problem.
- ☑ Identify three data types in the valuation process: market area data, subject property data, and comparable property data.
- ☑ Distinguish between two types of data analysis: market analysis and highest and best use analysis.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 4, P. 29–35, and Chapter 5, P. 39–45

Appraising Residential Properties, 4th ed., Chapter 5, P. 67–80

Terms and Concepts to Remember

Client	Hypothetical condition	Specific data
Extraordinary/special assumption	Intended use	Scope of work
General data	Intended user	Trends
Highest and best use analysis	Market analysis	Valuation process

Resources

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.

Review Quiz

Fill in the missing data to the following questions.

1. A tax appeal assignment will commonly involve a effective date.
2. Intended use affects both appraisal and reporting.
3. A systematic procedure appraisers can employ to provide the answer to a client's question about the value of a property is called the .
4. In analysis, the appraiser analyzes the ideal improvement for the property.
5. The relevant characteristics of a property are part of the problem.

Check the appropriate box for each question.	**TRUE**	**FALSE**
6. Scope of work is the type and extent of research and analyses in an appraisal or appraisal review assignment.	☐	☐
7. Identifying relevant characteristics of the subject property is specific data rather than general data.	☐	☐
8. The client and intended user are never the same.	☐	☐
9. A prospective appraisal has an effective date contemporaneous with the date of the report.	☐	☐
10. Developing an opinion of insurable value can be identified as the purpose of an appraisal assignment.	☐	☐

Review quizzes and practice tests are intended to be taken during your personal study time. Suggested answers can be found in the Solutions Booklet.

Part 2 Preview

From Analysis to Solutions

Now that we've looked at the first four steps of the valuation process, Part 2 will focus on executing the analytical procedures and will take us through the communication of the assignment results to the client.

Learning Objectives

To prepare for Part 2, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Identify the six procedures for analyzing land or site value.
- ☐ Recognize the three traditional approaches to value for improved properties.
- ☐ Identify the elements of comparison most commonly used in the sales comparison approach.
- ☐ Recognize the process of value reconciliation.

Learning Tips

We recommend that you continue to keep your focus on the flow chart for the valuation process. That will be your anchor throughout the course, so if you're feeling lost in the details, return to the first page of Part 1 and see how the details fit in the big picture of the valuation process.

Part 2.
From Analysis to Solutions

In Steps 1 and 2 of the valuation process, the appraiser identifies the client's problem that leads to the scope of work determination. In Steps 3 and 4, the research and analysis begin. Steps 5 through 8 continue to execute the research and analytical tasks determined by the appraiser in the scope of work.

Land Value Opinion

I. Step 5: Land Value Opinion

A. Land and site terminology

1. The term *land* commonly refers to either unimproved or improved land.

   a. Unimproved land is typically considered to be **raw land** that may have development potential.

   b. **Improved land** is considered as *being prepared for development by grading, draining, installing streets and utilities, etc.*

2. The term *site* commonly refers to *improved land* (or parcel) that does not require further land development or subdivision. It is ready for property improvements suited to its highest and best use (for example, a building site).

B. Appraisers can provide a value opinion on vacant land or a vacant site as well as property improved with a building.

1. The intended use of an assignment may require a separate value of the improved land; i.e., the property is improved with a building. Examples might include

   a. Appraisals for insurable value

   b. Eminent domain assignments that involve a partial acquisition

2. Examples of analytical methods (as determined by the scope of work) that require separate unimproved or improved land value analysis independent of the total property value include

   a. The cost approach and in some instances the income capitalization approach—when residual techniques are used

b. Highest and best use analysis as though vacant

C. The appraiser can choose among **six procedures** for analyzing land (improved or unimproved) or site value. Four of the procedures require improved sales.

1. _____

   a. The appraiser searches for sales of similar **vacant** parcels.

   b. Each selected sale is analyzed and compared to the subject parcel and then adjusted for salient differences.

   c. Sales comparison is the most common and preferred method of valuing land, assuming sufficient data is available.

Exercise

When appraisers collect data, it needs to be organized to further the analytical process. For example, if you uncovered the following vacant land sales in an appraisal assignment, you would typically organize the data for further analysis.

Here's what you find in the market.

Sale Price	Property Size
$90,000	20 acres
$81,600	17 acres
$103,600	28 acres
$105,000	30 acres
$75,000	15 acres
$94,600	22 acres

Here's the same data organized for further analysis.

#	Size	Sale Price	Price/Acre
1	*15 acres*	*$75,000*	
2	*17 acres*	*$81,600*	
3	*20 acres*	*$90,000*	*$4,500*
4	*22 acres*	*$94,600*	*$4,300*
5	*28 acres*	*$103,600*	*$3,700*
6	*30 acres*	*$105,000*	*$3,500*

Next step: Once the initial data is organized, it is ready for further analysis. What should an appraiser do to further analyze the above market data?

If the subject is 24 acres, what is the preliminary value indication based on the data?

Six procedures, *cont.*

2. _____

   a. When vacant sales are unavailable, the appraiser can analyze improved property sales similar to the subject property in relevant land characteristics.

   b. The appraiser forms an opinion of the improved land value by subtracting the contributory value (that is, depreciated cost) of the improvements from the sale price.

	Sale Price
(Minus) –	*Contributory Value of the Improvements*
=	*Extracted Value of Land*

   c. When this procedure is applied, it can provide reliable data to assist the appraiser in forming a value opinion of the improved land. However, ample sales should be used, and the appraiser must be experienced in the use of cost and depreciation methodology.

   d. This procedure is most applicable when improvements can be reliably valued, such as when the improvements are either new or very old (that is, nearing the point when the improvements will be demolished).

3. _____

   a. As the name of this procedure implies, the appraiser analyzes improved property sales and allocates prices paid between the improved land and total property, usually on a ratio basis.

   b. The process can be based on vacant improved land sales that are compared to improved property sales, or the appraiser can use an extractive process by isolating the depreciated cost of improvements from the improved land.

      - This procedure is rarely used as a primary improved land valuation technique, but it has secondary applications in the analysis of subdivision lot sales when there is a uniform ratio of land value to total property value.

      - The procedure also might be useful in tax assessment studies.

4. *Land residual technique*

   a. This procedure requires the appraiser to separate the rent between the improved land and the building improvements.

b. Then the appraiser capitalizes the net income attributed to the improved land into a value opinion.

5. *Ground rent capitalization*

a. In this procedure, the improved land rent is a known amount, as in an improved land lease, and the income can be capitalized into an improved land value. Another application is when the rent is largely attributable to the improved land due to an interim use. An example is a surface parking lot in a downtown urban area.

b. The appraiser divides the net ground rent income estimated for the right to use and occupy the improved land by a land capitalization rate to form an opinion of the improved land value.

6. *Subdivision development analysis*

a. This procedure (sometimes referred to as the *cost development method*) can be used for larger tracts of unimproved land that have the potential for development into subdivisions.

- The appraiser analyzes the unimproved (undeveloped) land as if it were subdivided, improved (developed), and sold.

- To accomplish that, the appraiser subtracts estimated development costs from the estimated proceeds of the improved land sale, which derives the net income to be discounted over the estimated sell-out period of the subdivided lots.

b. This type of analysis requires a technique called yield capitalization, also referred to as discounted cash flow analysis (DCF). We will briefly look at this technique in Part 3, but DCF analysis is an advanced technique and beyond the level of this course.

Application of the Approaches to Value		
Sales Comparison Approach	Income Capitalization Approach	Cost Approach

II. Step 6: Application of the Three Approaches

At this point, we're moving from valuation of unimproved and improved land to valuation of improved land and building properties. For educational purposes, we will start with the last approach listed in Step 6.

A. **Cost approach**

1. The cost approach reflects market thinking by recognizing that participants in the marketplace relate value to cost.

   a. A buyer will not pay more for a property than the cost to acquire a similar site and construct improvements of equivalent desirability and utility without undue delay.

   b. This is also true of building components such as decks, porches, added plumbing fixtures, and fireplaces in the case of residential properties, or expanded open space and additional elevators in commercial properties.

2. Cost approach steps

   Note. *There are a number of terms presented in the chart below that haven't been defined yet. These terms will be explained in Part 8.*

Step	Procedure
1	Estimate the value of the site as though vacant and available to be put to its highest and best use.
2	Estimate the direct and indirect costs of the improvements.
3	Estimate the entrepreneurial incentive.
4	Add steps 2 and 3 together to obtain the total current cost.
5	Estimate the accrued depreciation from three sources: a. Physical deterioration b. Functional obsolescence c. External obsolescence
6	Deduct the depreciation from total current cost to derive an estimate of the depreciated cost of improvements.
7	Add the contributory (as is) value of any site improvements.
8	Add the site value to the total depreciated costs.

B. **Sales comparison approach**

1. The appraiser derives a value indication by comparing the subject property to similar properties that have sold recently.

   a. The appraiser applies appropriate elements of comparison in the analysis.

   b. Adjustments are made to the comparable sales for differences between the subject property and the comparable sales based on market evidence.

c. The adjusted sale prices of the comparable sales are reconciled into an indication of value for the subject property.

2. **Example.** Let's say an appraiser's market research indicates the following:

   a. Improved lots in Heritage Estates are priced at $2.00 per square foot.

   b. Improved lots with river views are $15,000 and are superior to improved lots with pond views.

   c. House size differences are $50 per square foot.

   If the subject property and comparable property are alike except for the three items identified in the market grid below, what is the indicated value (that is, the adjusted price) of the subject property?

FEATURE	SUBJECT	COMPARABLE SALE 1	
Sale price	Refinance		*$ 450,000*
VALUE ADJUSTMENTS	DESCRIPTION	DESCRIPTION	+(–) $ Adjustment
Date of sale/time	Current	Current	
Financing	Cash	Cash	
Location	Heritage Estates	Heritage Estates	
Site (lot)	150 ft. × 200 ft.	200 ft. × 200 ft.	
View	River view	Pond view	
Design and appeal	1 story/good	1 story/good	
Quality of construction	Good	Good	
Energy efficient	Good—HERS 56	Good—HERS 56	
Effective age	10 years	10 years	
Gross living area	2,800 sq. ft.	3,000 sq. ft.	
Net adjustment (total)			
Adjusted sale price			

Hint: Superior items in the comparable property require a negative adjustment, and inferior items require a positive adjustment.

Note. According to the Home Energy Rating Score Index (HERS), the lower the index, the more energy-efficient the home. See the Residential Energy Services Network (RESNET) website at www.resnet.us for more information and specifically www.resnet.us/hers-index to familiarize yourself with the Network and the HERS concept.

3. Commonly used **elements of comparison** include

    a. Real property rights conveyed

    b. Financing terms (compared to cash equivalency)

    c. Conditions of sale (consider motivation)

    d. Expenditures made immediately after purchase

    e. Market conditions (commonly known as a "time" adjustment)

    f. Location

    g. Physical characteristics (including energy-efficient, high-performance, and green features)

    h. Economic characteristics

    i. Use (based on comparable zoning, highest and best use, and utility)

    j. Non-realty components of value (for example, personalty, leased solar photovoltaic systems, business value, franchises, and trademarks)

    Note. *There is more detail on the above 10 elements of comparison in Part 15.*

C. **Income capitalization approach**

1. The income capitalization approach measures the present value of the future benefits derived from property ownership.

2. After income and expenses are estimated, the appropriate income stream(s) may be

    a. Capitalized into a value opinion by applying an appropriate rate or factor (direct capitalization). This typically involves income over a one-year period.

    b. Converted into a present value opinion through discounting (yield capitalization or discounted cash flow analysis). This typically involves an income period of more than one year.

Note. We will define terms such as *direct capitalization* and *yield capitalization* in Part 3. Now let's look at the final two steps in the valuation process.

III. Step 7: Reconciliation of Value Indications and Final Opinion of Value

A. The final analytical step in the valuation process is the reconciliation of the value indications (from the applicable approaches to value) into a single dollar figure or range into which the value will most likely fall.

B. Reconciliation takes place throughout the valuation process.

1. The comparable sales are reconciled in the sales comparison approach.

2. In the cost approach, land (site) value indications are reconciled from sales, extraction, or other analytical techniques employed by the appraiser.

3. Comparable rents and capitalization rates are reconciled in the income capitalization approach.

C. We've previously stated that Steps 1 and 2 of the valuation process are an exercise in judgment, but that's not to say judgment is absent in Steps 3–8.

1. Individual judgments will be made throughout the valuation process.

2. A reconciled value opinion is not derived through mathematical calculations or a simple mean of the various indicators. Reconciliation is a disciplined process using reason and judgment based on the quality and the quantity of data.

IV. Step 8: Report of Defined Value

A. The valuation process is not complete until the appraiser states the value opinion in a report and presents it to the client.

B. The report can be written or communicated orally.

1. Report formats will vary depending on the scope of work.

2. The appraiser must ensure that the communication of the assignment results

a. is carried out in a manner that is not misleading, and

> **Misleading.** "Intentionally or unintentionally misrepresenting, misstating, or concealing relevant facts or conclusions." (USPAP, DEFINITIONS).

b. contains sufficient information to enable the intended user(s) of the appraisal to understand the report properly.

3. The report must properly disclose assignment conditions as well as all limiting conditions. In the case of special/extraordinary assumptions and hypothetical conditions, the appraiser must clearly and conspicuously state in the report that their use might have affected the assignment results.

4. The appraisal report must include a signed certification that meets the requirements of professional appraisal standards.

Note. The valuation process is presented here as steps to assist in learning. However, there is not a required order to the process. The steps may be performed in any order.

V. Review of the Valuation Process

The Valuation Process

Identification of the Problem					
Identify the client and intended users	Identify the intended use	Identify the type and definition of value	Identify the effective date of the opinion	Identify the relevant characteristics of the property	Identify any assignment conditions

Scope of Work Determination

Data Collection and Property Description		
Market Area Data	**Subject Property Data**	**Comparable Property Data**
General characteristics of region, city, and neighborhood	Subject characteristics of land use and improvements, personal property, business assets, etc.	Sales, listings, offers, vacancies, cost and depreciation, income and expenses, capitalization rates, etc.

Data Analysis	
Market Analysis	**Highest and Best Use Analysis**
Demand studies Supply studies Marketability studies	Land as though vacant Ideal improvement Property as improved

Land Value Opinion

Application of the Approaches to Value		
Sales Comparison Approach	Income Capitalization Approach	Cost Approach

Reconciliation of Value Indications and Final Opinion of Value

Report of Defined Value

Source: Adapted from *The Appraisal of Real Estate*, 15th ed., Chapter 34, 632.

Review Part 2

Learning Objectives

Now that you've completed Part 2, you should be able to

- ☑ Identify the six procedures for analyzing land or site value.
- ☑ Recognize the three traditional approaches to value for improved properties.
- ☑ Identify the elements of comparison most commonly used in the sales comparison approach.
- ☑ Recognize the process of value reconciliation.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 4, P. 34–37

Appraising Residential Properties, 4th ed., Chapter 5, P. 81–86

Terms and Concepts to Remember

Allocation	Ground rent capitalization	Sales comparison approach
Cost approach	Income capitalization approach	Subdivision analysis
Extraction	Land residual technique	

Many of the new terms will be discussed in greater detail later in the course. However, the terms used in land or site valuation are worth noting here even though you will see them again in Part 13.

Resources

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.

Review Quiz

This quiz covers content in both Parts 1 and 2.

Answer the following true and false questions.

Check the appropriate box for each question.	**TRUE**	**FALSE**
1. A hypothetical condition is contrary to what exists but is supposed for the purpose of analysis.	☐	☐
2. The valuation process provides a framework for deriving an opinion of market value as well as other types of value.	☐	☐
3. The first two assignment elements of problem identification are identifying the real estate and the real property rights to be appraised.	☐	☐
4. Comparable sales having a different highest and best use than the subject should be used if similar in other relevant characteristics.	☐	☐
5. Non-realty components of value are an element of comparison considered within the sales comparison approach.	☐	☐
6. Extraction is an improved land valuation procedure that can be used when a property sells and includes building improvements on the site.	☐	☐
7. The final step in the valuation process is the reconciliation of the value indications.	☐	☐
8. An appraiser must use all three approaches in every assignment.	☐	☐
9. The first step in the cost approach is to value the land as vacant and ready for development to its highest and best use.	☐	☐
10. Purpose defines the intended use of the appraisal.	☐	☐

Review quizzes and practice tests are intended to be taken during your personal study time. Suggested answers are found in the Solutions Booklet.

Part 3 Preview

Introduction to Income Capitalization

In each assignment, the appraiser considers the applicability of the three approaches to value. Sometimes all three approaches will be utilized, and sometimes only one approach might be applicable. If the appraiser's scope of work determines that all three approaches to value should be employed, it's the appraiser's choice as to which approach will be tackled first. From a learning standpoint, we decided to begin with the income capitalization approach. This is a good place to start, since elements of capitalization are found in the other two approaches. Of course, the reverse is true—elements of cost and sales comparison are also an integral part of income capitalization.

Part 3 sets the foundation for income capitalization and will provide you with an overview of the approach. There are a lot of terms and definitions, but you won't need to know them all in detail. Your instructor will highlight which terms are essential—and these terms are also listed for you in the review of Part 3.

Learning Objectives

To prepare for Part 3, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Identify the basic components and processes used to derive a value indication when performing the income capitalization approach.
- ☐ Recognize how economic principles relate to the income capitalization approach.
- ☐ Recognize six commonly used measures of future benefits.
- ☐ Identify key differences between direct capitalization and yield capitalization.

Learning Tips

The introductory examples of direct capitalization and yield capitalization are designed to show you the big picture and should help you learn how the approach works. Don't expect everything to click together just yet. It will take the rest of the day to answer all of the questions that will come up regarding these three examples.

During the discussion of income rates, we introduce the terms R_E (equity capitalization rate) and R_M (mortgage capitalization rate). These capitalization rates are addressed in specific income capitalization courses. For now, you should become familiar with the terms, but the concepts they are connected to will ***NOT*** be tested in the final exam.

Getting Started with the HP 12C Calculator

If you want to perform basic math calculations on the HP 12C, and you've never used it before, please read the following:

Basic Math Functions

We're going to make this easy! Turn on the calculator using the [ON] key located on the lower left side of the calculator.

Function	HP 12C Keys	Display
1. Sets calculator to display 4 decimal places to right of zero	[f] [4]	0.0000
2. Clears registers	[f] [REG]	0.0000
Note. The [REG] function is located above the [CLx] key. Pressing [f] activates the functions in the gold lettering found just above the keys on the left side of the calculator. Pressing [f] [REG] will clear any stored numbers in the calculator's memory.		
3. Reset the accrual period if you see the word BEGIN in the display. The [g] is the blue-colored key, and the [END] is on the [8] key. The display should be clear of any miscellaneous words or letters and should show 0.0000.	[g] [END]	0.0000
Note. If you are using the **HP 12C Platinum version** of the calculator, the display should say RPN below the numbers. The classic version of the HP 12C always functions in RPN mode. Therefore, it does not display RPN.		
Note. If you see ALG in the display, you can switch it to RPN by pressing [f] [RPN]; you'll find the RPN toggle on the [CHS] key.		
There is no equal sign on the HP 12C.		
Calculate 25 + 10 = 35	[2] [5] [ENTER]	25.0000
	[1] [0] [+]	35.0000
Note. This procedure, referred to as RPN, can be used for all basic math functions when using the HP 12C. Just remember that the last keystroke to enter is the math function you want to perform.		
When you want to clear a previous entry or start a new calculation, press [CLx] to clear the display. To fully clear the registers, it is a good practice to press [f] [REG], because that keystroke sequence will clear all the stored numbers in the registers and the display.		

Understanding the Financial Operation Keys

There are five keys located at the top left of the HP 12C calculator that are used to perform financial functions.

Function	HP 12C Key
1. Number of payments	n
2. Periodic rate as a percent	i
3. Present value	PV
4. Periodic payment	PMT
5. Future value	FV

Key entry reminders

1. The financial information can be entered in any order. If you know four of the five items, you can solve for the fifth item. In certain financial calculations, one of the items might be represented by zero.
2. The number of payments and the periodic rate as a percent must be in the same units of comparison; for example, annual, monthly, bi-monthly, quarterly.

Part 3.
Introduction to Income Capitalization

For the rest of the day (in the next four parts), we will cover income capitalization. Our focus on this topic will be quite basic so you can absorb the fundamentals of the approach. Once you grasp the principal tools of capitalization, we can build on that knowledge base throughout the day—and in future courses that cover income capitalization in more detail.

I. Income Capitalization Approach—Setting the Stage

A. An overview of the approach

1. Income-producing property is generally purchased as an investment.

2. Earning capability is the critical element. Generally speaking, the higher the earnings, the higher the market will place the property value, assuming the risk remains constant. This is why the appraiser must carefully analyze the quantity and quality of the income generated by the property.

3. The income capitalization approach is used to analyze a property's ability to generate anticipated future benefits and to convert (that is, capitalize) these benefits into an indication of present value.

4. The income capitalization approach is one of the three traditional approaches to value, but it is not independent. The analysis of cost and sale data is also an integral part of this approach. Similarly, income capitalization is used in varying degrees within the cost approach and sales comparison approach.

B. What is capitalization?

> **Capitalization.** *The conversion of income into value.*

1. There are two methods of capitalization that appraisers can perform.

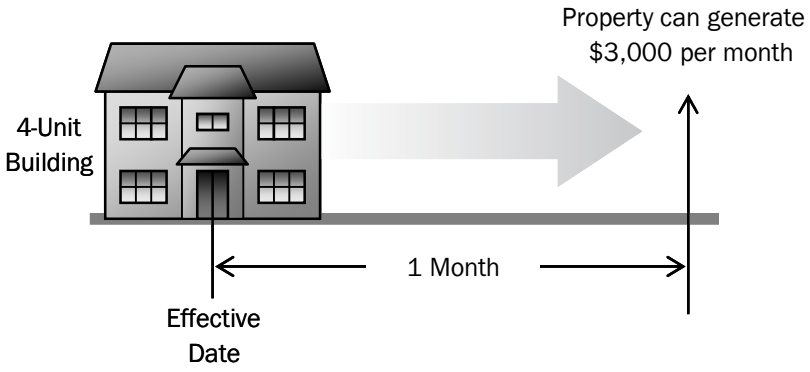
   a. Direct capitalization *(definition is provided at the conclusion to Part 3)*

   b. Yield capitalization *(definition is provided at the conclusion to Part 3)*

2. Income capitalization is a straightforward approach, but estimating the income and deriving a capitalization rate that leads to income capitalization can quickly become complex.

Example: Direct Capitalization—Residential

Reese is appraising a four-unit residential property that is 5,000 square feet. The appraiser has researched rentals in the area and found that apartment units of similar size and amenities are being leased for $650 to $800 per month. Reese estimates the monthly income for the subject property at $3,000.



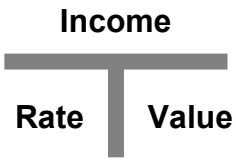
Reese has found several comparable properties in the same market area as the subject property. In this case, the appraiser is going to analyze the gross monthly rent and derive a gross rent multiplier (referred to as *GRM*) from the selected sales. To find the *GRM*, divide the sale price by the total monthly rent for the property.

	#	Building Size	Sale Price	Monthly Rent	Gross Rent Multiplier*
Market Data	1	4,800 sq. ft.	$337,500	$2,800	
	2	5,300 sq. ft.	$372,000	$3,100	
	3	4,500 sq. ft.	$320,000	$2,600	
	4	5,500 sq. ft.	$386,000	$3,200	

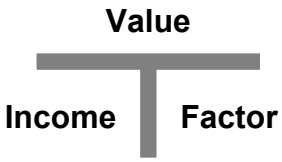
*Gross rent multiplier (*GRM*) is typically rounded to the nearest whole number.

See the next page for information on how to derive the gross rent multiplier for each sale.
You can use the space below to work out your calculations.

In *Basic Appraisal Principles,* we introduced the T-Bar and showed you how it can be used to solve various mathematical problems—particularly problems that involve percents. There are two basic formulas used in direct capitalization, and both formulas will be discussed in greater detail in Part 4.

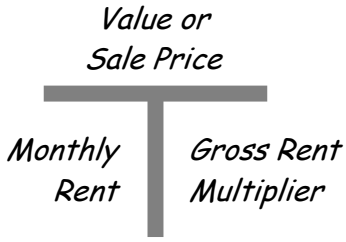


IRV Formula



VIF Formula

We can use the T-Bar to derive the gross rent multiplier *(GRM)* for each of the four sales using the **VIF formula.**



Calculate the *GRM* for the first sale.



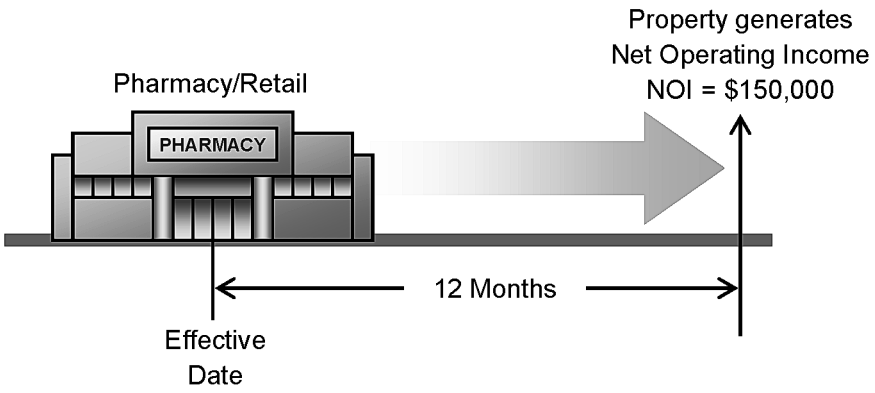
Next, calculate the *GRM* for the remaining three sales. Once you have the indicated *GRMs* for all four sales, you can use them to derive a value for the subject property using the VIF formula. In this example, let's assume Sales 1 and 4 are the most comparable to the subject property. Use the direct capitalization process to derive a value for the property.



Direct capitalization process: Gross rent per month x Gross rent multiplier = Value

Example: Direct Capitalization—Commercial

Rodriguez has been asked to perform an appraisal on a pharmacy/convenience store that has a building size of 13,000 square feet. In this type of assignment, the appraiser will research market data to analyze rent and expenses for this kind of retail operation. After restructuring the income and expense based on market evidence, Rodriguez estimates the net operating income (referred to as *NOI*) in the first year at $150,000.



Before Rodriguez can capitalize the income, he must first derive the overall capitalization rate by an acceptable method. In this case, Rodriguez has researched market data and found the following sales of similar class pharmacy stores. To find the indicated capitalization rate for each sale, divide the estimated *NOI* by the sale price.

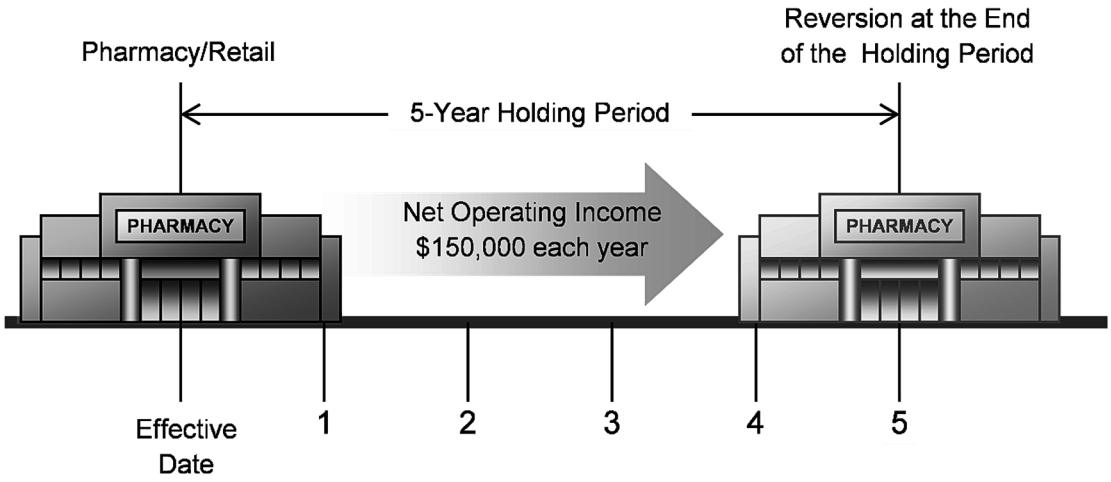
Market Data	#	Building Size	Sale Price	Estimated Annual *NOI*	Indicated Overall Capitalization Rate
	1	13,900 sq. ft.	$2,015,000	$158,000	
	2	12,500 sq. ft.	$1,820,000	$146,000	
	3	14,500 sq. ft.	$2,100,000	$160,000	
	4	11,500 sq. ft.	$1,700,000	$141,000	

Direct capitalization process: Net operating income / Overall capitalization rate = Value. Use the IRV formula to derive the value.



Example: Yield Capitalization—Commercial

Let's stay with the pharmacy/convenience store example, but let's change the problem slightly. Say it is in the last five years of its lease and has a flat rent over the remaining term. To make it easier for our example, we'll keep the *NOI* at $150,000 but we're going to analyze this income over a five-year holding period. In the prior example, we saw that direct capitalization provides a snapshot of the property's value based on the annual net income at a specific moment in time. Yield capitalization is more like a video clip that analyzes income and reversion for the property over the identified holding period.



The first step is to analyze the income stream. The *NOI* is $150,000 each year over the holding period. If the appraiser's research indicates a discount rate of 10%, what is the present value of this income stream based on annual compounding?

The second step is to analyze the reversion of the property. To do this, the appraiser must estimate what the property would sell for in five years. If the appraiser's research indicates a value of $2.1 million at the end of the holding period, what is the present value of the reversion (assuming we stay with an annual discount rate of 10%)?

What is the indicated value of the property?

Note. HP 12C calculator keystrokes for the above problems are in the Solutions Booklet.

C. Relationship of the approach to appraisal concepts and economic principles

Based on the three examples, let's think about the concepts and principles that are influential to the income capitalization approach.

1. **Highest and best use analysis**

    a. The appraiser must consider whether an income-producing use of the property might result in maximum value.

    b. To test financial feasibility and maximum productivity, the appraiser will develop value indications under alternative uses. The appraiser performs these tests by analyzing data such as the rate of return and risk associated with each use, as well as capitalized overall property value.

2. **Anticipation and change**

    a. The definition of value includes the perspective of seeing value as the present value of the future benefits that accrue to real property ownership.

    b. The investor's expectations of changes in income levels, expenses, and future values must be addressed and forecasted.

    c. The more uncertainty about future changes, the higher the risk and the higher the rate of return demanded by investors.

3. **Supply and demand**

    a. Obtainable rents are influenced by the competition for similar space.

    b. If demand exceeds supply, owners may be able to increase rents.

    c. If supply exceeds demand, rents may decline and vacancy rates may increase.

4. **Substitution.** The prices, rents, and rates of return for property tend to be set by the prevailing amounts for equally desirable alternative properties.

5. **Balance.** A reasonable balance among the *four agents of production* creates and sustains maximum profitability. Imbalance will lead to an overimprovement or an underimprovement.

6. **Externalities.** Positive and negative external forces affect the value of income-producing properties.

D. Applicability and limitations

1. The income capitalization approach is suitable for income-producing properties such as hotels, office and apartment buildings, shopping centers, etc. When information on rental data or required rates of return is lacking, the approach has little or no applicability (for example, for most one-unit residential markets).

2. The income capitalization approach can closely mirror the motivations of typical buyers in the market for income-producing properties. Thus, the appraiser might give this approach greater weight during final reconciliation, even when other approaches to value are applicable for the property type.

3. Income capitalization techniques require some appropriate form of market support, although comparable sales may not always be necessary.

4. Income capitalization techniques can be useful in developing appropriate adjustments for some physical features of residential and commercial properties, such as solar photovoltaic systems or overall energy efficiency (ratings), resulting in substantial savings over other comparable properties.

E. Ownership interests to be valued

1. Ownership entities for income-producing properties

   a. Ownership in severalty such as individuals, corporations, and REITs

   b. Co-ownership as in the case of partnerships (general or limited)

2. Ownership rights and interests

   a. Fee simple

      - Federal or state law often requires appraisers to value leased properties as fee simple estates rather than leased fee estates. This is particularly true in eminent domain and ad valorem taxation.

      - Appraisers should not necessarily conclude that leasehold and leased fee values are additive and always equal fee simple value.

   b. Leased fee. The lessor's (property owner's) interest

   c. Leasehold. The lessee's (tenant's) interest

II. Terms and Definitions

A. Market value vs. investment value

1. Market value is objective, impersonal, and detached from any single investor and reflects what typical investors in the market might do.

2. In contrast to market value, investment value is associated with a particular investor. It is based on personal, subjective parameters, which may or may not coincide with those of typical investors in the subject property's market.

3. Unless specified otherwise, our discussion of income capitalization will focus on an opinion of market value rather than investment value.

   Valuation of a leasehold interest will be examined in upcoming courses that cover income capitalization more thoroughly and under non-residential uses.

B. The concept of future benefits

1. Future benefits include the right to receive all revenues accruing to the real property over the holding period (the term of ownership) plus the net proceeds from resale or reversion of the property at the termination of the investment.

2. Commonly used measures of future benefits

   a. _____ *The total* potential *income attributable to property at full occupancy before vacancy and operating expenses are deducted.* (The word *potential* was added to the definition.)

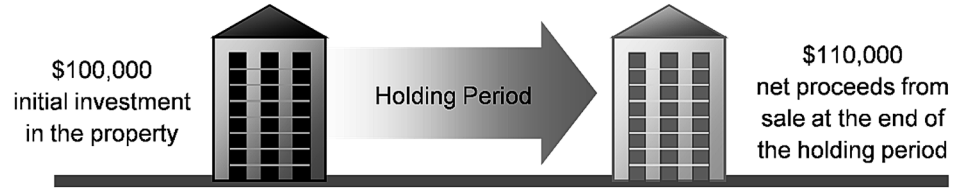
   b. _____ *The anticipated income from all operations of the real estate after an allowance is made for vacancy and collection losses and an addition is made for any other income.*

   c. _____ *The actual or anticipated net income that remains after all operating expenses are deducted from effective gross income, but before mortgage debt service and book depreciation are deducted*.

   d. _____ *The portion of net operating income that remains after total mortgage debt service is paid but before income tax on operations is deducted; also called* before-tax cash flow or equity dividend.

   e. _____ *The portion of pre-tax cash flow that remains after all income tax liabilities have been deducted.*

f. _____ *A lump-sum benefit that an investor receives or expects to receive upon the termination or sale of an investment.*



C. Income rates

1. An income rate expresses the relationship between one year's income and the corresponding value of a property.

   a. **Capitalization rate *(R)*.** *A ratio of one year's net operating income provided by an asset to the value of the asset; used to convert income into value in the application of the income capitalization approach.*

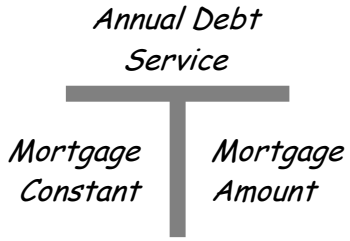
   b. **Overall capitalization rate (R_O).** *The relationship between a single year's net operating income expectancy and the total property price or value.*

      Example. A property has a net operating income (*NOI*) of $50,000 and sold for $500,000. What is the overall capitalization rate?

2. Income rates for a specific property interest also are used by appraisers. In future courses, you will learn about these rates and how they are used in band of investment and residual techniques. To give you an idea of how these rates function, let's introduce you to R_E and R_M, although keep in mind that you are only expected to have general familiarity with these terms for the final exam.

   a. **Equity capitalization rate (R_E).** *An income rate that reflects the relationship between one year's equity cash flow and the equity investment; also called the* **cash-on-cash rate**, **cash flow rate**, *or* **equity dividend rate**.

b. **Mortgage capitalization rate (R_M).** *The capitalization rate for debt; the ratio of the annual debt service to the principal amount of the mortgage loan. The mortgage capitalization rate (R_M) is equivalent to the periodic … mortgage constant times the number of payments per year on a given loan on the day the loan is initiated.*



Investors sometimes use R_M to figure out how much they can afford to pay for an investment property by anticipating the annual debt service. An example using R_M under an investor scenario is provided in the Solutions Booklet. Appraisers use the annual mortgage constant in analytical techniques such as *band of investment* to derive an overall rate (R_O).

D. Yield rates

1. These are rates of return on capital, usually expressed as a compound annual percentage rate for projection periods **greater than one year**. A yield rate considers all expected property benefits, including the proceeds from sale at the termination of the investment.

Yield rates include:

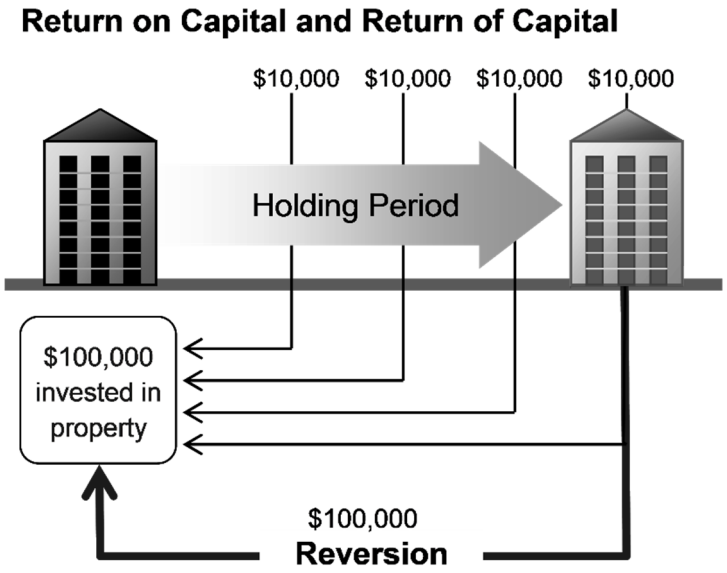
- Interest rate
- Discount rate
- Equity yield rate
- Internal rate of return
- Overall yield rate

Note. The topic of yield rates and yield capitalization is beyond the scope of this course and will be addressed in later courses. Even so, we've provided definitions of two terms to get you started in your understanding of yield concepts.

a. **Interest rate**. *The rate of return, or yield, on debt capital.*

b. **Discount rate**. *A rate of return on capital used to convert future payments or receipts into present value.*

E. Return on and return of capital



1. Return ***on*** capital refers to *the additional amount received as compensation (profit or reward) for use of an investor's capital until it is recaptured.*

2. Return ***of*** capital refers to *the recovery of invested capital.*

3. Different treatments depend on the capitalization method employed.

    a. **Direct capitalization.** No separate mathematical distinction is made between return on and return of capital—**it's all in the rate**.

    b. **Yield capitalization.** The distinction between the return of and return on capital is always definite and precise for each year's cash flow and reversion.

4. Return of capital can be made

    a. Gradually in increments as part of annual income (such as a mortgage)

    b. All or in part through the resale of the property at the termination of the investment, or through refinancing (such as a savings bond).

F. Rate selection

How we derive an income capitalization rate is addressed in Part 4, but there are fundamental considerations that are key to the process of rate selection.

1. The appraiser's rate selection is a judgment based on market evidence of the rate of return needed to attract investment capital.

2. The appraiser considers the following in the rate selection process:

   a. **Risk.** *The probability that foreseen events will not occur.* Interpreted for income property as the probability that the actual rate of return earned by the investor will differ from the return expected when the investment was made.

   b. Market attitudes toward expected inflation and deflation. It is the real rate of return that investors try to protect over time. If inflation is expected, the desired nominal rate will tend to increase to offset the erosion of purchasing power.

   c. Prospective rates of return for alternative investment opportunities

   d. Historical rates of return earned by comparable properties

   e. Supply of and demand for mortgage funds

   f. Availability of tax shelters

G. Refresher on interest rates from *Basic Appraisal Principles*

Let's say a **periodic rate** is 0.5% as applied to an investment from period to period, and let's make it monthly in this case. Therefore, the **annual nominal rate** is 6% (the periodic rate multiplied by the number of periods), and the **annual effective rate** is 6.17% (because this rate includes the effect of compounding).

> **Nominal interest rate *(I).*** *A stated or contract rate; an interest rate, usually annual, that does not necessarily correspond to the effective or compound interest rate.*

III. Income Capitalization Methods

A. Direct capitalization

> **Direct capitalization.** *A method used to convert an estimate of a single year's income expectancy into an indication of value in one direct step, either by dividing the net income estimate by an appropriate capitalization rate or by multiplying the income estimate by an appropriate factor. Direct capitalization employs capitalization rates and multipliers extracted or developed from market data. Only one year's income is used. Yield and value changes are implied, but not explicitly identified.*

1. Income expectancy is often specified as the anticipated income for the year following the purchase date or the effective date specified in the appraisal.

2. Rates and factors are often derived through analysis of comparable sales.

3. Direct capitalization may be based on potential gross income *(PGI),* effective gross income *(EGI),* net operating income (I_O), or pre-tax cash flow *(PTCF)*.

B. Yield capitalization

> **Yield capitalization.** *A method used to convert future benefits into present value by 1) discounting each future benefit at an appropriate yield rate, or 2) developing an overall rate that explicitly reflects the investment's income pattern, holding period, value change, and yield rate.*

1. This method converts periodic income and reversion to present value using a required yield rate of return (that is, discount rate).

2. This method specifically identifies the expected rate of return on investment ***and*** the period over which the complete return of investment is expected to occur.

3. This method is also called **discounted cash flow (DCF) analysis** and will be examined in more advanced courses.

C. The simplest way to contrast the two methods is that direct capitalization is based on income over a one-year period, whereas yield capitalization is based on an income stream of more than one year.

Review Part 3

Learning Objectives

Now that you've completed Part 3, you should be able to

- ☑ Identify the basic components and processes used to derive a value indication when performing the income capitalization approach.
- ☑ Recognize how economic principles relate to the income capitalization approach.
- ☑ Recognize six commonly used measures of future benefits.
- ☑ Identify key differences between direct capitalization and yield capitalization.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 23, P. 413–424, and Chapter 25, P. 459–463

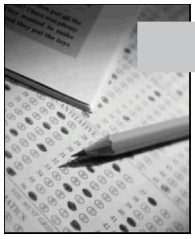
Appraising Residential Properties, 4th ed., Chapter 19, P. 357–368

Terms and Concepts to Remember

Capitalization	Net operating income *(NOI, I_O)*	Pre-tax cash flow *(PTCF)*
Capitalization rate *(R)*	Overall capitalization rate *(R_O)*	Reversion
Direct capitalization	Potential gross income *(PGI)*	Yield capitalization
Effective gross income *(EGI)*		

Resources

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.



Practice Test Section 1

This multiple-choice test is for your benefit and provides a review of everything covered in section 1. This is a closed-book test. Choose the most correct answer.

1. What does the purpose of an appraisal assignment define?

   A. a summary of the scope of work decision
   B. the definition of the client's problem
   C. the intended use of the assignment
   D. the type and definition of value used in the assignment

2. A value opinion of a proposed office building based on a current effective date would generally require what kind of assignment condition?

   A. a hypothetical condition
   B. an extended limiting condition
   C. an extraordinary assumption/special assumption
   D. a standard assumption

3. The ratio of annual debt service to the principal amount of the mortgage loan is called the

   A. discount rate.
   B. equity capitalization rate.
   C. interest rate.
   D. mortgage capitalization rate.

4. If the net operating income of a property is $187,500 and the market indicates an overall capitalization rate of 7.5%, what is the indicated value using direct capitalization?

   A. $201,563
   B. $328,125
   C. $2,500,000
   D. $2,678,571

5. What are the three traditional approaches to value?

- A. cost, sales comparison, and income capitalization
- B. income capitalization, sales comparison, and extraction
- C. market analysis, highest and best use analysis, and cost analysis
- D. sales comparison, extraction, and allocation

6. What is the indicated overall capitalization rate of a property that sold for $825,000 and has a net operating income of $53,625?

- A. 0.063%
- B. 0.15%
- C. 6.5%
- D. 15.38%

7. What is the gross rent multiplier of a property that sold for $174,000 and has a gross monthly rent of $1,500?

- A. 8.6%
- B. 98
- C. 113
- D. 116

8. The amount left after debt service has been deducted from net operating income is called

- A. after-tax cash flow.
- B. discounted cash flow.
- C. pre-tax cash flow.
- D. reversion.

9. What method is used to convert an estimate of a single year's income expectancy into an indication of value?

- A. direct capitalization
- B. discounted cash flow analysis
- C. reversion
- D. yield capitalization

10. Jackson is appraising a large tract of land that is being farmed for agricultural use. The land use surrounding the farm is currently in transition from agricultural to one-unit residential developments. For this assignment, what two procedures should Jackson consider in analyzing the land value of the property?

- A. extraction and allocation
- B. ground rent capitalization and allocation
- C. residual land technique and extraction
- D. sales comparison and subdivision development analysis

Review quizzes and practice tests are intended to be taken during your personal study time. Suggested answers are found in the Solutions Booklet.

Section 2

2

Part 4. Income Capitalization Formulas

Part 5. Income and Expense Analysis

Part 6. Application—Problem Solving

Part 4 Preview

Income Capitalization Formulas

The first half of Part 4 covers the formulas for capitalization, which are fairly basic. The easiest way to feel comfortable with these formulas is by using a T-Bar. The second half of Part 4 focuses on income multipliers and rates and then closes with the most common method of deriving an income capitalization rate.

Learning Objectives

To prepare for Part 4, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Identify the primary components of capitalization.
- ☐ Apply income multipliers and overall capitalization rates to solve real estate problems.
- ☐ Derive overall capitalization rates and multipliers from comparable sales.

Learning Tips

The formula process is laid out step by step and should be easy to understand. However, it might take a few passes before the concept of rates and factors (that is, multipliers) sinks in. These two concepts have a reciprocal relationship, and once you see that relationship, the formulas will make more sense. Some self study on the primary components of capitalization (that is, income, rate, factor, and value) is recommended and will go a long way in making Part 4 easier to understand. In fact, just about everything in Part 4 is an expansion of the first two examples from Part 3 (direct capitalization). If you understood the underlying process used in those examples (income is converted into value), Part 4 should present no problems for you.

Part 4.
Income Capitalization Formulas

I. Capitalization Formulas Without Fear

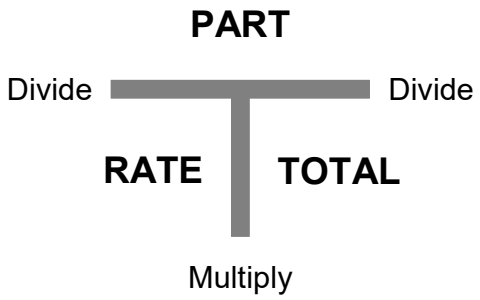
In *Basic Appraisal Principles,* we introduced the T-bar and used it to work real estate problems involving percents. Therefore, you should feel comfortable calculating income capitalization formulas because the concepts are the same. We will begin with a review of the basics and then go to work using the capitalization formula known as *IRV.*

A. The T-bar is a ***visual*** way to express three formulas in one package. It can be used to solve various mathematical problems involving rates or factors.

The T-bar works three formulas:

- *Total* = *Part / Rate*
- *Part* = *Rate* × *Total*
- *Rate* = *Part / Total*

If you are trying to solve a rate or percentage problem, the T-bar could be set up as follows:



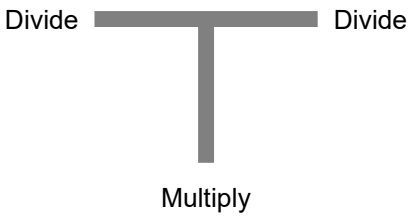
1. Simple rules for using the T-bar

   a. When solving for a component below the bar, divide. In that case, remember to first enter the top number into your calculator, because that number is divided by the known component found below the bar.

   b. When solving for a component above the bar, multiply the two components below the bar.

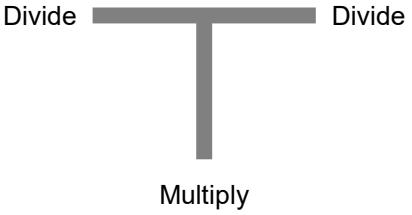
2. Before looking at formulas for income capitalization, use the T-bar to solve a few percentage problems that have an unknown component. This will help you to recall the concepts you learned in *Basic Appraisal Principles*.

   a. Alpha Leasing offered an incentive to a potential tenant by providing a 15% rent discount over the first six months of the lease. If the rent is $30,000 over this period, *how much is the prospective tenant going to save?*

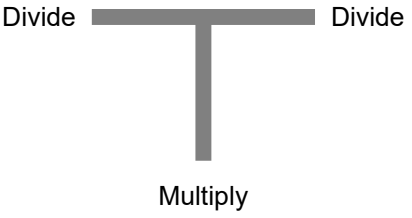


   In the above problem, what if the amount saved was provided, but the rate of discount was the unknown? Could you solve for the rate using the T-bar?

   b. The state highway department has acquired 20,000 square feet of land through condemnation. If the land taken is 5% of the total parcel, *what is the size of the entire site?*



   c. Jamal purchased a property three years ago for $750,000 that has since appreciated in value by 20%. *What is the current value?*



   Note. The above problem can be solved two ways. If 20% is inserted into the formula, the resulting appreciation has to be added to the purchase price of $750,000. A shortcut is to use a rate of 120% (that is, 1.20). Even if the "part" is larger than the "total," the formula still works.

B. Primary components of capitalization

Before we explain the formulas for direct capitalization and use the T-bar in specific problems, let's first define some critical terms.

1. **I = Income**

   a. The income used in capitalization is a very specific type of income.

      - In the pharmacy/convenience store example used to illustrate direct capitalization in Part 3, net operating income (*NOI* or I_O) was used.

      - In the residential example with the four-unit building, monthly rent was used.

   b. The income used is also specific to the capitalization formula employed.

      - *NOI* is used in the IRV formula.

      - Other types of income such as potential gross income (*PGI)* or effective gross income (*EGI*) are used in the VIF formula.

      - In residential applications, monthly rent is used in the VIF formula to capitalize income.

2. **R = Rate**

   The rate used in capitalization is also a specific type of rate. If you are seeking the value of the property (that is, both land and improvements) based on *NOI* (I_O), then the rate used is referred to as an overall rate (R_O).

3. **F = Factor**

   a. A factor is used instead of a capitalization rate when an appraiser is employing the VIF formula to capitalize income. Factors are not divided into income, but instead are used to multiply the income to derive a value—hence the reason they are called multipliers.

   b. Multipliers are identified with the type of income applied in the formula. For example, ***PGIM*** is connected with ***PGI***, ***EGIM*** is used with *EGI*, and ***NIM*** (net income multiplier) is connected with *NOI* when used in the VIF formula.

   c. In residential applications, the factor is referred to as a gross rent multiplier (*GRM*) and is applied to the monthly rent for the property.

d. Any factor can be converted to a rate by taking its reciprocal ($R = 1 / F$), but this derived capitalization rate (R) is not an overall rate (R_O) unless the associated income is based on *NOI*.

Reciprocal. A reciprocal is an element of a mathematical set that when multiplied by a given element yields the identity element (Merriam-Webster). It is also referred to as a *multiplicative inverse*.

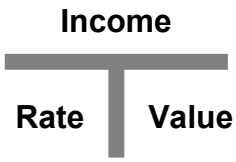
> **Example.** If a capitalization rate (R) is 6.25%, what is its corresponding factor? The answer can be found by taking the reciprocal of 6.25%.
>
> **1 / 0.0625 = 16**, so 16 is the factor that corresponds to a capitalization rate of 6.25%, and the reciprocal of 16 is 6.25% (that is, 1 / 16 = 0.0625).

4. **V = Value**

The value derived from the capitalization process should be qualified, particularly when using *land value* or *building value* (terms used in residual techniques—and a topic that is covered in upcoming courses). This course refers only to overall total property value unless specifically stated otherwise.

C. Formulas for direct capitalization

1. The **IRV** formula is set up as follows:



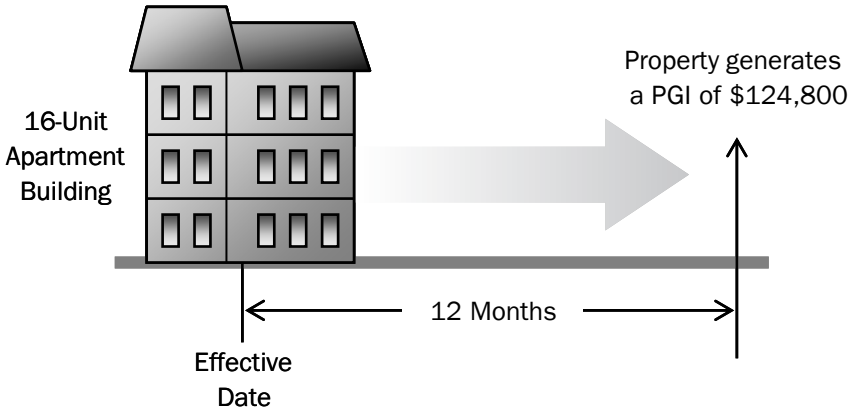
a. The T-bar formula shown above can be used to solve for an unknown when two of the components are identified or can be derived from existing data.

b. The T-bar set up for IRV represents three formulas in one package:

$I = R \times V$ $R = I / V$ $V = I / R$

Helpful hint: When solving for one of the three components, simply cover the unknown component in the IRV formula. The T-bar will guide you as to what calculation should be used to solve the problem.

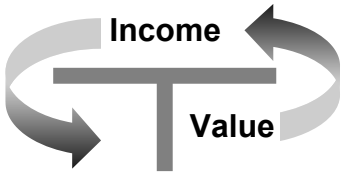
2. Solving valuation problems with the IRV formula

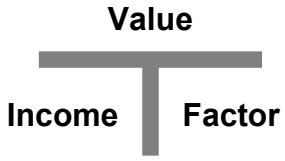


a. A 16-unit apartment building has a potential gross income of $124,800. The vacancy rate is 5% and the operating expenses and replacement allowance is $40,000. *If the overall capitalization rate is 8.25%, what is the value by direct capitalization?*

b. *If the same 16-unit apartment building sold for $924,000, what is the indicated overall capitalization rate?*

3. The **VIF** formula is used to capitalize income with a factor and can be set up as follows:





   a. The T-bar can be used for the VIF formula, but the components are now in different positions, which might cause a little confusion. Don't despair; you can easily remember the components by their names, IRV and VIF.

      - Value is now positioned on top of the T rather than below it. This is necessary because a rate is not available.
      - A factor is the reciprocal of a capitalization rate (F = 1 / R and R = 1 / F).
      - A rate is typically less than 1 (for example, 0.085 or 0.10), whereas a factor is generally greater than 1 (for example, 8.50 or 115).

   b. Factors are called multipliers because that's the mathematical function you perform with a factor when seeking value. The three formulas for VIF are

      $V = I \times F$ $I = V / F$ $F = V / I$

4. Solving valuation problems using the VIF formula

   a. How does an appraiser decide whether to use IRV or VIF? The answer is largely determined by the type of property and the availability of market data. If the appraiser has good data on income and expenses for the subject property and competing properties, IRV is used. In some property types, the most accurate indicator of income is *PGI* or *EGI*. In that case, VIF would be chosen to capitalize income.

   b. Garcia is analyzing the value of a six-unit rental property in a residential district. The *PGI* is $50,400 and sales indicate a potential gross income multiplier (*PGIM*) of 8.75. *Based on this data, what is the value of the property?*



c. Hines is appraising a 10-unit property and found the following data:

	Sale	Sale Price	Annual PGI	PGI Multiplier
Market Data	1	$775,000	$72,000	
	2	$693,000	$66,000	
	3	$825,000	$79,800	
	4	$790,000	$74,400	

Hines believes that Sales 1 and 4 are the most similar in features to the appraised property. *If Hines estimates the annual PGI for the subject property at $69,600, what is the indicated value of the 10-unit apartment property?*



II. Income Multipliers

As mentioned earlier, there are other formulas that play various roles in capitalization. Before covering those, you need to know how to derive income multipliers and rates.

Thinking ahead: *GIMs* are annual multipliers used in commercial properties, and *GRMs* are monthly multipliers used in residential properties of one to four units.

A. **Gross income multiplier (*GIM*)**. This is *the ratio between the sale price (or value) of a property and its effective gross income* (EGI) or its potential gross income (PGI).

1. Use of gross income multipliers

a. *GIM* is used in residential properties with five or more units and in some commercial properties (for example, hotels) as a method of direct capitalization (see the VIF formula).

b. Appraisers and reviewers may elect to use *GIMs* of similar sales to provide indications of their economic characteristics for purposes of comparison. If this analysis is undertaken in the sales comparison approach, care must be exercised not to mix the derived multipliers in the reconciliation of the income capitalization approach and the sales comparison approach.

2. Procedure for using gross income multipliers

    a. Begin by examining sales of properties with similar highest and best use that were rented at the time of sale.

    b. The selected properties must be comparable to the subject property as well as to each other in their relevant location, physical, and economic characteristics.

    c. The selected sales must have ***operating expense ratios*** (*OER*s) similar to the subject's operating expense ratio.

> ***Operating expense ratio (OER).*** *The ratio of total operating expenses to effective gross income (TOE / EGI); the complement of the net income ratio, i.e., OER = 1 – NIR.*

    Note. *Operating expenses are covered in Part 5, and there is more on* OER *in the pages ahead when income rates are discussed.*

    d. When a gross income multiplier is used, the gross income may include sources other than rental space (for example, income from laundry, vending, parking, etc.).

    e. The income data used to derive the multipliers must be used consistently. For example, if *PGI* is used for income, then all sales (and the subject property) must use *PGI* as the income base.

3. Calculating the *GIM*

    a. Derive the *GIM* for comparable properties by dividing the sale price by its annualized gross income.

    b. Once a sufficient number of sales are analyzed, the *GIM*s from the sales are reconciled to a *GIM* appropriate for the subject property. The selected *GIM* can then be used in the VIF formula to capitalize income into a value indication for the subject property.

B. ***Gross rent multiplier*** **(GRM).** This is a similar ratio to *GIM*, but it applies to rental income only. This multiplier is applied in less complex properties such as rented one-unit residential homes and two-to-four unit small residential income properties.

1. The procedure for deriving a *GRM* is similar to what was stated previously for *GIM* except for the differences mentioned at the top of the next page.

a. The operating expenses of the comparable sales are analyzed, but there are fewer components as compared to a commercial *GIM* analysis.

b. Monthly rent (rather than annual rent) is used with the *GRM*.

2. Use of *GRM* in the VIF formula to capitalize income

Note. The terms *market rent* and *contract rent* are defined in Part 5.

a. The *GRM* derived from comparable sales reflects the market and is applied with no further adjustment. The *GRM* selected for the subject property is the result of reconciling *GRMs* extracted from sales most similar to the subject property.

b. In contrast to *GRM*, ***rents*** derived from comparable rentals may need to be adjusted, because market rent is what you are after.

c. Analyze market rent in light of the following:

- Avoid furnished rentals, if possible, or adjust them if used.
- Analyze existing rentals and lease terms of the subject property, if applicable. However, understand this is contract rent, and it may or may not be the same as market rent.
- Consider the rents of sold properties ***and*** the rents of properties that are not for sale. This is often done through a rent survey. Again, the goal is to estimate market rent.
- Examine the terms of the contracts and the conditions of rental. Adjust the rents of the comparable properties for differences in these items.
- Make adjustment to the comparable rents for dissimilarities in relevant location and physical characteristics.
- Compare the subject rental and comparable rentals on the basis of a common unit of comparison. In one-to-four unit residences, the common unit is monthly rent per unit or per whole property.

d. The final step is to take the estimated monthly market rent for the subject rental and multiply it by the *GRM*. This capitalizes the rent into a value indication.

3. Limitations of *GRM* analysis

   a. One-unit residences

      - Usually purchased for amenity purposes rather than as investments

      - The quantity of sales comparable to the subject property that were rented at the time of sale may be insufficient for the *GRM* analysis to be credible.

   b. Properties that are two-to-four unit small residential income

      - It is important that the comparable rental properties have similar division of responsibilities for utility payments.

      - In some markets (such as in resort areas), properties might be furnished. It is important that the comparable rentals are similar in terms of furnishings so that consistent multipliers may be developed for furnished rentals.

   c. Overall limitations of *GRMs*

      - They are only applicable where reliable sales and rental data exist in sufficient quantities.

      - Due to owner or tenant reluctance to share data, verifying rental details may prove difficult, and in some cases it might be nearly impossible.

      - The sales and rentals need to be comparable in all aspects. Rents where the landlord pays all utilities should not be mixed with rents where the tenant pays most, if not all, of the utilities—unless you properly adjust for these differences in the rents.

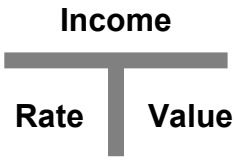
      - In a rent-controlled area, care must be taken in using this analysis. To determine the impact of rent controls on property values, an appraiser may need to compare income-producing properties subject to rent controls with similar properties that are not.

      - They may be unreliable in an area that is in transition or where prices are rapidly changing.

III. Income Rates

A. The importance of deriving an accurate capitalization rate

1. The income capitalization formula (IRV) requires you to estimate two components (income and rate) to derive a property value. Your derivation of these to two components is critical to the accuracy of the income capitalization approach.



2. In direct capitalization, you convert a single year's income estimate into a value indication. The rate used for this purpose includes the return *of* and the return *on* capital.

B. Derivation of overall capitalization rates (R_O)

1. **Comparable sales.** This is the preferred method when sufficient data on sales of similar, competitive properties are available. The data requirements are stringent. For example, when properties are not net leased, treatment of expenses between sales and the subject property (for example, replacement allowance, etc.) must be consistent to derive a credible rate indicator. *(Terms such as net lease and replacement allowance are defined in Part 5.)*

2. **Example using comparable sales.** Derive the overall capitalization rate (R_O) for a low-rise office building of 30,000 sq. ft. that has 12 tenants. Your research indicates the subject property and comparable properties are leased at market rents, and all of the properties are in the same market area. The indicated R_O was derived for each comparable sale using the same method employed in Part 3, but the steps are laid out again for the sake of practice.

   a. Analyze the market data

	#	Sale Price	I_o	Indicated R_o
Market Data	1	$2,900,000	$275,500	9.50%
	2	$1,950,000	$170,625	8.75%
	3	$1,600,000	$168,000	10.50%
	4	$4,200,000	$378,000	9.00 %
	5	$2,595,000	$240,000	9.25%

   b. Here is how the rate for **Sale 1** was derived:

   $275,500 (net operating income) / $2,900,000 (sale price) = 0.095 R_O

c. Now analyze **additional data** on the same sales

	#	Building Size	Number of Tenants	Year Built	Indicated R_O
Market Data	1	40,000 sq. ft.	15	1985	9.50%
	2	24,000 sq. ft.	2	2002	8.75%
	3	18,000 sq. ft.	6	1975	10.50%
	4	70,000 sq. ft.	30	1995	9.00 %
	5	30,000 sq. ft.	10	1990	9.25%

d. *What is the subject property's appropriate overall capitalization rate* (R_O)*? Why?*

	Building Size		Number of Tenants	Year Built	Indicated R_O
Subject	30,000 sq. ft.		12	1988	

e. *If market research indicates an* NOI *of $270,000, what is the indicated value of the subject property using direct capitalization?*



3. Other methods of deriving an overall capitalization rate may require analysis of the parts, such as the rate for the land and the rate for the building. These techniques are examined in upcoming courses, so there is no need to learn about residual techniques (do you remember R_E and R_M from Part 3?), band of investment, or debt coverage ratio at this time. Using comparable sales to derive R_O is sufficient for this course.

Review Part 4

Learning Objectives

Now that you've completed Part 4, you should be able to

- ☑ Identify the primary components of capitalization.
- ☑ Apply income multipliers and overall capitalization rates to solve real estate problems.
- ☑ Derive overall capitalization rates and multipliers from comparable sales.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 25, P. 459–463

Appraising Residential Properties, 4th ed., Chapter 19, P. 359–368

Terms and Concepts to Remember

Effective gross income multiplier (*EGIM*)	Gross rent multiplier (*GRM*)
Factor	Multiplier
Formulas for IRV and VIF	Operating expense ratio (*OER*)
Gross income multiplier (*GIM*)	Potential gross income multiplier (*PGIM*)

For Further Study

To assist you in remembering the capitalization components, the following information has been excerpted from the Appraisal Institute's booklet, *Formulas, Symbols, Math Review, and Sample Problems*.

Direct Capitalization

Where:		
I	=	**Income**
R	=	**Capitalization Rate**
I_o	=	**Net Operating Income**
V	=	**Value**
M	=	**Mortgage Ratio**
F	=	**Capitalization Factor (Multiplier)**
GIM	=	**Gross Income Multiplier**
EGIM	=	**Effective Gross Income Multiplier**
NIR	=	**Net Income Ratio***

Subscripts:		
O	=	**Overall Property**
M	=	**Mortgage**
E	=	**Equity**
L	=	**Land**
B	=	**Building**

***Note:** *NIR* is addressed in Part 5.

Capitalization Formulas

$$\text{Income} = \text{Rate} \times \text{Value}$$

$$\text{Value} = \text{Income} \times \text{Factor}$$

Capitalization Rate/Factor Relationships

$R = 1 / F$

$F = 1 / R$

$R_O = NIR / EGIM$

Review Quiz

Solve the following problems. Please note that some questions are connected to each other (for example, Question 1 has two parts).

1. A three-unit residential property sells for $232,000, two units rent for $725 per month, and one unit rents for $550 per month. What is the monthly rent for the property?

   _____

   What is the *GRM* for this sale property?

   _____

2. After analyzing market data of comparable rentals, a *GRM* of 98 is derived. If the monthly rent for the subject property is $4,000, what is the indicated value?

   _____

3. If the capitalization rate (*R*) is 9.5%, what is the equivalent factor (that is, multiplier)?

   _____

4. I_O is $112,500 and R_O is 7.5%. What is the indicated value of the property?

   _____

5. If a property has annual gross income of $80,000 and the gross income multiplier is 11.5, what is the indicated value of the property?

   _____

6. An appraiser is analyzing a sale that sold for $1,400,000. If the indicated *NOI* for the property is $126,000, what is the overall capitalization rate?

   _____

7. An appraiser is analyzing a sale that sold for $1,500,000. If the *EGI* for the property is $200,000, what is the *EGIM*?

   _____

Suggested answers to this review quiz are in the Solutions Booklet.

Part 5 Preview

Income and Expense Analysis

In the real world of appraising, income and expense analysis is the first step appraisers take in the income capitalization approach. For educational reasons, we have saved it for our final procedure of this approach. Rent is the primary source of income for investment properties, and rent involves leases. It is critical that you have a basic understanding of how these contracts work. After some work in lease analysis, you will move on to the development of income and expense as Part 5 places the finishing touch on income capitalization.

Learning Objectives

To prepare for Part 5, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Identify the primary components used to develop a complete income and expense estimate for appraisal purposes.
- ☐ Identify procedures for estimating potential gross income.
- ☐ Distinguish between fixed and variable expenses.
- ☐ Recognize the procedure for deriving net operating income (I_O) after estimating all operating expenses.
- ☐ Distinguish among types of leases.
- ☐ Distinguish among types of rent.
- ☐ Calculate *PGI*, *EGI*, and I_O.
- ☐ Apply *OER* and *NIR*.

Learning Tips

It's not necessary to know all the terms in an operating statement. However, you do want to know key relationships. Focus your attention on income and expenses that require additional adjustment. For example, you'll want to understand that effective gross income is the result after potential gross income is adjusted for vacancy and collection loss. Net operating income is derived after operating expenses are deducted, although that doesn't include mortgage debt service. These types of relationships are the key to understanding income capitalization.

Test questions that you encounter will provide the income and expense data you need. Therefore, it's the relationship of the various components that are critical to solving the problem—and that's where you should concentrate your effort.

Part 5.
Income and Expense Analysis

Before you can pull all the parts together for income capitalization, you must first know how to restructure an operating statement for an income-producing property. Part 5 begins with a refresher on leases and then examines different types of rents. From there, you'll look at how to break down the income and expenses for appraisal valuation purposes.

I. Lease Analysis

Lease analysis is where you will often begin the income capitalization approach. The analysis of leases includes the subject property and comparable rentals.

> **Lease.** *A contract in which the rights to use and occupy land, space, or structures are transferred by the owner to another for a specified period of time in return for a specified rent.*

Note. Leases were previously discussed in Part 7 of the *Basic Appraisal Principles* course from the legal contract perspective. The focus here is from an income perspective. Also note that a lease can be written or oral, although most jurisdictions require written leases, particularly for durations of one year or more.

A. Initial data for lease analysis typically includes

1. All existing and proposed leases for the subject property
2. Information about lease provisions that affect the quantity, quality, and durability of the stipulated income stream
3. Similar information for competitive properties to be used in the analysis

B. There are two bases used to set up leases.

1. **Gross lease.** The landlord (i.e., lessor) pays all of the operating expenses.
2. **Net lease.** The tenant (i.e., lessee) pays all of the operating expenses.

Note. It is important to be familiar with the local market terms used to describe leases. In some markets, the term *net lease* may indicate that the tenant pays only a portion of the operating expenses. The term *absolute net lease* or *triple net lease* may be used to describe a lease in which the tenant pays all of the operating expenses.

C. Types of information contained in a real property lease

1. Date of lease (beginning and ending dates)
2. Reference information (if the lease is recorded)
3. Legal description or other identification of the leased premises
4. Name of lessor (owner or landlord)
5. Name of lessee (tenant)
6. Lease term
7. Occupancy date
8. Commencement date for rent payment
9. Rent amount (includes any percentage clause, graduation, escalation, etc.)
10. Rent concessions (includes any discounts or benefits)
11. Landlord's covenants (division of expense)
12. Tenant's covenants (division of expenses)
13. Right of assignment or right to sublet
14. Option to renew
15. Option to purchase
16. Escape clauses
17. Escalation clauses
18. Continued occupancy clauses
19. Security deposits
20. Casualty loss
21. Lessee's improvements
22. Condemnation rights
23. Revaluation clauses

D. Lease types

1. **Flat rental.** *A lease with a specified level of rent that continues throughout the lease term;* also called level payment lease.

2. **Graduated rental.** *A lease that provides for specified changes in rent at one or more points during the lease term.*

   a. **Step-up lease.** The payments increase at specified intervals.

   b. **Step-down lease.** The payments decrease at specified intervals.

3. **Revaluation lease.** *A lease that provides for periodic rent adjustments based on the market rental rate of the space.* This is sometimes accomplished through appraisal or arbitration.

4. **Index lease.** *A lease, usually for a long term, that provides for periodic rent adjustments based on the change in an economic index,* e.g., a cost-of-living index.

5. **Percentage lease.** *A lease in which the rent or some portion of the rent represents a specified percentage of the volume of business, productivity, or use achieved by the tenant.* This type of lease is frequently used for retail. Most leases specify a guaranteed minimum rent with overages possible.

E. Rent analysis

Remember: The income for investment properties consists primarily of rent.

> **Rent.** *An amount paid for the use of land, improvements, or a capital good.*

1. Types of rent

   a. **Contract rent.** *The actual rental income specified in a lease.*

   b. **Scheduled rent.** *Income due under existing leases.*

   Note. Contract and scheduled rent are often the same; however, there are situations where they differ. For example, a one-year lease might indicate a monthly contract rent of $1,200, but the tenant is given one month of free rent as an inducement. Therefore, assuming the free rent was amortized over the term, the monthly scheduled rent (as well as the effective rent) is $1,100. When calculating scheduled rent, adjust for rent concessions, discounts, or other benefits that induce a prospective tenant to enter into a lease.

c. **Market rent.** *The most probable rent that a property should bring in a competitive and open market reflecting the conditions and restrictions of a specified lease agreement, including the rental adjustment and revaluation, permitted uses, use restrictions, expense obligations, term concessions, renewal and purchase options, and tenant improvements (TIs);* the lessee and lessor each acting prudently and knowledgeably, and assuming consummation of a lease contract as of a specified date and the passing of the leasehold from lessor to lessee under conditions whereby:

   1. Lessee and lessor are typically motivated.

   2. Both parties are well informed or well advised, and acting in what they consider their best interests.

   3. A reasonable time is allowed for exposure in the open market.

   4. The rent payment is made in terms of cash in United States dollars and is expressed as an amount per time period consistent with the payment schedule of the lease contract.

   5. The rental amount represents the normal consideration for the property leased unaffected by special fees or concessions granted by anyone associated with the transaction.

d. **Effective rent.** *Total base rent, or minimum rent stipulated in a lease, over the specified lease term minus rent concessions; the rent that is effectively paid by a tenant net of financial concessions provided by a landlord.*

e. **Deficit rent.** *The amount by which market rent exceeds contract rent at the time of the appraisal; created by a lease favorable to the tenant, resulting in a positive leasehold, and may reflect uninformed or unusually motivated parties, special relationships, inferior management, a lease executed in a weaker rental market, or concessions agreed to by the parties.*

f. **Excess rent.** *The amount by which contract rent exceeds market rent at the time of the appraisal; created by a lease favorable to the landlord (lessor) and may reflect unusual management, unknowledgeable or unusually motivated parties, a lease execution in an earlier, stronger rental market, or an agreement of the parties.* Due to the higher risk inherent in the receipt of excess rent, it may be calculated separately and capitalized at a higher rate in the income capitalization approach.

g. **Percentage rent.** *Rental income received in accordance with the terms of a percentage lease; typically derived from retail store and restaurant tenants and based on a* certain *percentage of their gross sales.*

h. **Overage rent.** *The percentage rent paid over and above the guaranteed minimum rent or base rent; calculated as a percentage of sales in excess*

of a specified breakpoint sales volume. This is not excess rent, but is a contract rent.

2. Rent analysis for fee simple interest

   This is based on the market rent the property is capable of achieving. Typical situations include proposed projects, properties leased at market rent, and owner-occupied properties (as required by law in some jurisdictions).

   Remember that fee simple is ownership of all of the rights in a parcel of real property, subject only to the limitations of the four powers of government.

3. Rent analysis for lessor's marketable interest (leased fee estate)

   a. Existing contract rent for leased space

   b. Market rent for vacant and owner-occupied space

   c. Future market rent estimates when using discounted cash flow analysis

4. Procedures for rent analysis

   a. Study present rent schedule for the subject property. Examine leases and interview tenants to verify the rent schedule.

   b. Reduce all rents to a unit basis for comparison.

   c. Study rents of comparable properties.

   d. Adjust comparable rents according to appropriate elements of comparison. Include

      - Real property rights
      - Conditions of rental (arm's-length terms)
      - Market conditions
      - Location
      - Relevant physical characteristics (energy efficient or green features)
      - Relevant economic characteristics stipulated in the lease
      - Use of the property
      - Non-realty components

Note. The elements of comparison listed previously reflect the income perspective for this approach. A more detailed look at each element is provided when we discuss the sales comparison approach in Part 15.

e. Estimate market rent for the subject property.

II. Developing Income and Expense Estimates

The first step in analyzing a property's earning power is to analyze *NOI* expectancy. Past and current incomes are important, but the critical concern is with the future. Appraisers are primarily interested in the quantity, quality, and durability of the income stream.

A. Preliminary data for analysis

1. Income and expense history of the subject property (at least three years, if possible)
2. Income and expense history of competitive properties
3. Recently signed leases, proposed leases, and asking rents for the subject property and competitive properties
4. Actual vacancy levels for the subject and competitive properties
5. Management expenses for the subject and competitive properties
6. Published operating data. You might use resources such as the Institute of Real Estate Management (IREM) and the Building Owners and Managers Association (BOMA).
7. Market expectations
8. Tax assessment policies and projected changes in utility rates

B. **Potential gross income (*PGI*).** This is the total rent possible if the property is 100% occupied. *PGI* includes

1. Scheduled rent. Stipulated in leases and is sometimes called contract rent or contract income.
2. Escalation income. Derived from lease escalation clauses.
3. Market rent. Estimated for vacant, soon-to-be-vacant, or owner-occupied space.
4. Other income. Income generated by the operation of the real property not derived directly from rental of space. Examples are parking fees, coin-operated machines, and antenna connections.

C. **Vacancy and collection loss**

1. This allowance is for deductions *from potential gross income (PGI) made to reflect income reductions due to vacancies, tenant turnover, and nonpayment of rent.*

   a. *Vacancy is unrented space. The measurement of the amount of unoccupied or unused space or land in a defined market or property; … sometimes used as shorthand for* vacancy and collection loss (defined above).

   b. Collection loss *considers nonpayment of rent and can* also *consider units rented at below-market rates (also known as* lag vacancy*).*

2. *Vacancy and collection loss is usually estimated on a property-specific basis as part of the reconstructed operating statement in the income capitalization approach.*

   a. It is typically *applied, as a percentage, to potential gross income.*

   b. It *may also refer to a study of vacancy and collection loss in a defined market or submarket.*

3. The vacancy and collection loss figure is commonly estimated as a percentage of potential gross income (*PGI*) and can come from published surveys or an appropriate personal survey of the local market.

D. **Effective gross income (*EGI*).** Derive by subtracting an allowance for vacancy and collection loss from (*PGI*).

Operating Statement Worksheet			
ITEM		**AMOUNT**	**SYMBOL**
Potential gross income	=	_____	*PGI*
Vacancy/collection losses (minus)	–	_____	
Effective gross income	=	_____	*EGI*
Operating expenses (minus)	–	_____	*OE*
Net operating income	=	_____	I_O
Debt service (minus)	–	_____	I_M
Pretax cash flow	=	_____	*PTCF*

E. Operating expenses

> **Operating expenses.** *The periodic expenditures necessary to maintain the real estate and continue production of the effective gross income, assuming prudent and competent management.*

An operating statement for appraisal purposes might differ from a statement prepared by an owner or an accountant. You will analyze and reconstruct expense statements to develop typical expense expectancy for the property on an annual accrual basis. Expenses normally break down into two groups:

1. **Fixed expenses.** *Operating expenses such as property taxes and insurance that generally do not vary with occupancy and that prudent management will pay for whether the property is occupied or vacant.*

    a. Taxes

        - Land and existing structures: If the current assessed value is unusually high or low compared to other properties, the estimate for property taxes may have to be adjusted.

        - Proposed or new construction: If the property is not yet assessed or carries a partial assessment, the future tax burden must be estimated.

        - In some jurisdictions, a sale can trigger a property tax reassessment. A significant change in the future assessed value merits consideration.

    b. Insurance is typically carried for fire, extended coverage, and owner's liability. The extended coverage may include insurance for specialized components such as elevators or plate glass.

        - If the premiums are not paid annually, insurance must be adjusted to an annual basis.

        - If the amounts of coverage are not adequate or typical, the annual cost of the insurance must be adjusted accordingly.

2. **Variable expenses.** *Operating expenses that generally vary with the level of occupancy or the extent of services provided.*

    a. Management charges. Whether management services are contracted or provided by the property owners, they are proper expenses of operation and must be included. Typically they are expressed as a percentage of *EGI* and reflect the local pattern for such charges.

b. Leasing fee. These are commissions paid to agents for negotiating and securing property leases.

c. Utilities. Amounts are usually projected based on an analysis of past charges and current trends. It is important to distinguish the obligations of each party in the lease. Electricity, for example, may be paid by the tenant for leased space, but the landlord may have to pay electricity costs for lighting public areas, elevators, and the like. High-performance construction[2] is growing, resulting in buildings with much lower utilities costs than typical code-built structures. Care should be taken to properly identify high-performance features in the subject property and its competitive dataset.

d. Heat. This is usually a tenant expense in single-tenant, industrial, and retail properties.

e. Air-conditioning. Expenses may be charged separately or included under another category such as electricity or fuel.

f. General payroll. This includes payment to all employees whose services are essential to property operation and management.

g. Cleaning. This is a major expense in many office buildings. Cost is usually estimated in cents per square foot of rentable area and may be a tenant expense, but it often appears as an owner's expense.

h. Maintenance and repair. The total expense for property maintenance and repair is affected by the extent to which building components and equipment replacements are covered in the replacement allowance. However, maintenance and repair expenses for the main portion of the building should always be included.

i. Decorating. This charge varies with local practice and the supply of and demand for space. May include expense of decoration in public or tenant areas.

j. Grounds and parking area maintenance

k. Miscellaneous expenses

    - Security. This expense varies according to the type of operation and may include maintenance and energy expenses for items such as electric alarm systems or closed-circuit television.

2. A high-performance structure has energy-efficient features such as high-efficiency mechanicals, super-insulation, energy-efficient windows, low Home Energy Rating Score Index (HERS) for residential properties, and may include alternative energy sources such as solar, geothermal, wind, or thermal mass.

- Supplies. Cost of cleaning materials and other items needed
- Rubbish removal and exterminating
- Snow removal

3. **Replacement allowance.** *An allowance that provides for the periodic replacement of* short-lived *building components that wear out more rapidly than the building itself and must be replaced periodically during the building's life.* (Short-lived was added to the dictionary definition.) Examples include roof covering, carpeting, boilers, and driveways.

   a. The annual allowance for each component is usually estimated as the anticipated cost of its replacement prorated over its anticipated total useful life, provided this does not exceed the remaining useful life of the structure.

   b. The total expense estimate, including provision for all items of repair and replacement, may exceed or might be less than the actual expenditures shown in the owner's operating statement for recent years.

   c. A capitalization rate derived from a comparable sale that does not provide for a replacement allowance is not applicable to an income estimate for a subject property that includes such an allowance. Remember consistent treatment is the key. If you have a replacement allowance for your subject property, you must have a replacement allowance for your comparable sales.

F. **Total operating expenses.** *The sum of all fixed and variable operating expenses and the replacement allowance cited in the appraiser's operating expense estimate.*

Operating Statement Worksheet (Revisited)			
ITEM		**AMOUNT**	**SYMBOL**
Potential gross income	=	*$ 125,000*	*PGI*
Vacancy/collection losses (minus)	–	*– 5,000*	
Effective gross income	=	*120,000*	*EGI*
Operating expenses (minus)	–	*– 54,000*	*OE*
Net operating income	=	*$ 66,000*	I_O
Debt service (minus)	–		I_M
Pretax cash flow	=		*PTCF*

G. **Net operating income (*NOI* or I_O).** *The actual or anticipated net income that remains after all operating expenses are deducted from effective gross income, but before mortgage debt service and book depreciation are deducted;* may be calculated before or after deducting the replacement allowance.

H. **Mortgage debt service (I_M).** *The periodic payment for interest on and retirement of the principal of a mortgage loan.*

I. **Pre-tax cash flow (*PTCF*).** *The portion of net operating income that remains after total mortgage debt service is paid but before income tax on operations is deducted.*

J. Expense and income ratios

1. **Operating expense ratio (*OER*).** *The ratio of total operating expenses to effective gross income* (TOE/EGI*); the complement of the net income ratio, i.e.,* OER = 1 − NIR.

2. **Net income ratio (*NIR*).** *The ratio of net operating income to effective gross income* (NOI/EGI); *the complement of the operating expense ratio, i.e.,* NIR = 1 − OER.

3. **Debt coverage ratio (*DCR*).** *The ratio of net operating income to annual debt service; … measures the relative ability of a property to meet its debt service out of net operating income; also called* debt service coverage ratio (DSCR).

   The debt coverage ratio can be expressed as $DCR = I_O / I_M$

4. Ratios tend to fall within limited ranges for different categories of properties.

   a. The ratios are developed for subject and comparable properties.

   b. The ratios assist in identifying operating statements that deviate from typical patterns.

K. Exclusions from the reconstructed operating statements

1. Book depreciation (designed for tax purposes)

2. Income tax (varies with the type of property ownership)

3. Special corporation costs (specific to a particular ownership)

4. Additions to capital. Expenditures for capital improvements (such as a new roof) do not recur every year and are excluded. In a single year's income and expense estimate, an annual replacement allowance reflects needed capital expenditures without making each expenditure explicit.

   In a discounted cash flow (DCF) analysis, capital expenditures may be deducted from the I_0 in the year the expenditure is expected to occur.

5. Nonbusiness travel expenses

Review Part 5

Learning Objectives

Now that you've completed Part 5, you should be able to

- ☑ Identify the primary components used to develop a complete income and expense estimate for appraisal purposes.
- ☑ Identify procedures for estimating potential gross income.
- ☑ Distinguish between fixed and variable expenses.
- ☑ Recognize the procedure for deriving net operating income (I_O) after estimating all operating expenses.
- ☑ Distinguish among types of leases.
- ☑ Distinguish among types of rent.
- ☑ Calculate *PGI*, *EGI*, and I_O.
- ☑ Apply *OER* and *NIR.*

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 24, P. 435–458, and Chapter 28, P. 505–508

Terms and Concepts to Remember

Contract rent	Market rent	Operating expense ratio (*OER*)
Effective rent	Net lease	Vacancy and collection loss
Fixed expenses	Replacement allowance	Variable expenses
Gross lease	Scheduled rent	

Resources

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.

Review Quiz

Write a number in the blank opposite each definition that matches the number of one of the following:

1. Graduated rental lease
2. Revaluation lease
3. Net operating income
4. Effective gross income
5. Operating expense ratio
6. Contract rent
7. Debt coverage ratio
8. Market rent
9. Overage rent
10. Potential gross income
11. Pretax cash flow
12. After-tax cash flow
13. Percentage lease
14. Excess rent

_____ *PGI* minus allowance for vacancy and collection losses

_____ *EGI* minus operating expenses

_____ I_O minus debt service

_____ A contract calling for changes in the amount of rent at one or more points during the lease term

_____ A lease in which some or all of the rent is based on the volume of business

_____ The actual rent specified in a lease

_____ The amount by which contract rent exceeds market rent

_____ Percentage rent paid over and above the base rent

_____ Ratio of net operating income to annual debt service

_____ Ratio of operating expenses to effective gross income

Part 6 Preview

Application—Problem Solving

In this last session of the day, you will practice the techniques you've learned in solving specific problems. Be prepared to go back and review specific sections found in Parts 3 through 5.

Appendix: If you would like to tackle the task of reconstructing an operating statement, you have the opportunity to do just that. The problem in the appendix is provided in lieu of the Section 2 Practice Test. The self-study project is not required for the course, but by working on it, you will see how the various components fit together, and it will enhance your understanding of the terms and concepts covered in Section 2.

Learning Objectives

To prepare for Part 6, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Calculate value by applying overall capitalization rates and income multipliers.
- ☐ Use ratios to derive income that can be converted into value.

Learning Tips

Helpful hints are included with some of the questions. Ask your instructor for guidance if you get stuck on a particular problem. Work with someone seated near you, as it will make solving these problems more enjoyable.

Here's a quick way to look at income relationships for the VIF formula:

	I *Income*	**F** *Factor*	**V** *Value*
	Potential Gross Income	*x PGIM*	= *Value*
–	*Vacancy and Collection Less*		
=	*Effective Gross Income*	*x EGIM*	= *Value*
–	*Total Operating Expense*		
=	*Net Operating Income (I_O)*	*x NIM**	= *Value*

**Net Income Multiplier*

Part 6.
Application–Problem Solving

You now have the essential tools for performing the income capitalization approach. Part 6 begins with some basic problems. You might find it helpful to pair up in teams to work these problems.

You can use the income template to help you remember how the data should be organized to derive solutions.

Income Template			
SEQUENCE	**FUNCTION**	**ITEM**	**SYMBOL**
1		Potential gross income	*PGI*
2	–	Vacancy and collection losses	
3	=	Effective gross income	*EGI*
4	–	Operating expenses	*OE*
5	=	Net operating income	I_O
6	–	Debt service	I_M
7	=	Pre-tax cash flow	*PTCF*

1. A commercial property has *PGI* of $55,000 and 6% vacancy. The operating expense ratio (*OER*) for the property is 48%. If the market indicates an 8.5% overall capitalization rate (R_O), *what is the indicated value of the property?*

   Hint: Break down the income to derive *NOI*, then use the IRV formula.



2. The *EGI* for a property is $225,000. If vacancy and collection loss are 10%, what is the potential gross income (*PGI*) for the property?

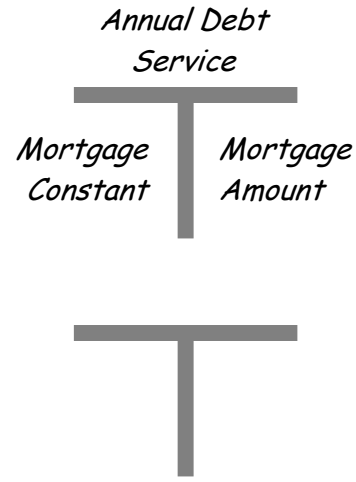
   Hint: This is an application of the math functions that you learned in *Basic Appraisal Principles.* Think of *EGI* as representing 90% of *PGI.*

3. The *NOI* for a property is $120,000 with vacancy at 5%. If the operating expense ratio (*OER*) is 40%, what is the potential gross income (*PGI*) for the property?

   Hint: Take the same approach as the previous question.

4. An investor learned that a financial institution would lend 75% of value on a specific property. The lender indicated the mortgage constant was 10.7% based on a 15-year term. If the investor purchases the property for $1 million, what is the annual debt service?

   Hint: Use the formula below to solve the problem.



5. An investor queried a financial institution and found that it will lend 80% of the sale price, and the mortgage constant (R_M) is 8.5%. The investor is considering a $625,000 purchase of a property with *NOI* (I_O) at $125,000. *What is the pre-tax cash flow (*PTCF*) for this property using the mortgage constant supplied by the bank?*

   Hint: Use the mortgage constant to derive the annual debt service, then solve for PTCF (the formula for the last step is $I_O - I_M$ = PTCF*).*

6. The PGI for a property is $120,000 and there is a 3% vacancy rate. The annual debt service is $24,640 and the OER is 40%. *What is the pre-tax cash flow (*PTCF*) for this property?*

   Hint: Derive I_O then $I_O - I_M$ = PTCF*.*

7. Appraiser Howard is analyzing a property that sold for $650,000. The operating expense for the property is 38% and PGI is $130,000 with a 1% collection loss. *What is the effective gross income multiplier (*EGIM*) for the property?*

   Hint: Use VIF to derive the factor.



8. An office building has an *EGI* of $304,000 and a 5% vacancy. If the market indicates a *PGIM* of 8.5, *what is the value of the property?*

   Hint: Think of the property as having 95% occupancy. Use VIF for the final calculation.



Challenge Question

9. *Using the following data, what is the value?*

I_0	=	$79,800
OER	=	40%
Vacancy	=	5%
PGIM	=	7.25

   Hint: Here's the formula to start: *NOI / NIR = EGI;* remember that *NIR* is the mathematical complement of *OER*.



Review Part 6

Learning Objectives

Now that you've completed Part 6, you should be able to

- ☑ Calculate value by applying overall capitalization rates and income multipliers.
- ☑ Use ratios to derive income that can be converted into value.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 24, P. 435–458, and Chapter 28, P. 505–508

Practice Test for Section 2

In lieu of the section practice test, we have a self-study project in the appendix. It is located under contents for Part 5 and titled as noted below.

Self-Study Project—Reconstructing an Operating Statement

This project will help you to apply the terms and concepts you learned in Section 2 in a practical way. So, instead of a test, we have an operating statement for you to work on. The suggested answers are provided in the appendix.

Section 3

3

Part 7. Construction and Design Basics

Part 8. Introduction to the Cost Approach

Part 9. Components in Cost Analysis

Part 7 Preview

Construction and Design Basics

The focus in Part 7 is on **residential** construction and design. Most of you come into class with a general knowledge of residential building and design, because you've been around houses as part of daily living. This information will look at construction and design from a valuation perspective. Because the time is limited, coverage of this topic won't be very deep—it will be more of an overview. If your general understanding of construction is limited, some self-study might be in order. There is a helpful resource for self-study in the *Digging Deeper* section located in the appendix. You'll also find more information on construction in the Appraisal Institute books, *The Appraisal of Real Estate*, 15th ed., and *Appraising Residential Properties,* 4th ed.

Learning Objectives

To prepare for Part 7, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Identify the six major components of a building.
- ☐ Identify the six general categories of design for houses.
- ☐ Recognize the three types of foundations.
- ☐ Distinguish between the two types of wall framing.

Learning Tips

The world of construction and design is vast, and the terms are often confusing because there can be several terms used around the country to describe the same building component. The construction elements we will cover in this session are intended to provide a broad overview of how everything fits together.

As you look at each component ask the question, "How does my knowledge of this component affect value in a potential appraisal assignment?" Our focus is appraisal observation of the structure as it relates to value. Try to get the big picture for now, and let all the myriad details filter in later as you begin your appraisal career.

Part 7.
Construction and Design Basics

Quality design and construction play a significant role in valuation, and the appraiser must be able to recognize the influence of these elements during the field observation process. A good way to start is by identifying the major components of a building and from there recognizing the primary valuation issues to observe in each component.

I. Introduction to Appraisal Observation

A. Appraisers are not inspection professionals (like building inspectors, home inspectors, or structural engineers).

1. Professional inspections seek to discover defective components using special testing or equipment.[3]

> **Personal inspection.** "A physical observation performed to assist in identifying relevant property characteristics in a valuation service.
>
> "Comment: An appraiser's inspection is typically limited to those things readily observable without the use of special testing or equipment. Appraisals of some types of property, such as gems and jewelry, may require the use of specialized equipment. An inspection by an inspection professional (e.g., a structural engineer, home inspector, or art conservator)." (USPAP, DEFINITIONS)

2. The appraisal observation process seeks to uncover valuation conditions like relevant characteristics, physical characteristics, and external characteristics.

B. Appraisers generally walk the subject property to observe construction and design features that affect value.

1. Appraisers focus on the market's reaction to readily observable conditions.

2. To observe and interpret significant conditions, appraisers must be reasonably knowledgeable in the basics of construction and design.

3. Remember, even a little knowledge can go a long way when the appraiser is willing to carefully observe the subject property.

3. USPAP provides additional guidance in Advisory Opinion 2, Inspection of Subject Property.

4. Other inspection tools might include the following:

    a. Retrospective photographs of the subject property to understand physical differences that resulted in price differences when analyzing the subject's (or comparables') listing and sales history

    b. Use of unmanned aerial vehicles (e.g., drones) or aircraft photography for acreage properties

    c. Aerial photography from data sources (e.g., Google Earth, Bing Maps, Google Street Maps) for properties difficult to access or extensive in living area, height, or number of buildings

5. Other inspection personnel might include another appraiser or a third-party inspector to determine relevant characteristics of the subject.

    a. Ensure the degree of inspection is sufficient to develop a credible appraisal.

    b. Supplement the inspection data (if needed) by interviewing the inspector or obtaining additional information.

    c. Recognize this constitutes an assignment condition; the appraiser must consider this in the identification of the problem to be solved and determination of the scope of work.[4]

    When another appraiser is used to perform inspection functions and the information constitutes significant appraisal assistance, the appraiser must be identified in the certification and the extent of the assistance must be indicated within the report.[5]

Note. The use of these types of tools or personnel does not constitute a "personal inspection" of the subject property by the appraiser per the Appraisal Standards Board of The Appraisal Foundation, which is a certification requirement.

II. Appraisal Observation from the Ground Up

Note. To maximize efficiency in covering such a broad topic, we will spend more time on concealed building components (such as foundations), rather than easily observed components (such as plumbing fixtures) that most of you see every day. The focus is appraisal observation of the structure as it relates to value. Please be sure to read the articles on *Appraisal Observations* for plumbing, electrical, and mechanical systems located in the ***Digging Deeper*** section of the **appendix** under Part 7.

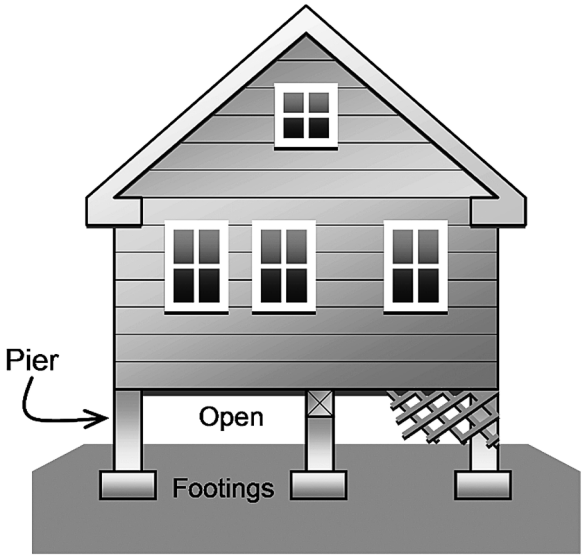
4. USPAP provides additional guidance in Advisory Opinion 28, Scope of Work Decision, Performance, and Disclosure.
5. USPAP provides additional guidance in Advisory Opinion 31, Assignments Involving More than One Appraiser.

A. There are six major components of a building that appraisers should observe for valuation conditions.

1. Foundation
2. Framing (floor and wall supports)
3. Roofing
4. Plumbing
5. Electrical wiring
6. Heating, ventilation, and air conditioning (HVAC)

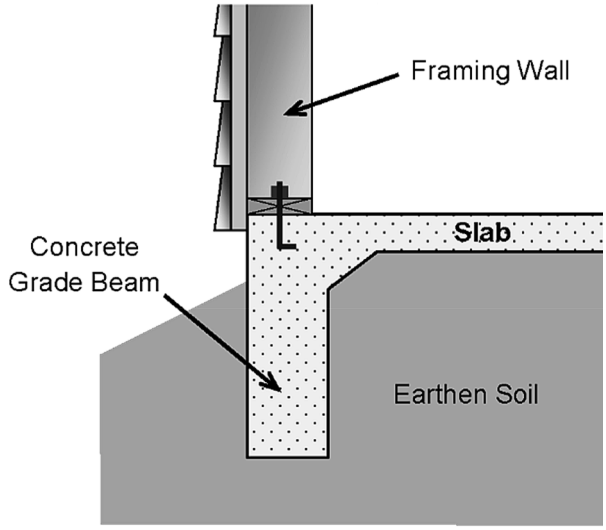
B. Foundations

1. Foundations are not easily observed by the appraiser; however, they are critical to the overall structural soundness of the building.
2. Three common types of foundations
   a. Slab foundations
      - Monolithic slab
      - Slab on perimeter stem wall
   b. Pier foundations
   c. Wall foundations
      - Crawl space
      - Basement

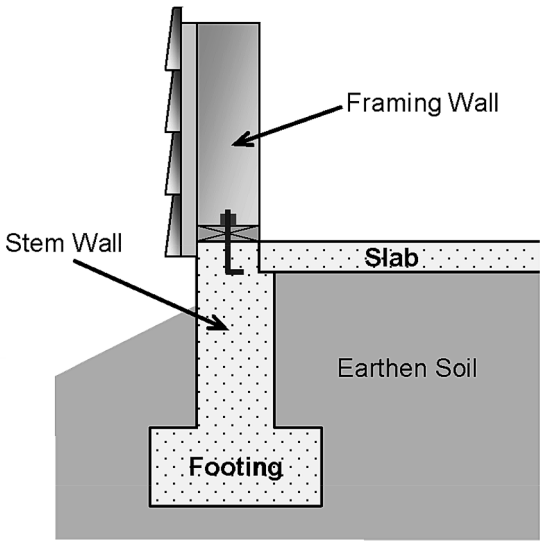


Pier Foundation

SLAB FOUNDATIONS



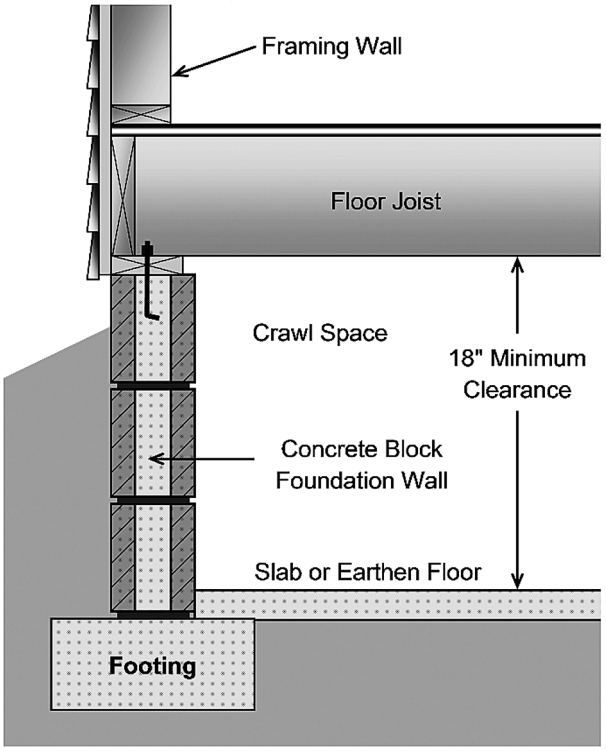
Monolithic Slab



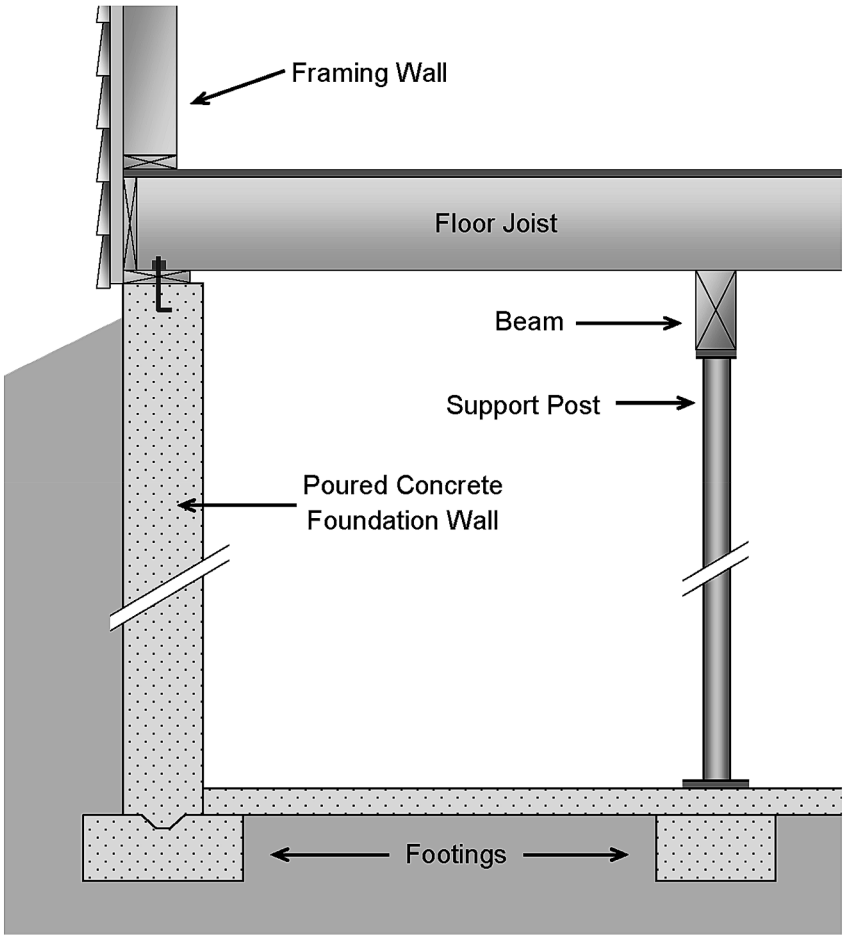
Slab on Perimeter Stem Wall

WALL FOUNDATIONS

Crawl Space



WALL FOUNDATIONS



Basement Wall Foundation

3. Primary areas for appraisers to observe

   a. Exterior perimeter foundation, particularly at the grade level

      - Does the grading around the foundation provide adequate drainage?
      - Is there evidence of significant settlement cracks in the foundation?
      - Are there signs of termite infestation?
      - Are any wood components in contact with the ground?

   b. Accessible interior areas of the foundation

      - Are there signs of moisture infiltration or chronic water problems?
      - Are significant cracks observed in the foundation walls or floor?

4. Valuation conditions for basements and crawl spaces

    a. In areas with clay soils or a high water table, it is common for newer construction to have a perimeter drain tile adjacent to the footing.

        - The drain tile material is typically 6-inch corrugated tubing with slots to allow water to enter so it can flow outdoors or to a sump basket.

        - The drain tile can be located on both sides of the footing or foundation.

        - Excessive water draining into a sump basket requires a pump to take the water outside to the lawn area and away from the structure (or to a dry well designed for that purpose).

    b. The appraiser should look for the presence of a sump basket while observing the basement area or inquire about its location from the owner.

    c. Appraisers typically don't enter a crawl space area beyond head and shoulders to visually observe the area. If there is adequate room and the crawl space area entry point is readily accessible, an appraiser may enter for a more thorough observation. When the subject property has a shallow crawl space area, observe the foundation area through the access opening, using a flashlight if necessary.

5. Common construction materials for foundations

    a. Poured concrete. This also includes insulated concrete forms (ICFs).

    b. Concrete block

    c. Permanent wood foundation (PWF)

    d. In old or historic residences, appraisers may discover foundations made with fieldstone, rubblestone, or brick.

C. Framing

1. The interior wall framing is covered by paneling, gypsum board, or other materials, and the exterior is covered with siding or masonry material. If the dwelling has a basement, the appraiser can often view the underside of the floor system and observe the structural joists and bracing. Such observation might not be possible if the basement ceiling is finished and/or fully covered.

2. The primary concern when observing floors and walls is to check for water-related damage. Tighter construction standards since the 1980s have fostered additional problems with moisture retention in some wall cavities, which can lead to problems with rotting wood and mold. To further understand the overall

energy efficiency of the improvement, review the local building code to learn the envelope rating required by code. The envelope encompasses everything that separates unconditioned air from conditioned air, including the ceiling or roof, foundation, walls, windows, and doors. A high-performance house will have a lower envelope rating than a code-built house and may require a mechanical system to control airflow to avoid moisture problems.

3. Primary areas to observe

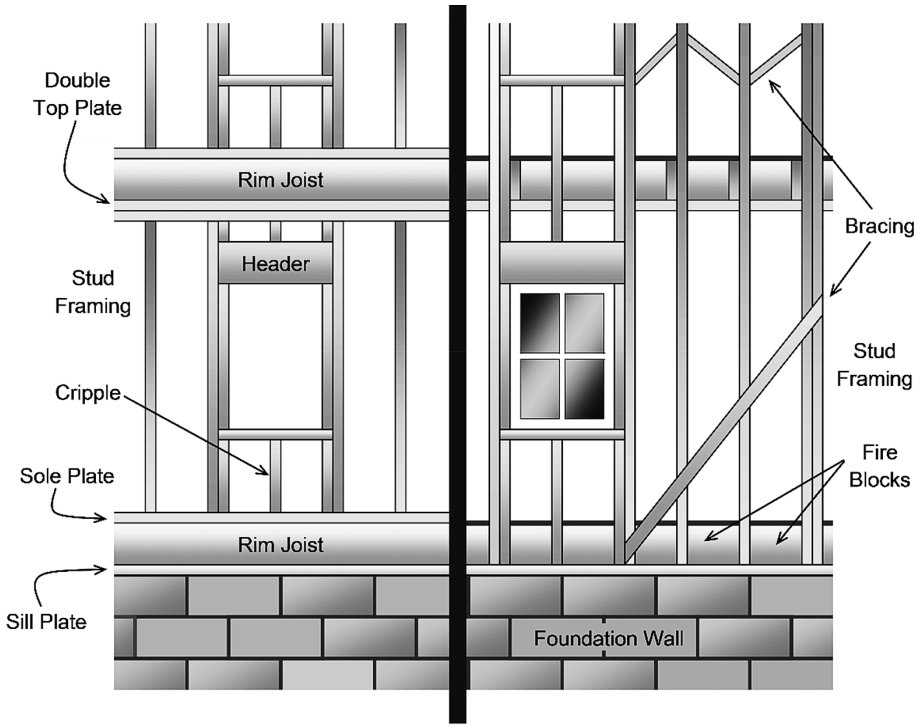
   a. Floor support system

      - Is the floor system properly supported?
      - Are the floors sagging or uneven, or are there soft spots noted?
      - Are there signs of termite damage?

   b. Wall support system

      - Are there signs of settlement, bowing, or significant cracks?
      - Are there signs of moisture damage or water stains?

4. Wall construction types



Platform Framing

Platform frame is a construction type in which the wall framing sits on top of the subfloor. Each story is built up as a separate unit

Balloon Framing

Balloon frame is a construction type in which the studs extend from the sill to the roof. The second floor is supported by a horizontal ribbon or ledger board and joists nailed to studs.

Balloon framing was more prevalent in housing built prior to World War II. Platform framing has dominated residential construction since the 1950s.

a. Common frame walls

- Balloon framing
- Platform framing

b. Common masonry walls

- Concrete block and stucco (CBS)
- Structural insulated panels (SIPs)

5. Wall finishes

a. Exterior finishes include a wide variety such as wood lap, wood shingle, finished plywood, aluminum, vinyl, stucco, synthetic plaster (EIFS), brick or stone veneer, and even harvested logs.

b. Interior finishes are often gypsum board (drywall) and wood paneling; in older residences, plaster is common.

D. Roof systems

1. Dwellings with attic areas either use engineered trusses or have hand-framed roofs with joists and rafters that meet at a ridge board. Flat roof and low-pitch roofs are more common in temperate (non-snow) areas.

2. Primary areas to observe and consider

a. Is there evidence of sagging rooflines or water damage? What is the overall condition of the roof covering and gutters/downspouts (if present)?

b. Is adequate ventilation apparent (roof and eave vents)?

c. Is flashing missing or damaged? **Flashing** is a waterproof material used to prevent water leakage in places where it is likely to occur, such as roof valleys or where vent pipes pass through the roof deck and where the roof meets a wall.

3. The common types of roof designs include flat, gable, saltbox, hip, gambrel, mansard, and shed.

4. Roof coverings include composition shingle (asphalt or fiberglass), wood shingle, wood shake, clay tile, slate, preformed metal seam, and roll roofing. In the case of flat and low-pitch roofs, the appraiser might observe rolled

asphalt, tar and gravel, and EPDM (rubber) membrane, which are the most common types. (*EPDM stands for ethylene-propylene-diene monomer, in case you were wondering.)*

E. Plumbing

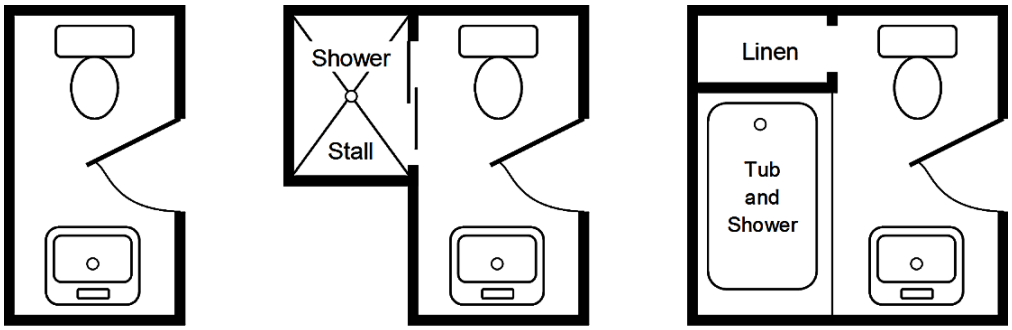
1. Plumbing is divided into three major divisions.

   a. Supply system

   b. Septic system

   c. Mechanical system (plumbing fixtures and appliances)

      - **1/2 bath** – sink and toilet (sometimes referred to as a powder room)
      - **3/4 bath** – sink, toilet, and shower stall
      - **Full bath** – sink, toilet, and bathtub (with or without a showerhead)
      - **Deluxe full bath** – These baths have the basics plus additional fixtures such as a whirlpool or steeping tub with an adjacent separate shower stall, bidet, and sometimes one or more additional sinks



2. The appraiser's observation process is more critical when the plumbing system includes a private well and individual sewage treatment system.

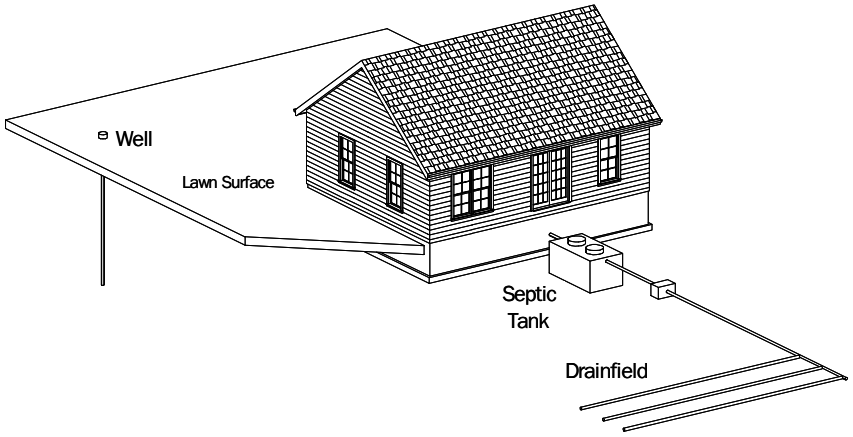
3. Primary areas to observe

   a. For properties connected to public water and sewer

      - Is the number of plumbing fixtures adequate for the residence?
      - In older dwellings, the appraiser might observe the water pressure through the simple operation of several faucets to check water flow.
      - Special fixtures and appliances such as whirlpools, steam showers, hot tubs, and wet bars should be noted.

b. For private well and septic

- Lenders often require a water test for a nonpublic water system.
- The type of septic system should be noted along with the location of the tank and drain field on the site. Signs of septic system malfunction or failure should be noted (such as effluent on the ground surface).
- The appraiser should ask the owner about any septic problems in the past and about the maintenance history.



F. Electrical wiring

1. First priority: Stay safe and do not touch any suspect wiring.
2. Primary areas to observe



a. Exterior

- Is the electrical service to the property supplied by overhead wires or underground cables?
- If overhead wires are observed, note if less than three wires lead to the service entrance cap.

b. Interior

- Most lending clients want appraisers to list in the report what the electrical capacity is for the house. This requires the appraiser to find the electric service panel.
- Typically, the appraiser identifies whether the electrical panel uses fuses or has circuit breakers.

- Missing light fixtures or open receptacle boxes with wires exposed should be noted.

G. Heating, ventilation, and air conditioning (HVAC)

1. Appraisers must become knowledgeable about the type of heating and cooling system common in their geographic location as well as identifying and understanding the rating of such mechanical equipment. The efficiency rating of such mechanical equipment is important in understanding and comparing the overall energy efficiency of the structure.

   a. Appraisers in hot, humid climates should be familiar with air handlers and electric heat, whereas appraisers in hot, dry climates should be familiar with evaporative coolers (also known as swamp coolers).

   b. Systems in cold climates vary with the part of the country in which the appraiser is working. For example, boilers are more common in the Northeast and Midwest but infrequently seen in the Northwest.

2. Primary areas to observe

   a. Type of heating and cooling system. Depending on geographic location and age of the structure, these can be forced air, hot water, steam, and electric. Further, more solar, geothermal, and wind-driven systems are emerging from the movement toward green technology. Appraisers should become familiar with high-performance (green) property types. The *Residential Green and Energy Efficient Addendum report form* (see appendix) is helpful in describing high-performance features like heating and cooling systems.

   b. Components of the system. These include furnaces, boilers, heat pumps, radiators, in-floor heating tubes, and ductwork (supplies and returns).

III. House Design for Appraisers

Recognize there is a difference between quality and design of an improvement, which was previously discussed, and the (architectural) style of the improvement. In time, you will be able to tell the difference between a Cape Cod Colonial style and a Cape Ann Colonial style or a Garrison Colonial style and a Saltbox Colonial style. For now, our concentration is on quality and design of an improvement and not style. To get started, all you really need are the basics of design for appraisal purposes. When we say basic, we mean basic!

A. There are six general categories of design for houses.

1. One story

2. One and one-half story

3. Two-story (includes 2.5-story homes)

4. Split levels (includes multilevel splits)

5. Contemporary (those that don't fit in the prior four categories)

6. Specialized (those that don't fit in the prior five categories due to non-traditional design) such as geodesic domes and earth-sheltered homes

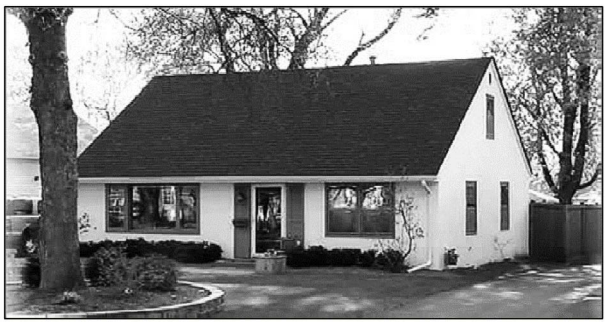
B. Architectural styling can play a significant role in influencing the value of a property. Historic renovations and areas where architectural appeal is important to buyers require the appraiser to have an understanding of architectural styling. Most residential appraising work starts with the design category as listed above.



ONE STORY

Common style names

- Ranch
- Rambler



1.5 STORY

Common style names

- Cape Cod
- Bungalow



TWO–STORY

Common style names

- Colonial
- Victorian
- Modified two-story



SPLIT LEVEL

Common style names

- Multilevel
- Split-entry (foyer)
- Raised ranch
- (3, 4, or 5) Level split
- Bilevel

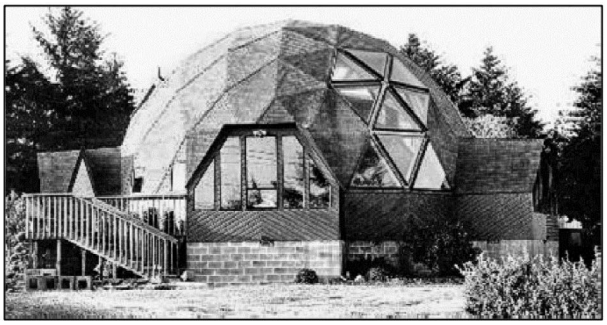


CONTEMPORARY

Many contemporary design residences are one-story, split-level, multiple story, etc. Additionally, these residences have less traditional designs in the roofline, exterior material, windows, and doors.

Common style names

- Modern
- Art Deco
- Pueblo



SPECIALIZED

Common style names

- Geodesic dome
- Earth-sheltered
- Conversion from barn or other structure
- Manufactured

Review Part 7

Learning Objectives

Now that you've completed Part 7, you should be able to

- ☑ Identify the six major components of a building.
- ☑ Identify the six general categories of design for houses.
- ☑ Recognize the three types of foundations.
- ☑ Distinguish between the two types of wall framing.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 13, P. 193–247

Appraising Residential Properties, 4th ed., Chapters 8 and 9, P. 137–195

Identifying Residential Architectural Styles by Marc P. Nasdeau, SRA

Property Inspection: An Appraiser's Guide by John A. Simpson, MAI

How a House Works by Duane Johnson, published by Readers Digest

Inspecting a House by Rex Cauldwell, published by Taunton Press

Terms and Concepts to Remember

Balloon framing	Footing	Pier foundation
Crawl space	Foundation	Platform framing
Drain tile	Flashing	Stem wall
	Monolithic slab	Well and septic

Resources

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.

Review Quiz

Fill in the missing data to the following questions.

1. There are two common types of slab foundations. One is the slab on a perimeter stem wall, and the other is called a slab.

2. The two wall framing types are and .

3. A lender often requires a water test if a property has .

4. If an appraiser observes missing flashing, what construction system is the appraiser viewing?

5. Foundation walls are generally built on .

6. The envelope encompasses

Check the appropriate box for each question.

		TRUE	FALSE
7.	Colonial style is an example of a two-story design for a residence.	☐	☐
8.	Foundations are sometimes constructed of specially prepared wood and referred to as a permanent wood foundation.	☐	☐
9.	Tighter construction standards since the 1980s have proven to have little or no unfavorable side effects.	☐	☐
10.	Drain tile is another term used in lieu of gutters on the roof.	☐	☐
11.	Engineered trusses are sometimes used in lieu of hand framing a roofing support system.	☐	☐

Suggested answers for this review quiz are found in the Solutions Booklet.

Part 8 Preview

Introduction to the Cost Approach

There are eight steps in the cost approach. In Part 8, you're going to concentrate on Step 2, but you will begin with an overview of the approach. There is a case study coming up in Part 9 that will show you how to apply some of the new knowledge you pick up during Part 8. There are a lot of new terms for you to learn, though fewer in comparison to the previous day.

Learning Objectives

To prepare for Part 8, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Distinguish between reproduction cost and replacement cost.
- ☐ Recognize the key components in both direct and indirect costs.
- ☐ Identify the three cost estimating methods used by appraisers.
- ☐ Distinguish among cost estimating methods.
- ☐ Distinguish between entrepreneurial incentive and entrepreneurial profit.

Learning Tips

After you complete the overview of the cost approach, you're going to focus more exclusively on estimating cost. Study the basic concepts presented in Part 8. Don't be concerned if some of these concepts seem a little fuzzy right now. You will have a clearer understanding once you begin applying them in the case study in Part 9.

On the topic of direct and indirect costs, you don't need to know all of the components. You should be able to recognize and perhaps cite some of the key components. Your instructor will go over the distinguishing characteristics of the three cost estimating methods. You need to know these. The section on measuring is important from a practical standpoint. You should find it interesting to see how an appraiser measures building size for different property types.

Part 8.
Introduction to the Cost Approach

The cost approach is a set of procedures through which a value indication is derived for the fee simple interest in a property. The process begins with an estimate of the current cost to construct the existing structure plus any entrepreneurial incentive. Depreciation is deducted from this derived cost, and the estimated improved land or site value is added. Other adjustments can be made to the indicated fee simple value of the subject property to reflect the value of the property interest being appraised. With this in mind, let's get started with the fundamentals.

Application of the Approaches to Value		
Sales Comparison Approach	Income Capitalization Approach	Cost Approach

I. Getting Started with Cost

> **Cost.** "The actual or estimated amount required to create, reproduce, replace, or obtain a property." (USPAP, DEFINITIONS)

A. Four reasons why appraisers must be proficient in cost analysis

1.

2.

3. *Cost is often used in the other approaches as a basis of analysis or used as . . .*

4. *Professional standards require competent analysis—including the appraiser's knowledge and application of costs.*

B. Applicability and limitations of the approach

1. Applicability: Useful in deriving market value indications and for determining feasibility for proposed construction or relatively new improvements that represent the highest and best use of the improved land or site.

2. Applicability: Useful for limited-market and special-use properties not frequently exchanged in the market.

3. Applicability: Useful for values requiring separation of improved land and improvements.

4. Applicability: Useful when comparable sales or rentals are not available.

5. Limitation: Less reliable for properties with older improvements or improvements that are not the highest and best use of the improved land or site.

C. A quick overview of the eight-step process for the cost approach

Step	Procedure
1	Estimate the value of the site as though vacant and available to be put to its highest and best use.
2	Estimate the direct and indirect costs of the improvements.
3	Estimate the entrepreneurial incentive.
4	Add Steps 2 and 3 together to obtain the total current cost.
5	Estimate the depreciation from three sources a. Physical deterioration b. Functional obsolescence c. External obsolescence
6	Deduct the depreciation from total current cost to derive an estimate of the depreciated cost of improvements.
7	Add the contributory (as is) value of any site improvements.
8	Add the site value to the total depreciated costs.

Applying the Cost Approach—Residential Example

To help you get an overview of the approach, let's apply the steps of the approach in a typical residential appraisal format used by lending institutions.

COST APPROACH TO VALUE (not required by Fannie Mae)*

COST APPROACH					
	OPINION OF SITE VALUE			= $	*50,000*
	Dwelling *1,200* Sq. Ft. @ $ *73.50*			= $	
	Sq. Ft. @ $			= $	
	2 fireplaces and built-in kitchen appliances			= $	*4,600*
	Garage/Carport *528* Sq. Ft. @ $ *25.00*			= $	
	Total Estimate of Cost-New			= $	
	Less Physical	Functional	External		
	Depreciation			= $	
	Depreciated Cost of Improvements			= $	
	"As-is" Value of Site Improvements			= $	*5,000*
	INDICATED VALUE BY COST APPROACH			= $	

Source: Adapted from the Fannie Mae Form 1004 (aka, Freddie Mac Form 70) dated March 2005
*Site commonly refers to improved land (or parcel) that does not require further land development or subdivision. It is ready for property improvements suited to its highest and best use; for example, a building site.

Subject property: A 1,200-sq.-ft., ranch-style, one-story dwelling with an effective age of 15 years. The residence has some design inadequacies. The property backs up to a freeway with heavy traffic.

Market research specific to this property revealed the following:

1. Physical depreciation is estimated at **$16,000**.
2. Functional design inadequacies are estimated at **$5,000**.
3. The external influence of the freeway traffic is estimated at **8,500**.

Instructions: Your instructor will walk you through the steps of the cost approach in this example. The goal of this exercise is to work through the eight steps and find the indicated value by the cost approach.

You might think that we forgot Step 3 (entrepreneurial incentive). In this example, we're going to assume it was included in the base rate of $73.50 *or* with the site value of $50,000.

D. Relationship of the approach to economic principles and valuation concepts

1. **Highest and best use.** Existing improvements have a value equal to the amount they contribute to the improved land (site), or they may be penalized by an amount equal to the cost to remove them from the site.

2. **Supply and demand.** Shifts in supply and demand cause costs to increase and decrease and alter the need for supply of different types of buildings. Changes in the amount of new construction may affect the value of existing buildings.

3. **Substitution.** This principle affirms that no prudent buyer would pay more for a property than the cost to construct one of equal desirability and utility without undue delay.

4. **Balance.** An improper balance may result in an overimprovement or underimprovement for a property. This imbalance results in a loss in value.

5. **Externalities.** Gains or losses from external factors may accrue to both unimproved or improved land and improvements (buildings). External conditions may cause a newly constructed building to be worth more or less than its cost.

II. The Basics of Estimating Cost

Step 1. The first step of the cost approach is to estimate the value of the improved land as though vacant and available to be developed to its highest and best use.

We briefly looked at the six procedures for analyzing land value (improved or unimproved) back in Part 2 of the first day. However, we will cover land valuation more thoroughly in Part 13.

Step 2. The second step of the cost approach is to estimate the direct (hard) and indirect (soft) costs of the improvements as of the effective appraisal date.

Note. It is as of the effective date (i.e., date of value) and not as of the date of actual construction.

A. Reproduction cost vs. replacement cost

1. The cost of constructing an improvement may be developed as either the reproduction or the replacement cost. The decision is often related to the purpose of the appraisal. Here's a quick way to distinguish the two costs.

   a. Reproduction is an **exact replica** of the current improvements.

   b. Replacement is **equivalent in utility** to the current improvements.

2. Definitions

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

> **Replacement cost.** *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.*

Reproduction	Replacement
Field stone foundation	
Plaster interior walls and ceilings	
Embossed asphalt siding (i.e., a material that is similar to roll roofing with a faux brick pattern)	
Steam heat	
Post and beam construction	

   a. Reproduction cost can be the same as replacement cost. Assuming that there are no overimprovements, this may be true when

      - The building improvements are proposed or relatively new.

- Construction components and design are impossible to tell apart from current building standards.

b. Most cost services used by appraisers provide replacement cost rather than reproduction cost.

B. Cost components

1. **Direct costs.** These are hard cost *expenditures for the labor and materials used in the construction of improvements.* Direct costs that are typically part of a construction contract include

   a. Labor used in construction

   b. Materials, products, and equipment

   c. Building permits

   d. Security during construction

   e. Contractor's temporary field office and fencing

   f. Material storage facilities

   g. Power line installation and utility costs

   h. Contractor's overhead and profit, including job supervision, workman's compensation, and fire, liability, and unemployment insurance

   i. Performance bonds

2. **Indirect costs.** These are soft cost expenditures (or allowances) that are necessary components *but are not typically part of the construction contract.*

   a. Architectural and engineering fees for plans, plats of survey, and environmental surveys

   b. Appraisal, consulting, accounting, and legal fees

   c. The cost to carry the investment during construction. If the property is financed, then the cost of points, service charges, and interest on the construction loan are included.

   d. Insurance and ad valorem taxes during construction

   e. The cost to carry the investment after construction until stabilized occupancy is achieved

f. Lease up, marketing, and sales costs

g. Administrative expenses of the developer

h. Cost of title change

Step 3. The third step of the approach requires the appraiser to estimate an appropriate entrepreneurial incentive from analysis of the market.

3. **Entrepreneurial incentive.** A market-derived figure that represents *the amount an entrepreneur **expects** to receive* for providing coordination and expertise with the development of a project including associated risk. (Bold was added for emphasis.)

   a. **Entrepreneurial profit** is *a market-derived* historical *figure that represents the amount an entrepreneur receives for his or her contribution to a project and risk*—and can be used to estimate entrepreneurial incentive. (The words that are not italicized were added to the definition.)

	Market Value
–	Total Cost of Development
	Entrepreneurial Profit (or loss)

   b. Entrepreneurial profit may be measured as a percentage of direct costs, a combination of direct and indirect costs (with or without the land value), or it can be measured based on the value of the completed project.

   c. Market research and interviews with developers are often used to derive the entrepreneurial profit (a topic for advanced courses).

4. Entrepreneurial incentive generally is ***NOT*** included in the rates provided by professional cost-service providers.

   a. Commercial property appraisers derive the entrepreneurial incentive from the market and add it to the cost. The incentive varies based on the type of property and the risk associated with the project development.

   b. Residential property appraisers may find that entrepreneurial incentive is more difficult to identify or measure in the market. This topic will be addressed in advanced courses.

C. Cost data sources

1. Construction contracts for similar buildings

2. Building contractors and professional cost estimators

3. Appraiser's own files on current cost data

4. Cost-estimating services. These include Marshall & Swift—CoreLogic, www.corelogic.com/solutions/marshall-swift.aspx; R.S. Means, www.rsmeans.com; and Dodge Data & Analytics, www.construction.com. These three are among the most common services used by appraisers to identify the specific components (direct and indirect) included in their rates.

    a. Marshall & Swift—CoreLogic offers a green section in its handbook for costing green-built properties. It describes terms often found in green building and provides general ranges for premiums over and above code-built structures.

    b. R.S. Means has a green building cost data guide. The website is www.rsmeans.com/products/ebooks.aspx. Scroll down and click on "Green Building Cost Data eBook" for the current year, which helps appraisers estimate the costs of green construction, both new and renovation for commercial construction.

    c. Dodge Data & Analytics provides a green building product information resource that identifies manufacturers and gives information about their green products. The website is www.sweets.construction.com/QuickLinks/green-building-products-information.

D. Cost-estimating methods

1. _____

    a. The most commonly used cost-estimating method. It is *used to derive a cost estimate in terms of dollars per unit of area or volume based on known costs of similar structures that are adjusted for* market conditions, geographic location, *time and physical differences; usually applied to total building area* (e.g., size). (The non-italicized words were added to the definition.)

    b. The method requires the appraiser to compare the subject building with similar, recently constructed buildings for which cost data is available.

    c. If a building's contract price is available, the unit-cost figures are usually expressed in terms of cost per square foot of gross building area or cost per cubic foot. If they are in different markets, an adjustment for location may have to be made.

    d. If contract prices are not available, the cost of new buildings can be extracted from sales of similar buildings by subtracting the value of the improved land together with site improvements (such as driveway,

landscaping). Building improvements should be at the highest and best use for the improved land with supply and demand in balance and assuming the property has reached stabilized occupancy, in the case of a commercial property.

e. Cost-service manuals are most commonly utilized in this method.

2. _____

a. In this method, the total building cost is estimated by adding together the unit costs for the various building components as installed (e.g., the roof, walls, foundation, excavation, electrical system, etc.).

b. Standardized costs are used for structural components. The costs may be applied on the basis of square feet of floor area or linear feet of wall length at a certain height.

3. _____

a. In this method, *the quantity and quality of all materials used and all categories of labor required are estimated and unit cost figures are applied to arrive at a total cost estimate for labor and materials.*

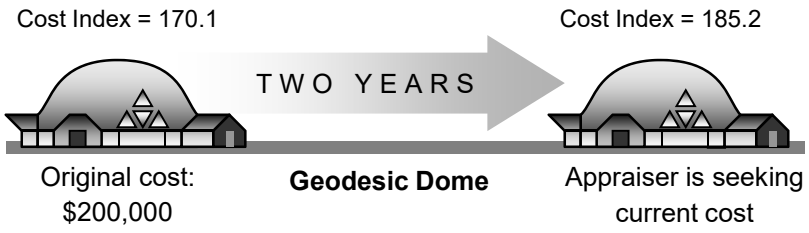
b. It is the most comprehensive, time consuming, and detailed method of measurement. It frequently requires the services of an experienced cost estimator and is rarely used in routine appraisal assignments.

E. Cost-index trending

Cost-index trending is not a true cost-estimating method such as those previously mentioned, but it can be a useful tool when properly applied by an appraiser.

1. To convert a known historical cost into a current cost estimate, the appraiser can apply a percentage change based on an index service such as the Bureau of Labor Statistics (BLS) or use a comparative cost multiplier supplied from a cost service provider such as Marshall & Swift—CoreLogic

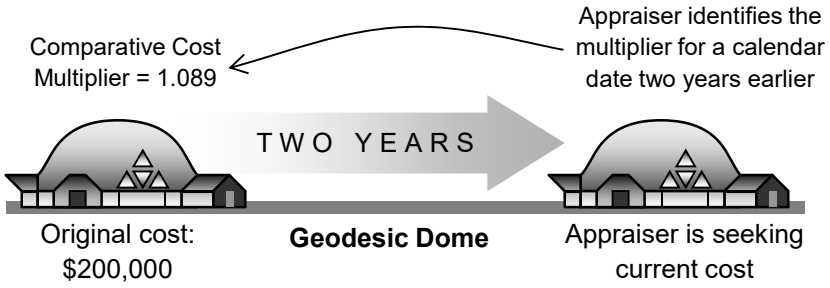
Applying a Cost Index (using BLS data)



Calculations: 185.2 / 170.1 = 1.08877

$200,000 x 1.08877 = $217,754 Current Cost

Applying a Comparative Cost Multiplier (using Marshall & Swift)



Calculations:

$200,000 x 1.089 = $217,800 Current Cost

2. Cost-index trending is more accurate when improvements are fairly new. It can also be used to crosscheck other methods of estimating cost. The method is particularly useful when the building style is unusual or unique.

3. The method can also be used to trend backward in time if the appraiser is seeking historical cost of an improvement. In that case, the appraiser begins with the known current cost of the building and reverses the process.

4. The appraiser should be aware of drawbacks in the use of cost-index trending.

   a. The accuracy of the figures cannot always be determined.

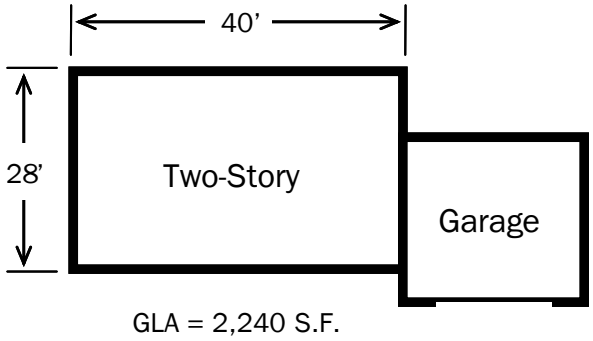
   b. Historical costs may not be typical for the time period.

   c. The construction methods used at the time of the historical cost may differ from those currently in use.

III. Measurement of the Structure

A. Residential applications

1. **Gross living area (GLA).** The *total area of finished, above-grade residential space;* is calculated by measuring the outside perimeter of the structure and includes only finished, habitable, above-grade living space. Finished basements and attics are not included in total GLA (local practices may differ).



GLA = 2,240 S.F.

The measurement method is guided by the following criteria:

   a. For **detached residential structures** (see diagram above), the gross living area (GLA) is calculated using exterior dimensions.

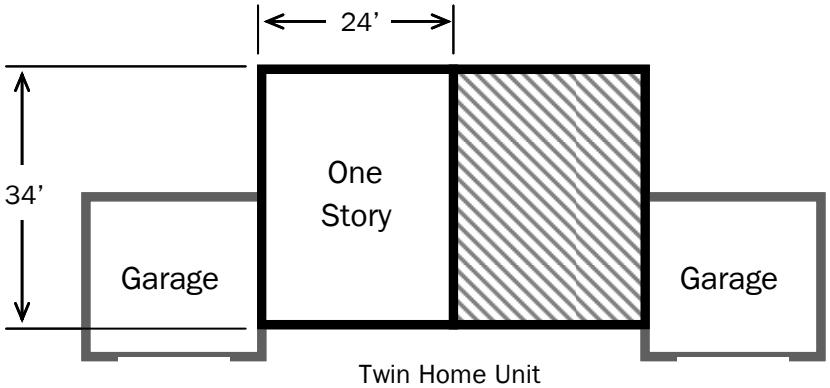
      - Some appraisers measure from the foundation edge, while others measure from the outside edge of the finished siding.

      - Consistency is the primary concern. If the appraiser measures the subject structure from the outside edge of the siding, then all comparable sales should also be measured in the same way.

   b. For **attached residential structures** (such as townhouses and twin homes), exterior dimensions are measured to the center point of the party wall.

c. For **condominium units**, the GLA is based on interior dimensions of the unit's overall perimeter shell. The GLA represents the floor area of the condominium "air space" ignoring all interior walls. In some areas, the condo unit is measured to the center of the perimeter walls.

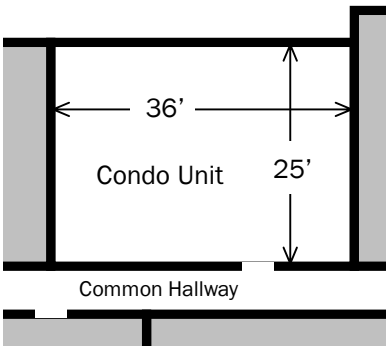
Twin Home Example



Twin Home Unit
GLA = 816 S.F.

Condominium Example

Condominium
GLA = 900 S.F.



In some areas condo units are measured to the center of the perimeter walls

2. The dimensions are measured in feet and inches or feet and tenths of feet. GLA is stated in square feet.

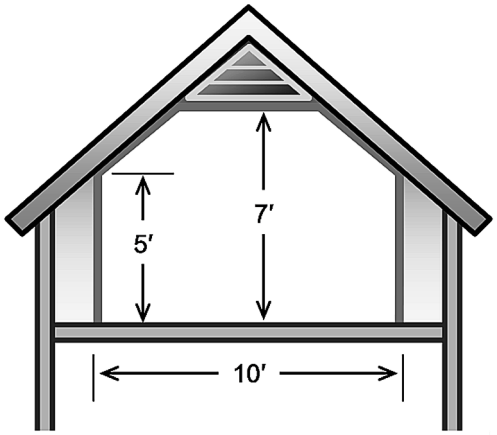
3. Minimum ceiling height plays a role in what areas qualify for inclusion in GLA. Generally, the minimum height clearance is 7 feet, but some federal agencies and specific clients may have more stringent requirements.

4. Habitable space below grade is treated separately and generally not included in the GLA. Market preference determines value for these below-grade areas.

a. Some finished basement areas (such as a walkout basement) might have significant value in the market, particularly when it has ample natural light and is finished in the same quality as the main level.

b. In other cases, the market may give little or no value to a below-grade area. In either scenario, the area is still excluded from GLA.

5. Finished attic or loft areas must also meet general height requirements to qualify for inclusion in the GLA. Guidelines vary, but the area typically should have at least 7 feet of clearance at the ceiling's highest point. Floor area under the sloped ceiling can be included until the clearance falls below 5 feet. Finished area below that minimum clearance is excluded from the GLA.



B. ANSI Z765–2013 protocol for measuring single-unit residences

1. The American National Standards Institute Inc. has developed and published a voluntary standard for calculating and reporting square footage for single-unit houses.

   a. The standard was first published in 1996; prior to that date, no nationwide standard existed for measuring single-unit residences.

   b. In time, federal agencies and state regulators of appraisal licensing may adopt these standards. For example, the Kentucky Real Estate Appraisers Board adopted the ANSI Z765–2013 protocol.

   c. Professional appraisal standards do not require the ANSI Z765–2013 protocol for measuring.

2. The methodology for ANSI Z765–2013 is sound and similar to current measuring techniques used by practicing appraisers. A few highlights are mentioned at the top of the next page.

a. Exterior dimensions are based on the outside edge of the siding and are measured to the nearest inch or tenth of a foot. Final square footage is reported to the nearest whole square foot.

b. Open (non-floored) areas, sometimes found in foyers adjacent to stairs leading to the second floor, are not included in the GLA.

c. The below-grade finished square footage of a house is the sum of finished areas on levels wholly or partly below grade. Such areas are excluded from the gross living area (GLA).

C. Commercial and industrial applications

Gross building area (GBA). *Total floor area of a building, excluding unenclosed areas, measured from the exterior of the walls of the above-grade area. This includes mezzanines and basements if and when typically included in the market area of the type of property involved.*

Gross leasable area (GLA). *Total floor area designed for the occupancy and exclusive use of tenants, including basements and mezzanines; measured from the center of joint partitioning to the outside wall surfaces.*

Net rentable area (NRA). The amount of space on which the rent is based; calculated according to local practice.

Note. *Rentable area and net rentable area are often used interchangeably. Local practice may define NRA as the floor area of a building that remains after the square footage of vertical penetrations, such as elevator shafts, etc., has been deducted. Common areas and mechanical rooms are included, and there are no deductions made for necessary columns and projections of the building.*

1. As in the case for residential, there is no single nationalized standard for measuring commercial and industrial structures, although there are standards published by professional organizations.

   a. The BOMA Standard (ANSI/BOMA Z65.1–2010) is intended for commercial office buildings. Its application to other commercial buildings must be used cautiously.

   b. The standard defines the “usable area” and the “rentable area” for office space.

2. Some basic guidelines on measuring and calculating square footage for nonresidential buildings are as follows:

    a. Industrial warehouses are often measured from the exterior wall to the center of the demising wall without deductions. In multitenant leases, the common area can be addressed several different ways; therefore, the appraiser must investigate the contract and also find what is typical market practice.

    b. Retail space is commonly measured in the same manner as warehouses. In some cases, the common area is shared proportionately among the tenants, and in other leases it is not. BOMA's method of measuring office space is sometimes applied to retail space with modifications.

3. Appraisers may investigate current leases to determine how the contract addresses the leased area and how it stipulates the leased area. The appraiser can use that information to see how it aligns with market practices.

4. Appraisers must practice sufficient diligence and be aware of measurement techniques used in their general market area and then apply a consistent approach in performing their assignments.

A note about wall height vs. ceiling height. In Part 9, there is a distinction made in cost rates applicable to what is labeled as a "Wall Height Factor." This is may seem to be interchangeable with issues pertaining to ceiling height requirements, but that is not the case. Ceiling height is an issue whenever the appraiser is calculating habitable space, gross living area and gross leasable area. Building codes and minimum property standards also govern what constitutes an acceptable ceiling height for habitable spaces. In contrast, wall height pertains to cost regardless of the "livability" issues.

Review Part 8

Learning Objectives

Now that you've completed Part 8, you should be able to

- ☑ Distinguish between reproduction cost and replacement cost.
- ☑ Recognize the key components in both direct and indirect costs.
- ☑ Identify the three cost estimating methods used by appraisers.
- ☑ Distinguish among cost estimating methods.
- ☑ Distinguish between entrepreneurial incentive and entrepreneurial profit.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 13, P. 197–200, and Chapters 29–30, P. 525–557

Appraising Residential Properties, 4th ed., Chapters 13–14, P. 257–282

Terms and Concepts to Remember

Comparative-unit method	Entrepreneurial incentive	Replacement cost
Cost-index trending	Indirect (soft) costs	Reproduction cost
Direct (hard) costs	Quantity survey method	Unit-in-place method

Additional Resources

If you are interested in obtaining a copy of the *Square Footage - Method for Calculating: ANSI Z765–2013,* go to the Home Innovation Research Labs at www.homeinnovation.com/about/bookstore. (Use search feature on the term "Z765" to find the webpage.)

For standards on measuring certain types of commercial buildings, go to www.store.boma.org/t/categories/boma-standards/s/ascend_by_name.

For more information on describing a high-performance (green) residential property, see the Residential Green and Energy Efficient Addendum report form (820.04) in the appendix. This form can also be downloaded from the Appraisal Institute at www.appraisalinstitute.org and is included in most residential software programs.

Review Quiz

Choose the *most* correct answer.

1. Chandra is appraising a residential property. The house was built in 1981 and is in average condition. The appraiser is using a cost-service provider to develop the cost approach. What type of cost is she using in this appraisal?

   A. direct costs only
   B. hard costs plus entrepreneurial profit
   C. reproduction cost
   D. replacement cost

2. The cost estimating method that considers all materials used and all categories of labor required to construct the improvement is called

   A. comparative-unit method.
   B. quantity survey method.
   C. segregated cost method.
   D. unit-in-place method.

3. Which of the following is ***NOT*** an identified type of accrued depreciation applicable to property improvement?

   A. entrepreneurial obsolescence
   B. external obsolescence
   C. functional obsolescence
   D. physical deterioration

4. Labor and materials are an example of what kind of cost?

   A. direct cost
   B. indirect cost
   C. replacement cost
   D. reproduction cost

5. A buyer will not pay more for a property than the cost to construct one of equal desirability and utility without undue delay. What principle does this illustrate?

- A. balance
- B. highest and best use
- C. substitution
- D. supply and demand

6. What type of property is the gross living area (GLA) generally based on interior dimensions?

- A. cluster home in a PUD
- B. condominium
- C. manufactured home
- D. twin home

7. An appraiser is analyzing the soft costs in a building project. In this analysis, what might the appraiser consider in this category?

- A. architectural fees
- B. building permits
- C. material storage facilities
- D. security during construction

8. What is left when the total cost of development is deducted from the sale price of a property?

- A. administrative expenses of the developer
- B. entrepreneurial coordination
- C. entrepreneurial profit or loss
- D. contractor's overhead

9. An appraiser measured a one-story residence as 26’ x 40’ on the main floor, and the house had a below-grade-level finished basement area of 20’ x 16’. The residence also had an attached screen porch on the main level of 12’ x 14’. What is the gross living area (GLA) for the residence?

- A. 1,040 sq. ft.
- B. 1,208 sq. ft.
- C. 1,360 sq. ft.
- D. 1,528 sq. ft.

10. The cost of a structure was $300,000 when it was built 18 months ago. The cost index at that time was 150.5. What is the estimated cost today if the cost index is 168.56?

- A. $267,857
- B. $327,587
- C. $336,000
- D. $354,180

Part 9 Preview

Components in Cost Analysis

In this session, your instructor will take you step by step through a case study that shows how an appraiser derives the cost of various building components using data from a cost-service provider. Estimating cost can be compared to using a recipe in cooking that requires precise ingredients and techniques to achieve the desired results.

Marshall & Swift—CoreLogic is the cost service provider used in the case study. This cost provider supplies data to appraisers through two basic services. The one used here is the *Residential Cost Handbook* for one-to-four-unit residences. The other service is the *Marshall Valuation Service* used for commercial properties.

Learning Objective

To prepare for Part 9, read the following learning objective and refer back to it as you study this part of the handbook.

- ☐ Apply component costs to estimate the cost of residential building improvements.

Learning Tips

You will find Part 9 to be interesting and practical. Enjoy it without feeling the need to remember everything for test purposes. You will walk through a case study of a two-story residence using the Marshall & Swift—CoreLogic cost square foot method (which is their version of the comparative unit method). Your instructor will highlight the areas you should study for exam purposes, but most of the Marshall & Swift—CoreLogic techniques addressed in the case study are excluded from the final exam. The exceptions are that you should be able to apply given cost multipliers to a derived cost. You should also be able to ascertain plumbing fixtures as a cost item and adjust a cost rate by a wall height factor. Those three areas are fair game for exam purposes. The overall intent of the case study is to reinforce the concepts and terms presented in Parts 7 and 8 through application.



Part 9 is your first exposure to the **Oak Street Case Study**. You will use the property located at 4410 Oak Street as the subject property for various exercises. The property is fictitious, but it is used in real-world applications that will help you better understand the valuation process. In this session, your assignment is to derive current cost for the subject property located on Oak Street. The next time you see the Oak Street property will be on Day 3.

Part 9.
Components in Cost Analysis

I. Analyzing Component Costs

Step 4. The fourth step is to add estimated direct costs, indirect costs, and entrepreneurial incentive to arrive at the total cost of the improvements.

A. The objective of Part 9 is to show you how an appraiser uses a cost service provider (in this case Marshall & Swift—CoreLogic) to derive the various component costs for estimating the current cost of a residential improvement.

B. A case study is used to illustrate the component costs. The subject residence is a basic two-story residence located in a part of the country that has a "moderate" climate.

1. Climates in the country can be broadly grouped into five categories.

   a. **Severe-cold climate.** The northern-most portions of states that border Canada often fall into this group—along with Alaska. Structures in this area often are superinsulated, and foundations extend into the ground fairly deep so they are located below the frost line (that means the depth at which the ground freezes). Some examples are the northern parts of Maine, Minnesota, and Montana.

   b. **Cold climate.** This area takes a broad path across the country and includes states that experience freezing temperatures during the winter months. Some examples are New York, Iowa, Oregon, and northern California.

   c. **Mixed-humid climate.** This area includes the Mid-Atlantic states and extends to the northeast portion of Texas. Some examples are North Carolina, Tennessee, and the northern portions of Georgia and Louisiana.

   d. **Hot-humid climate.** Florida and the Gulf Coast area are included in this area. Georgia, Alabama, areas of Texas, and the southern portion of South Carolina are some examples.

   e. **Hot-dry/mixed dry climate.** The southwest portion of the country includes states such as New Mexico, Arizona, Southern California, and parts of Texas.

2. Marshall & Swift—CoreLogic (MSB) accounts for all five climate categories through its cost refinement process. However, MSB uses three classifications to begin the process—mild climate, moderate climate, and extreme climate.

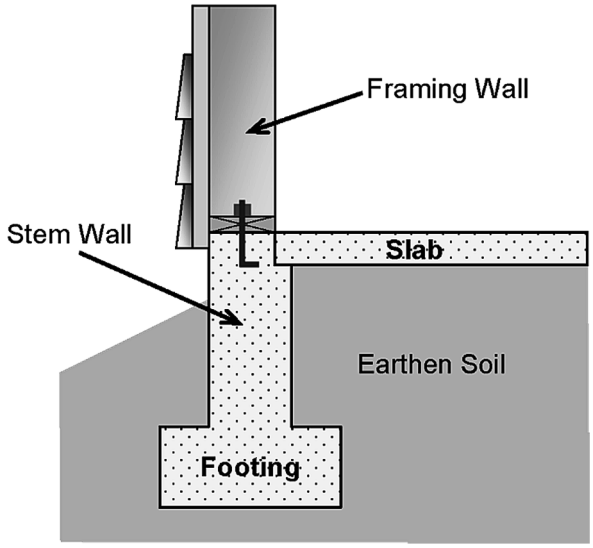
3. In the moderate climate location of the subject property, an appraiser typically finds wood frame construction that has 2 x 4 or 2 x 6 stud walls and single or double (that is, insulated) glazing on the window units.

    a. Insulation in the walls and ceilings varies between R-11 to R-19 for the walls and R-19 to R-30 in the ceiling.

    b. **R-value** is a rating that indicates resistance to heat conduction for a particular insulating material. A higher R-value for the insulation means less heat escapes through the walls and ceiling.

4. The foundation in a moderate climate has a foundation depth of 30 to 42 inches below the grade to protect the foundation footings from frost.

    a. The foundation of the subject property is a perimeter stem wall with a reinforced concrete slab floor resting on the ground (no crawl space).



    b. Foundations located in a mild climate might have a footing depth of 18 inches, whereas in an extreme climate, the depth might extend to 54 inches.

C. Your instructor will explain the cost components as you go through the case study step by step.

Don't be overly concerned about knowing all of the terms as you work through this case study. Even though we covered basic construction in Part 7, there may be a few new construction terms. If so, please ask your instructor to explain them.

Marshall & Swift—CoreLogic has a specific procedure for how costs are analyzed. Your instructor will help you understand how the different quality ratings of fair, average, good, very good, and excellent are assigned to the property you are appraising.

II. Oak Street Case Study (Part I)—Cost Analysis

Description: The property you've been asked to appraise is a detached two-story house of average quality located in a market area that is not subject to any earthquake or hurricane activity. The home is built on a perimeter stem wall foundation with a reinforced concrete slab floor. The exterior wood frame walls have an interior wall height of 8 feet on each level. The interior walls are plaster throughout. The home has three bedrooms, two full baths on the second floor, and a half bath on the main floor. The home has no rough-in plumbing for future fixtures. A laundry tub is located in a utility room together with the air handler for the home's forced air heating and cooling system. The water heater is located in the utility room.

The floor cover is carpet, except for sheet vinyl in the foyer entry and kitchen. The baths have ceramic tile floors. The built-in kitchen appliances include a range/oven, dishwasher, hood and fan, and disposal. There is also an exhaust fan in one of the baths. The home is located in a moderate climate area and has typical insulation in the walls and ceiling, and the windows are double glazed. A masonry fireplace with a raised brick hearth is located in the first-floor family room.

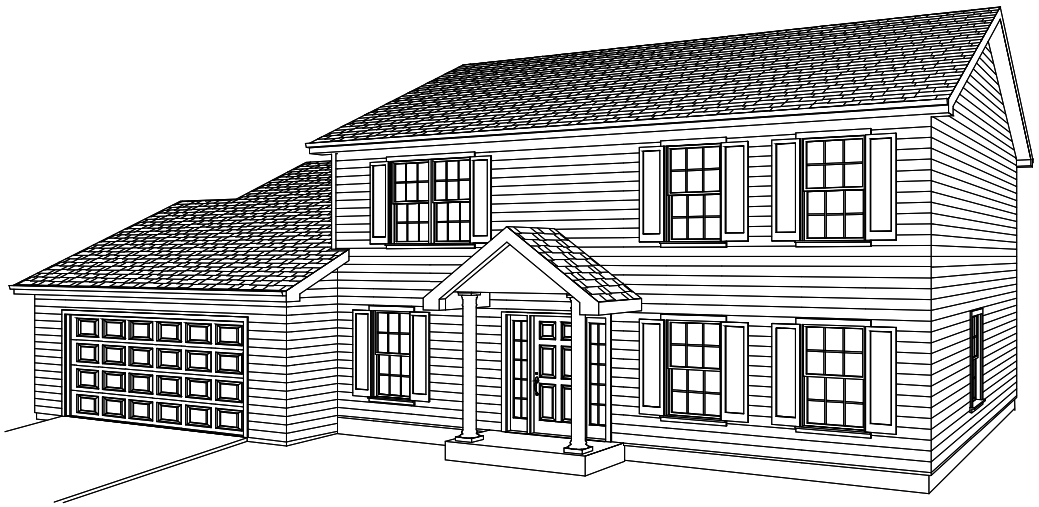
The exterior has an asphalt shingle roof with a typical 6/12 pitch and vinyl lap siding over a wood frame (2 × 4) construction. The attached two-car garage has a 9-foot wall height. It is not insulated or finished except on the wall attached to the house as required by fire and building codes. There is a wood deck at the rear of the residence. The deck is slightly elevated (about 18 inches) off the ground. There is also a small entry porch over the front stoop. This is an open porch with a roof and finished ceiling.

While touring the property, you estimate the carpeting covers about 75% of the interior floor area, sheet vinyl covers 15%, and ceramic tile in the baths is 10% of the floor area.

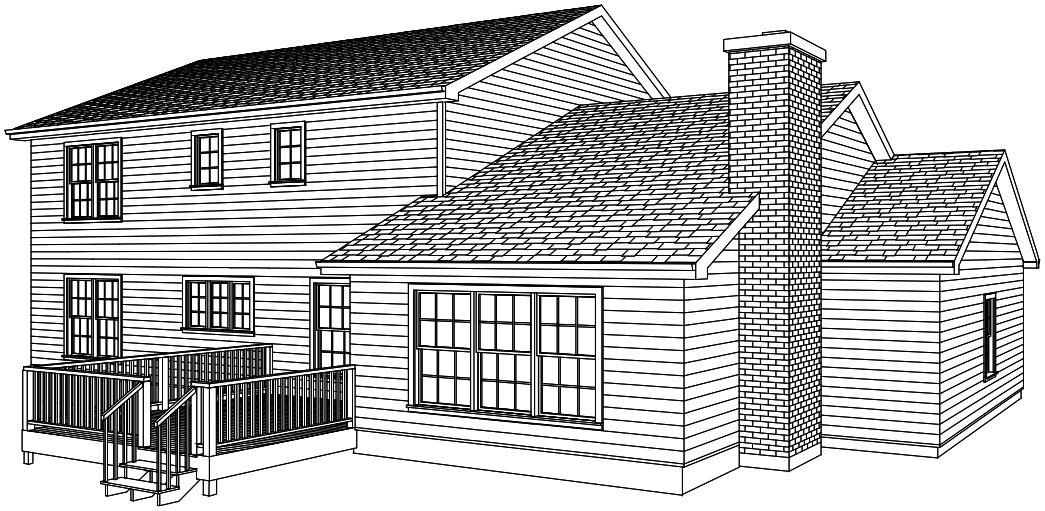


4410 Oak Street, Mayberry, USA

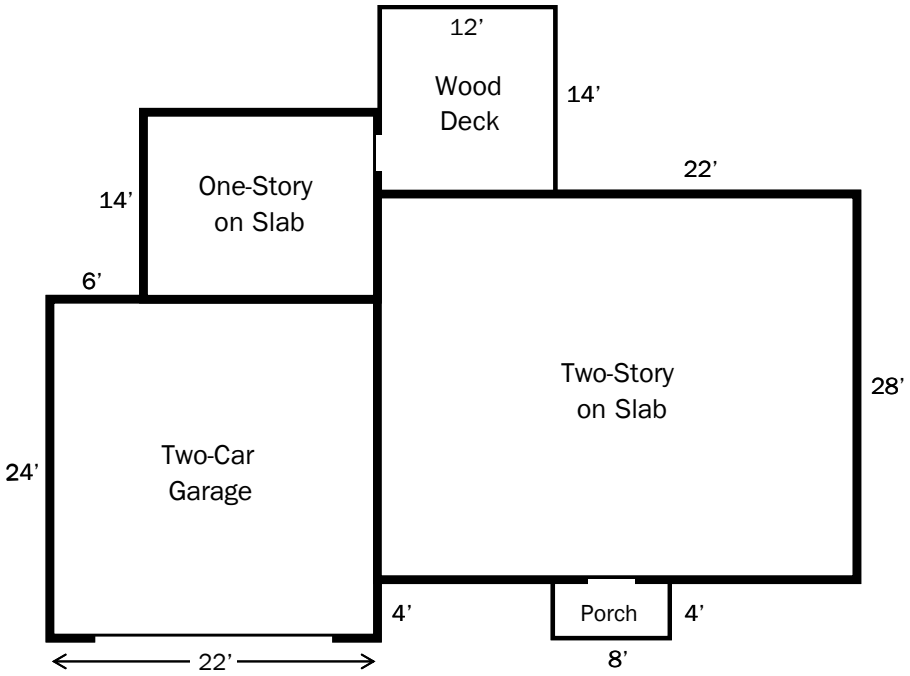
Front View of the Oak Street Property



Rear View of the Subject



Perimeter Sketch for the Subject



		Foundation	_____ Sq. Ft.
1-Story Area	_____ Sq. Ft.	2-Car Garage	_____ Sq. Ft.
2-Story Area	_____ Sq. Ft.	Wood Deck	_____ Sq. Ft.
Total GLA	_____ Sq. Ft.	Entry Porch	_____ Sq. Ft.

COST RATES

TWO STORY

Square Foot Costs
Average Quality

RESIDENCE

STUD FRAMED				MASONRY		
Total Area	Plywood or Hardboard	Metal or Vinyl Siding	Stucco	Concrete Block	Stucco on Block	Common Brick
1900	49.75	50.11	50.05	51.61	52.93	58.37
2000	49.22	49.56	49.50	51.06	52.32	57.59
2100	48.72	49.04	48.98	50.54	51.76	56.85
2200	48.25	48.55	48.50	50.04	51.22	56.16

SQUARE FOOT ADJUSTMENTS

ROOFING:

Composition shingle or Built-up, small rock		(base)
Clay tile	+	$ 3.11
Concrete tile	+	1.97
Metal, preformed	+	.52
Wood shake	+	.85
Wood shingle	+	.74
Composition roll	–	.44

ENERGY ADJ: Moderate Climate (base)

Mild climate	–	$ 1.00
Extreme climate	+	1.38
Superinsulated	+	3.32

FOUNDATION ADJ: Mod. Climate (base)

Mild climate	–	$ 1.60
Extreme climate	+	2.94
Hillside, moderate slope	+	1.47
Hillside, steep slope	+	4.41

Add for SEISMIC ZONES (Z) / HURRICANE (Wind) ADJ:
Frame: (Z2) + $1.29, (Z3–4/Wind) + $2.19 Masonry: (Z2) + $.83, (Z3–4/Wind) + $1.76

ONE STORY

Square Foot Costs
Average Quality

RESIDENCE

STUD FRAMED				MASONRY		
Total Area	Plywood or Hardboard	Metal or Vinyl Siding	Stucco	Concrete Block	Stucco on Block	Common Brick
1900	53.39	54.33	54.28	56.03	57.06	61.20
2000	52.88	53.81	53.76	55.48	56.48	60.53
2100	52.41	53.32	53.27	54.96	55.92	59.91
2200	51.96	52.86	52.81	54.47	55.40	59.32

SQUARE FOOT ADJUSTMENTS

ROOFING:

Composition shingle or Built-up, small rock		(base)
Clay tile	+	$ 5.55
Concrete tile	+	3.51
Metal, preformed	+	.93
Wood shake	+	1.51
Wood shingle	+	1.32
Composition roll	–	.79

ENERGY ADJ: Moderate Climate (base)

Mild climate	–	$ .91
Extreme climate	+	1.46
Superinsulated	+	3.01

FOUNDATION ADJ: Mod. Climate (base)

Mild climate	–	$ 1.89
Extreme climate	+	3.47
Hillside, moderate slope	+	1.74
Hillside, steep slope	+	5.21

Add for SEISMIC ZONES (Z) / HURRICANE (Wind) ADJ:
Frame: (Z2) + $1.15, (Z3–4/Wind) + $2.01 Masonry: (Z2) + $.81, (Z3–4/Wind) + $1.68

The above cost rates are adapted from the Marshall & Swift *Residential Cost Handbook* © 2003. Used with permission.

COST RATES

REFINEMENTS

Square Foot Costs
Average Quality

SQUARE FOOT ADJUSTMENTS

SUBFLOOR:		
Wood subfloor		(base)
Concrete slab	–	$ 2.04
Asphalt (for garage or carport)	–	1.64
PLASTER INTERIOR:	+	2.90
FLOOR COVER:		
Allowance (if not itemized)	+	2.59
Carpet and pad	+	2.24
Ceramic tile	+	8.84
Wood flooring	+	6.23
Hardwood	+	7.57
Parquet blocks	+	8.41
Vinyl sheet	+	3.04

FLOOR INSULATION:		
Mild climate	–	$ .70
Moderate climate	+	.87
Extreme climate	+	1.17
HEATING/COOLING		
Forced air		(base)
Oil-fired	+	$ .58
Floor or wall furnace	–	1.42
Electric, radiant	–	.34
Baseboard or panel	–	.25
Hot water, baseboard	+	1.47
Warm and cooled air	+	1.61
Heat Pump	+	2.01
Ground-loop heat system	+	3.41
Air-to-air exchange system	+	1.20

LUMP SUM ADJUSTMENTS

PLUMBING: 8 fixtures + rough-in		(base)
Per fixture	+ or –	$ 845
Per rough-in	+ or –	340
FIREPLACES:		
Single one-story		$ 2,250 – 2,750
Single two-story		2,800 – 3,400
Double one-story		3,000 – 4,050
Direct-vented, gas		1,025 – 1,250

BUILT-IN APPLIANCES:		
Allowance (if not itemized)	+	$ 2,350
Dishwasher	+	590
Exhaust fan or bath heater	+	140
Garbage Disposer	+	205
Hood and Fan	+	220
Range and Oven	+	775
Radio intercom	+	785

PORCH/BREEZEWAYS

FLOOR STRUCTURE:				WALL ENCLOSURE:				
Square Feet (Each)	Open Slab	Open W/Steps	Wood Deck	Screen Only	Knee Wall W/Glass	Solid Walls	Add For Roof	Add For Ceiling
25	4.97	13.43	21.68	14.40	50.55	30.50	11.08	4.46
50	4.54	11.24	19.41	9.60	33.70	20.33	9.71	3.51
100	4.30	9.43	13.52	7.20	25.27	15.25	9.03	3.04
150	4.23	8.92	12.14	5.60	19.66	11.86	8.69	2.88
200	4.16	7.40	7.98	4.00	14.04	8.47	7.66	2.72

GARAGES

Square Foot Costs
Average Quality

STUD FRAMED							
Type	Total Area	Plywood or Hardboard	Metal or Vinyl Siding	Stucco	Wood Siding	Wood Shingles	Add For Finish
Attached	400	17.79	18.10	18.17	18.03	18.27	4.08
	600	15.82	16.05	16.10	16.00	16.18	3.71

The above cost rates are adapted from the Marshall & Swift *Residential Cost Handbook* © 2003. Used with permission.

WORKSHEET NOTES

Wall Height Factor

For an average quality residence, the base cost assumes a wall height of 8 feet. For each additional foot of wall height, the appraiser must add 3%. Therefore, if your subject residence has a 9-foot wall, the factor is 1.03. You'll notice in our case study that the attached garage has 9-foot walls. Therefore, the factor is 1.03 because 3% was added for the one additional foot of wall height. This factor only applies to the base rate and not to any other refinement cost such as roofing, heating, or cooling.

Floor-Cover Calculations

The appraiser can use the allowance for floor cover or itemize the cost for the individual floor-cover components. The way to obtain the floor-cover cost rate is to apply the area percent to the actual cost rate. The result can then be easily placed on the form.

Floor Cover	Area %	Cost Rate	Amount
Carpet and pad	0.75	*$ 2.24*	
Ceramic	0.10	*8.84*	
Vinyl sheet	0.15	*3.04*	
Total	100%		

Summary of Plumbing Fixtures

Plumbing fixtures are added or subtracted as **lump sum adjustments**. The average quality cost rate includes eight fixtures and one rough-in. Each full bath has three fixtures, and a half bath has two fixtures. The kitchen sink, the laundry tub, and the water heater each count as one plumbing feature. The base cost rate already includes two outdoor spigots.

Floor	Tub and Shower	Sink	Toilet	Water Heater	Total
First					
Second					
Total Plumbing Fixtures ➡					

Multipliers

On line 24 of the *Square Foot Appraisal Form,* you will find a *Current Cost Multiplier* (CCM) and a *Local Multiplier*. These factors update the cost rate to the most recent quarter of the year and also adjust for the local area (such as San Diego, Minneapolis, or Biloxi). The two multipliers are multiplied together to obtain one factor. The CCM and the local multiplier are on the form, but you must multiply them together to derive the factor.

SQUARE FOOT APPRAISAL FORM

Wall Height Factor x Floor Area x Selected Sq. Ft. Cost ➡	Factor	Quantity	Cost	Extended Cost
1. **COMPUTE RESIDENCE BASIC COST**	*1.00*			
	1.00			
Square Foot and Lump Sum Adjustments				
2. Roofing				
3. Energy: ☐ Mild ☐ Moderate ☐ Extreme ☐ Superinsulated				
4. Foundation: ☐ Mild ☐ Moderate ☐ Extreme Hillside: ☐ Flat ☐ Moderate ☐ Steep				
5. Seismic: ☐ None ☐1 ☐ 2 ☐ 3 ☐ 4 Wind: ☐ No ☐ Yes				
6. Subfloor		*1,176*		
7. Floor Insulation: ☐ Mild ☐ Moderate ☐ Extreme				
8. Floor Cover				
9. Plaster Interior				
10. Heating/Cooling				
11. Plumbing Fixtures: Total Base *8*				
12. Plumbing Rough-ins: Total Base *1*				
13. Dormers				
14. Fireplaces *$2,750 + $1,000 for brick*		*1*	*3,750*	*3,750*
15. Built-in Appliances				
16. **SUBTOTAL: ADJUSTED RESIDENCE COST** (Lines 1 to 15)				
17. Basement				
18. Porches, Decks, Breezeways, etc.				
19. Balconies				
20. Exterior Stairways				
21. **SUBTOTAL: RESIDENCE COST** (Lines 16 to 20)				
22. Garages/Carports *Add 3% for 9′ wall*	*1.03*			
23. **SUBTOTAL OF ALL IMPROVEMENTS** (Lines 21 and 22)				
24. Multipliers: CCM *1.08* x Local *0.96*				
25. Additional Components				
26. **TOTAL BUILDING COST NEW** (Line 23 x Line 24 + Line 25)				

The above format was adapted from the Marshall & Swift *Form 1007* and used with permission for educational purposes.

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SQUARE FOOT APPRAISAL FORM

Wall Height Factor X Floor Area X Selected Sq. Ft. Cost ➡	Factor	Quantity	Cost	Extended Cost
1. **COMPUTE RESIDENCE BASIC COST**	*1.00*			
	1.00			
Square Foot and Lump Sum Adjustments				
2. Roofing				
3. Energy: ☐ Mild ☐ Moderate ☐ Extreme ☐ Superinsulated				
4. Foundation: ☐ Mild ☐ Moderate ☐ Extreme Hillside: ☐ Flat ☐ Moderate ☐ Steep				
5. Seismic: ☐ None ☐1 ☐ 2 ☐ 3 ☐ 4 Wind: ☐ No ☐ Yes				
6. Subfloor		*1,176*		
7. Floor Insulation: ☐ Mild ☐ Moderate ☐ Extreme				
8. Floor Cover				
9. Plaster Interior				
10. Heating/Cooling				
11. Plumbing Fixtures: Total Base *8*				
12. Plumbing Rough-ins: Total Base *1*				
13. Dormers				
14. Fireplaces *$2,750 + $1,000 for brick*		*1*	*3,750*	*3,750*
15. Built-in Appliances				
16. **SUBTOTAL: ADJUSTED RESIDENCE COST** (Lines 1 to 15)				
17. Basement				
18. Porches, Decks, Breezeways, etc.				
19. Balconies				
20. Exterior Stairways				
21. **SUBTOTAL: RESIDENCE COST** (Lines 16 to 20)				
22. Garages/Carports *Add 3% for 9' wall*	*1.03*			
23. **SUBTOTAL OF ALL IMPROVEMENTS** (Lines 21 and 22)				
24. Multipliers: CCM *1.08* x Local *0.96*				
25. Additional Components				
26. **TOTAL BUILDING COST NEW** (Line 23 x Line 24 + Line 25)				

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Review Part 9

Learning Objectives

Now that you've completed Part 9, you should be able to

- ☑ Apply component costs to estimate the cost of residential building improvements.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapters 29 and 30, P. 525–557

Appraising Residential Properties, 4th ed., Chapters 13 and 14, P. 257–282

The Dictionary of Real Estate Appraisal, 6th ed. Check out the Addenda items: "Measures and Conversions," "Green Building Glossary," "Environmental Contamination Glossary," "Agriculture, Forestry, Soils, and Wetlands Glossary," "Architecture and Construction Glossary."

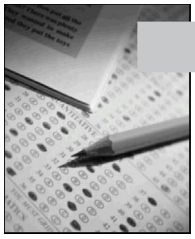
Terms and Concepts to Remember

There are a few new terms in Part 9 (such as stem wall, R-value, etc.), but these terms are unlikely to appear on a final exam. The list of terms in the review section is limited to the essential ones you need to remember (that is, terms that may potentially appear on an exam).

Resources

You can check resources such as the *Marshall Valuation Service* and the *Residential Cost Handbook* on the Marshall & Swift—CoreLogic website at www.corelogic.com/solutions/marshall-swift.aspx

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.



Practice Test Section 3

This multiple-choice test is for your benefit and provides a review of everything covered in Section 3. This is a closed-book test. Choose the most correct answer.

1. Mr. Chatsworth's residence is on the historic register, and he wants to know the insurable value in order to replicate the building in the event of fire or storm damage. What type of cost should the appraiser use?

   A. direct cost
   B. replacement cost
   C. reproduction cost
   D. indirect cost

2. What area is included in gross living area?

   A. all floor areas in the house, garage, porches, decks, etc.
   B. finished and habitable floor areas above grade
   C. finished floor areas above and below grade
   D. open non-floored area of a two-story foyer

3. Because of the unique attributes of the cost approach, it is ideally suited for

   A. estimating insurable value.
   B. estimating market value for lenders.
   C. estimating value in a condemnation.
   D. subdivision development analysis.

4. Condon has estimated the cost of excavation, the floor, wall, and roof components, and the packaged costs for the electrical, heating, and plumbing. What cost method is Condon using?

   A. comparative unit method
   B. price-index method
   C. quantity survey method
   D. unit-in-place method

5. Fogarty knows that the original cost of the building three years ago was $750,000. If the cost index was 235 when the structure was built, what is the estimated cost now if the index is at 267.9?

- A. $657,895
- B. $855,000
- C. $996,750
- D. $1,117,735

6. What is the predominant type of frame construction used after World War II?

- A. balloon
- B. concrete block and stucco
- C. platform
- D. post and beam

7. An appraiser observes that the distance between a private sewage system's drain field and the water well does not meet the minimum requirements. Under which component of a building does this fall?

- A. electrical
- B. foundation
- C. framing
- D. plumbing

8. What type of foundation is likely to be found in housing that is located in a warm climate and subject to occasional standing water?

- A. basement wall foundation
- B. monolithic slab foundation
- C. pier foundation
- D. slab with stem wall foundation

9. An earth-sheltered dwelling would likely be placed into which of the following categories of housing design?

- A. contemporary
- B. specialized
- C. split level
- D. zero-story

10. An appraiser is analyzing the cost on a 1,500 sq.-ft., one-story residence and has estimated the base cost at $75 per sq. ft. If the local multiplier is 1.10 and the current cost multiplier is 1.05, what is the cost for the dwelling?

- A. $107,386
- B. $117,857
- C. $129,937
- D. $241,875

11. Reilly is counting the plumbing fixtures in a second-floor bath and found that there are two sinks, a toilet, a bathtub, and a separate shower stall. How many plumbing fixtures should Reilly include in his count?

- A. 3
- B. 4
- C. 5
- D. 7

12. In an appraisal of a typical detached residential structure, an appraiser determines the gross living area by

- A. measuring the exterior perimeter dimensions of the residence and multiplying it by the current cost modifier.
- B. using the exterior perimeter dimensions of the residence.
- C. using the interior dimensions of the residence's overall perimeter shell.
- D. using the size provided by the real estate broker.

4

Part 10. Cost Analysis—Case Study

Part 11. Commercial Costs and Depreciation Basics

Part 12. Applied Depreciation

Part 10 Preview

Cost Analysis—Case Study



Part 10 provides you with additional time to complete the case study begun in Part 9. The second task in Part 10 is to examine additional guidance on interpreting and using cost rates from Marshall & Swift.

Our Oak Street Case Study did not have a porch or a basement, but we thought you should know something about them in relation to applying cost rates. Porches can include a number of components that can make it challenging to derive the total cost estimate.

In the same manner as porches, estimating basement cost can also present challenges. The Oak Street residence was built on a slab foundation, but many areas of the country have full basements or partial basements. The basement area can include finished areas of varying quality. Estimating costs for basements is something you should know about even if your geographic area doesn't normally have basements. Review appraisers for national firms and lenders often look at properties from different parts of the county. Therefore, it is beneficial for you to have a general knowledge about costs pertaining to basements and lower-level finish.

Learning Objective

To prepare for Part 10, read the following learning objective and refer back to it as you study this part of the handbook.

- ☐ Apply component costs to estimate the cost of residential building improvements.

Learning Tips

As you begin the session, your instructor will provide guidance on the finalized cost rates as you complete the "Square Foot Appraisal Form" carried over from Part 9. After all of the issues are resolved, you will look at component costs for a three-season porch and a finished basement—including the foundation.

Keep in mind the following: The wall-height factors that you considered in Part 9 only apply to the base cost rates. They don't apply to refinements or lump sum adjustments.

Part 10.
Cost Analysis–Case Study

The case study from Part 9 extends into this session. After that exercise is completed, the remaining time will focus on several important component costs that were not covered in the case study.

I. Completion of the Case Study



The case study from Part 9 will be completed during the time period allocated to Part 10. Your instructor will review the cost figures for the case study, and you can check your work before we start on an overview of estimating costs for basements and porches.

II. Breaking Down the Costs

A. ***Basement:*** Residences located in colder climates typically have a basement or a crawl space under the entire house. Here are some insights about calculating the various components of a basement:

1. Basements generally do not require a *foundation adjustment* in an extreme climate because the foundation footings are fully in the ground and well protected from damaging frost.

2. The exception is a basement with a "walkout" feature in which a part of the basement is at grade level. Typically, the exposed portion of the basement is at the rear of the structure. This feature requires stepped footings that go deeper along the wall perimeter of the walkout. The appraiser must account for this additional cost through a foundation adjustment.

3. A walkout feature in a basement affords more light into the lower-level area, assuming that windows were added to take advantage of it. This feature increases the livability of the lower level and enhances its marketability.

B. ***Finished Basement:*** The cost of the finished area is in addition to the cost of the basement itself. In other words, the cost rate for the "unfinished basement" is for the foundation. The finished basement is added to the unfinished basement cost. But the added cost is applied to the actual finished area. Floor-cover costs are included in the rate. There are two categories of basement finish:

1. ***Minimal finish.*** This rate is used when there is no division of rooms. It's just one big open area that is finished with drywall on the walls and ceiling and vinyl-composition flooring. The heating is incidental, often from the furnace located on the same level.

2. ***Partitioned finish.*** This higher cost rate assumes a level of finish that is commensurate with the main level. The area is divided into rooms, each with heat ducts and the proper number of electrical receptacles included in the rate. The cost rate for partitioned finish is selected from the square foot column that applies to the entire foundation. So if the foundation is 1,200 sq. ft., the *rate* for basement finish is selected from the same column, even if the finished area is 400 sq. ft. For example, the finished partitioned rate for a 1,200 sq. ft. foundation is $26.17; that figure should be used even if the actual finished area is only 400 sq. ft. Look at the table on the next page for basement cost rates, specifically the column for 1,200 sq. ft. If the residence had 8-inch-thick, poured concrete walls, the rate for the unfinished basement is $16.18 per sq. ft., and $26.17 is used for the rate that is applied to the 400 sq. ft. of partitioned finished area.

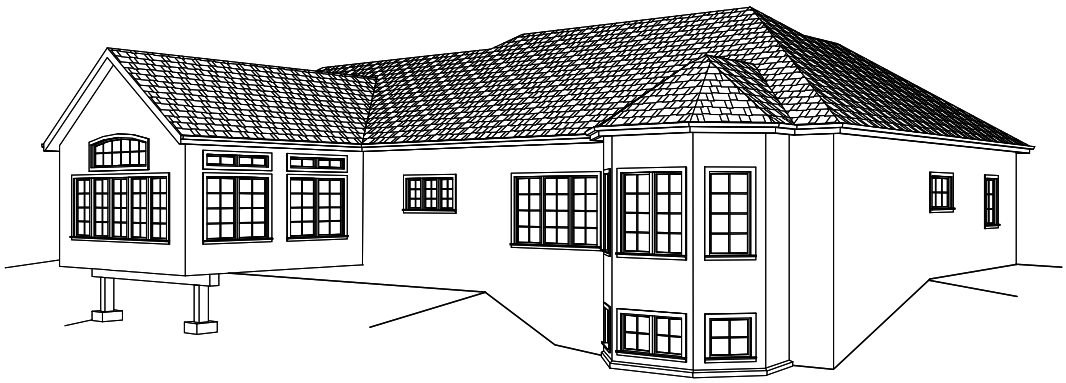
   Total cost is 1,200 sq. ft. × $16.18, plus 400 sq. ft. × $26.17, which equals $29,884. That cost figure accounts for the basement foundation and the finished area within that basement.

3. **Problem to work out.** Say you are appraising a good quality, ranch-style structure that is 1,650 sq. ft. in size on the main level and has a basement under the entire area. The foundation is constructed of 12-inch concrete blocks and the wall height is 8 feet.

   The property is located in an extreme climate. There is no walkout feature, but the rear side of the residence has windows on the basement level bay that allows ample light into the lower level family room.

   Let's further assume 800 sq. ft. of the basement level is finished in the same quality as the main floor and includes a family room, den, and full bath. There are three plumbing fixtures in the bath. **Note.** Heat and air conditioning is included in the partitioned sq. ft. cost rate. **What cost figures would you use?**

Rear View of the Residence



SQUARE FOOT ADJUSTMENTS

A foundation adjustment is unnecessary even though the property is located in an extreme climate. This is because the footings are more than 4 feet below the ground surface and thus well protected from frost and freezing temperatures.

LUMP SUM ADJUSTMENTS

Plumbing fixtures are $1,300 per fixture, and the main floor already meets the base requirement. The three fixtures for the full bath in the basement must be added as lump sum adjustments.

BASEMENTS

Unfinished Basements	400	800	1200	1600	2000	2400
Concrete walls 6"	21.90	17.45	15.41	14.37	13.94	13.36
8"	23.23	18.41	16.18	15.05	14.58	13.92
Conc. block walls 8"	21.22	16.96	15.01	14.02	13.61	13.08
12"	23.64	18.71	16.42	15.25	14.78	14.09
Add for finish, minimal	7.23	6.78	6.57	6.47	6.42	6.35
Partitioned	29.12	27.03	26.17	25.73	25.52	25.23

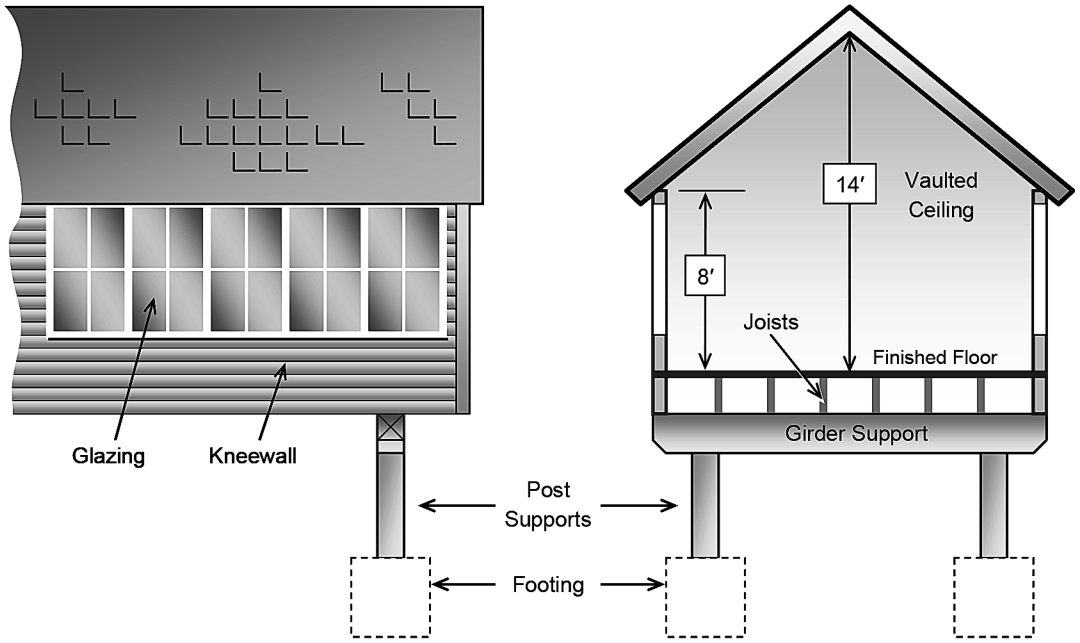
Outside Entrance: $1,175 – $1,825 For radon removal fan and alarm, add $310.

Instructions: Complete the line item components for the basement, finished area within the basement, and add in the plumbing fixtures for the bathroom. Apply the multipliers supplied on Line 24 and estimate the total cost for the basement and finished area.

Square Foot Appraisal Form

	Wall Height Factor x Floor Area x Selected Sq. Ft. Cost ➡	Factor	Quantity	Cost	Extended Cost
11.	Plumbing Fixtures: Total *14* Base *11*		*3*		
17.	Basement *(8-foot wall height)*	*1.00*	*1,650*		
	Finished partitioned area	*1.00*	*800*		
23.	**SUBTOTAL OF IMPROVEMENTS**				
24.	Multipliers: CCM *1.08* x Local *1.10*				*x 1.188*
26.	**TOTAL BUILDING COST NEW**				

C. ***Porches:*** These come in a variety of styles. Our focus is a three-season porch that is elevated on supports. This is akin to building an unheated room with a roof over it on a wood deck structure. Once you know the estimating process, you'll find it to be a straightforward cost technique.



1. The cost for a porch is built up from three major components, which produces the base rate for the entire porch.

   a. ***Floor structure.*** This can be a concrete slab on grade, a slab supported by a perimeter foundation with footings, or a wood deck support system.

   b. ***Wall structure.*** The options are 1) screened porch, 2) a porch that is mostly windows, or 3) a porch that is like the rest of the house with a typical wall system that has windows randomly spaced. Since windows are an expensive component, the option of "kneewall with glass" has the higher rate. A porch with no walls (just supports) constitutes an open porch.

   c. ***Roof structure.*** The first component is the roof and the second component is the finished ceiling (typically drywall or paneling). Many screen porches have no finished ceiling, while most three-season porches have finished ceilings (for greater appeal and livability).

2. Refinements are added to the porch's base rate and can include the type of roof shingle used, floor coverings, and design features such a vaulted ceiling or added wall height.

3. Calculating a vaulted or cathedral ceiling.

   Some porches have a vaulted ceiling. For example, let's say a porch has a wall height of 8 feet and the vault is 14 feet to the peak. Here is the process to calculate the cost adjustment:

   a. Determine the height of the vault at its peak. If the wall height is 8 feet and the height to the peak is 14 feet, the vault height is 6 feet beyond the normal wall height.

   b. Divide the additional 6 feet of height for the vaulted area in half. This produces an adjusted height of 3 feet.

   c. Multiply the adjusted height for the vault by

      - 3% for each foot of adjusted height in structures with wood frame construction.

      - 4% for each foot of adjusted height with masonry construction.

4. **Problem to work out.** Let's say the three-season porch illustrated on the prior page has a 6-foot vaulted and finished ceiling (14 ft. – 8 ft. = 6 ft.) and the adjusted height is 3 feet. Therefore, the 3-foot factor × 3% equals 9%. As a result of this calculation, you use a vaulted ceiling factor (or wall height factor) of 1.09 and apply that to the base cost for the area that has the vault. If the porch area is 300 sq. ft., **what is the cost of the porch?**

PORCH/BREEZEWAYS

FLOOR STRUCTURE:				WALL ENCLOSURE:				
Square Feet (Each)	Open Slab	Open w/Steps	Wood Deck	Screen Only	Knee Wall w/Glass	Solid Walls	Add for Roof	Add for Ceiling
150	5.11	11.41	15.45	7.31	23.48	16.24	11.90	3.65
200	5.03	10.78	13.78	6.27	20.13	13.92	11.53	3.56
300	4.88	9.54	10.43	5.22	16.78	11.60	10.78	3.46

Square Foot Appraisal Form

	Wall Height Factor × Floor Area × Selected Sq. Ft. Cost ➡	Factor	Quantity	Cost	Extended Cost
18.	Porches, Decks, Breezeways, etc.	*1.09*	*300*		
24.	Multipliers: CCM *1.08* × Local *1.10*				× *1.188*
26.	**TOTAL BUILDING COST NEW**				

Review Part 10

Learning Objective

Now that you've completed Part 10, you should be able to

- ☑ Apply component costs to estimate the cost of residential building improvements.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapters 29 and 30, P. 525–557

Appraising Residential Properties, 4th ed., Chapters 13 and 14, P. 257–282

The Dictionary of Real Estate Appraisal, 6th ed. Check out the addenda items: "Measures and Conversions," "Green Building Glossary," "Environmental Contamination Glossary," "Agriculture, Forestry, Soils, and Wetlands Glossary," "Architecture and Construction Glossary."

Note. There is no review quiz for Part 10.

Resources

You can check resources such as the *Marshall Valuation Service* and the *Residential Cost Handbook* on the Marshall & Swift—CoreLogic website at www.corelogic.com/solutions/marshall-swift.aspx.

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.

Part 11 Preview

Commercial Costs and Depreciation Basics

Part 11 takes a brief look at commercial cost estimating and how it is similar to and different from residential cost analysis.

The majority of the session will be spent on the basics of depreciation.

Learning Objectives

To prepare for Part 11, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Recognize construction classifications for commercial structures.
- ☐ Identify the basic components of depreciation.
- ☐ List the three primary methods of estimating accrued depreciation.
- ☐ Recognize the definitions of economic life, remaining economic life, actual age, and effective age.

Learning Tips

You should concentrate your efforts on learning the three components of depreciation: physical deterioration, functional obsolescence, and external obsolescence. You will need to know the definitions highlighted in this session, as well as the types of depreciation methods. Overall, there are relatively few terms presented in Part 11, so you can spend additional time getting comfortable with these important terms and concepts.

The graphic that follows the definitions of actual age and effective age should be helpful in illustrating the relationships among the various terms.

Part 11.
Commercial Costs and Depreciation Basics

Basic Appraisal Procedures has an emphasis on residential properties, but you should have at least an understanding of cost factors that influence the value of commercial properties. Although you spent time on commercial aspects of the income capitalization approach, estimating cost for commercial buildings is important, too. While the procedures are similar to that of residential properties, there are notable differences. Part 11 highlights a few of these basic differences and then heads into an introduction of depreciation.

I. Quality Classifications for Commercial Structures

A. The *Marshall Valuation Service* categorizes commercial construction indicators into five classes (A, B, C, D, and S). These classifications can easily be confused with the competitive rankings used in the leasing and brokerage market.

It's common to hear a commercial broker or appraiser refer to a property as a "Class B" building. But such ratings are from a leasing perspective. It's possible to have a Class A constructed building rated as a Class B from a competitive leasing standpoint. The ratings take in many factors such as location, condition, functional utility, and quality of the tenants—as well as construction quality.

B. Let's take a closer look at two construction classes identified in Marshall and Swift/Boeckh. Class A and Class C construction are the examples we'll use.

Note. The information that follows on this page and the next several pages in B. and C. is taken from the *Marshall Valuation Service*, published by Marshall and Swift/Boeckh.

1. **Class A construction**

   a. **Frame.** The Class A building is built with structural steel columns and beams. It is fireproofed with masonry, concrete, plaster, or other noncombustible material.

   b. **Floor.** Concrete or concrete on steel deck and fireproofed.

   c. **Roof.** Formed concrete, precast slabs, concrete or gypsum on steel deck, and fireproofed.

   d. **Walls.** Nonbearing curtain walls, masonry, concrete, metal and glass panels, stone, steel studs and masonry, tile or stucco, etc.

2. **Class C construction**

    a. **Frame.** The Class C building has masonry or concrete load-bearing walls with or without pilasters. This can include tilt-up construction. The curtain walls are masonry, concrete with full or partial open steel, wood, or concrete frame.

    b. **Floor.** Class C uses wood or concrete plank on wood or steel floor joists. The floor can also be concrete slab on grade.

    c. **Roof.** Wood or steel joists with wood or steel deck. Also concrete plank.

    d. **Walls.** Brick, concrete block, or tile masonry, tilt-up, form concrete, nonbearing curtain walls.

3. To place some perspective on the various classes of construction, a typical one-unit, wood-frame residential structure is a Class D building. Class S might be a metal storage building or a do-it-yourself car wash structure.

C. Within each class, a quality rating is assigned, similar to the residential cost section of Marshall and Swift. There are four quality ratings within the *Marshall Valuation Service*:

1. **Low Cost.** These buildings are generally constructed to minimum code requirements often with little regard for architectural appearance or amenities.

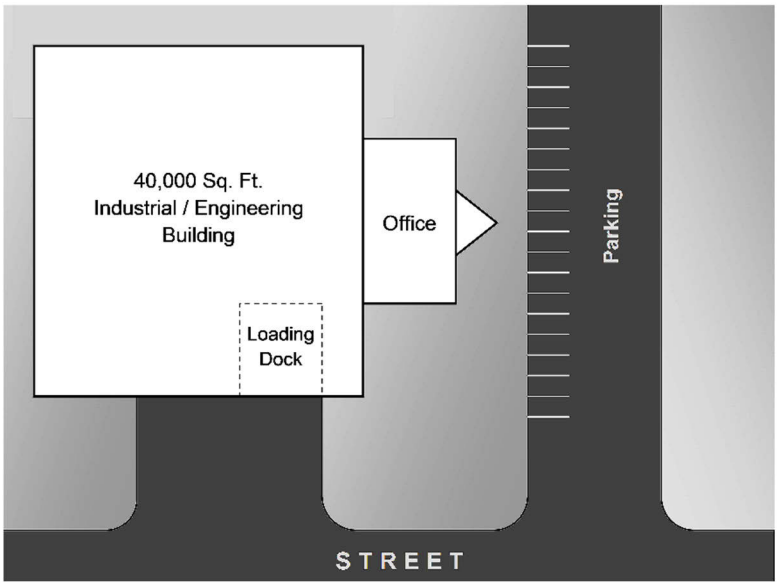
2. **Average.** These buildings constitute the largest group of buildings constructed, approximately 50% of all buildings. Buildings are generally designed for maximum economic potential. They comply with standard code construction and have simple ornamentation and finishes.

3. **Good.** These buildings are designed for good appearance, comfort, and convenience, as well as an element of prestige. Ornamentation treatment is usually of higher quality, and interiors are designed for upper-class rentals.

4. **Excellent.** These are sometimes referred to as *prestige buildings*. On an economic basis, part of the cost must be written off to pride of ownership and some of the income intangibly derived from advertising. Excellent dwellings are generally built for the established professional or those with higher incomes and have some degree of expensive finishes and fixtures.

D. Commercial cost application

1. The procedures you would go through to estimate the cost of a light industrial property are similar in many respects to the residential applications you've worked on. Look at some of the contrasting issues you would consider in a commercial application.



   a. First the class (A, B, C, D, or S) is selected, then the quality type. For example, the above property is located in an industrial park and has a 40,000 sq. ft. building constructed of masonry tilt-up panels. The office is 5,500 sq. ft. and has masonry construction with brick veneer. The office has forced-air heat and air conditioning; the industrial building has space heaters. There is good florescent lighting and adequate plumbing. You might categorize this structure as *Average Class C*.

   b. Once the class and quality are determined, a base rate for the building is selected. Adjustments are made to account for

      - Wall height factor
      - Shape of the building. Two buildings can have the same square-foot size, but one might have 100 linear feet of additional perimeter wall.

   c. Additional adjustments are made for items such as a sprinkler system or an elevator.

d. The current and local cost multipliers are applied to the adjusted base rate.

e. Indirect costs not accounted in the base rate are added. This could include the costs involved between completion and stabilized occupancy.

f. The entrepreneurial incentive is added to the total of the direct and indirect costs.

2. The final cost rate per square foot is applied to the size of the building, and the site improvements and land value are added in.

II. Depreciation Basics

Step 5. The fifth step of the cost approach is to estimate the amount of depreciation in the structure and, if necessary, allocate it among the three major categories:

- Physical deterioration
- Functional obsolescence
- External obsolescence

For purposes of clarity, reproduction cost is assumed from this point on, and thus all references to cost are on the basis of reproduction.

A. There are three major components of depreciation.

1. **Physical deterioration.** This is the slow destruction (or wear and tear) of the structural components that goes on every day, from the moment a building is completed.

   a. The physical components of a structure simply wear out over time; they rust, rot, warp, peel, and settle. This process can be hastened by

      - Infestation—such as termites and other wood-destroying insects
      - Action of the elements—such as moisture infiltration and forces of nature

   b. Most physical depreciation, if present, is tangible and observable.

2. **Functional obsolescence.** The impairment of functional capacity attributed to a particular property according to market tastes and standards.

    a. Functional obsolescence is much more difficult to detect and measure than physical deterioration.

    b. It may or may not be present in a building.

    c. The older a building becomes, the more likely it is to have functional obsolescence. However, it is possible to have a 50-year-old building with no functional obsolescence, while a new building may have functional obsolescence while still in the blueprint stage due to poor design.

    d. The tastes and standards of the buying public change over time. This happens for various reasons, including changing trends, current preferences, evolving technologies, and government restrictions or requirements. An appraiser must be alert to these factors. For example, the growing trend of mandatory energy reporting for commercial buildings may result in an increase in energy retrofits. Buildings that are not brought up to standard may suffer from functional obsolescence.

3. **External obsolescence.** This type of depreciation comes from outside the boundaries of the property.

    a. It is a loss in value from physical or economic causes external to the property.

    b. The negative factor causing the loss in value is often identified as locational or economic.

        - Locational factors can include proximity to detrimental factors such as air traffic noise, vehicle traffic, noncompatible land uses, and frequency of flooding.

        - Economic factors might include high interest rates, property tax rates, an imbalance in supply and demand, and job market conditions.

    c. Since the source of external obsolescence is outside the property, it is generally thought of as incurable.

        - The other types of depreciation (such as physical deterioration and functional obsolescence) can potentially be corrected or improved in some manner to lessen the effect on the value of the improvements.

        - External obsolescence is considered incurable because the cost to eliminate the obsolescence is often not financially feasible. But there are instances (albeit rare) where moving the building(s) to another

location or even buying out the adjacent use that is causing the detrimental influence could cure external obsolescence.

B. Definitions

Depreciation. *In appraisal, a loss in property value from any cause; the difference between the cost of an improvement on the effective date of the appraisal and the market value of the improvement on the same date.*

Book depreciation. *In accounting, the amount of capital recapture deducted on an owner's books.* This is not market derived. It is the basis of deductions for income tax purposes.

1. _____

   a. This is *the period over which improvements to real property contribute to property value.*

   b. It is usually shorter than physical life (which means how long the building is expected to stand and provide shelter).

   c. The period can be extended by means of renovations or remodeling of the improvements.

2. _____

   This is *the estimated period over which existing improvements are expected to contribute economically to a property.*

3. *Actual age*

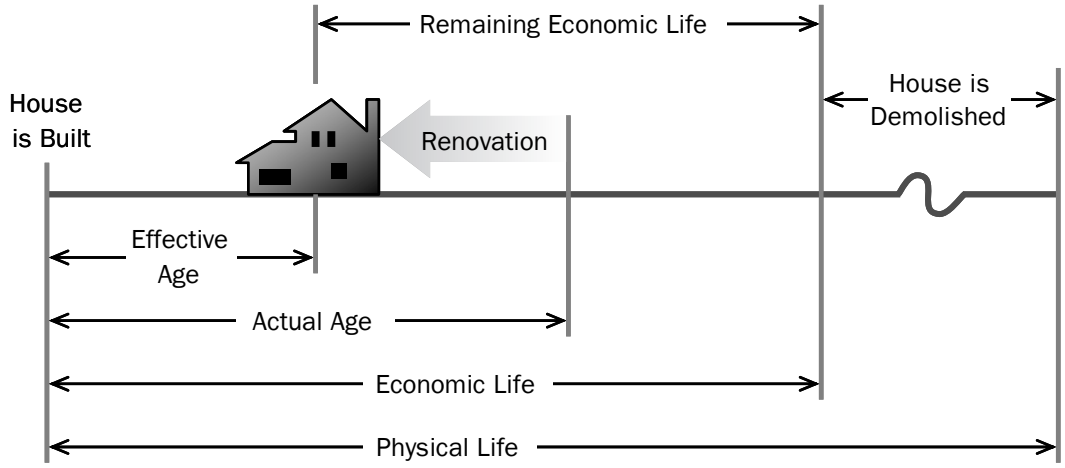
   The number of years that have elapsed since construction of an improvement was completed; also called historical ***or*** chronological age. (Bold added for emphasis.)

4. *Effective age*

   a. *The age of property that is based on the amount of observed deterioration and obsolescence it has sustained, which may be different from its chronological age.*

   b. This may be greater or less than actual age, depending on the maintenance, quality, or design of a structure.

   c. Renovation or rehabilitation may decrease the effective age.



C. Estimating effective age

Residence Description	Effective Age?
1. A 15-year-old house with good maintenance and overall condition.	
2. Same house, but now 25 years old. Updated with new roof shingle, water heater, and furnace. Also new floor covers and new counters and sink in the kitchen.	
3. Same house, but now 50 years old. Same level of updates as when 25 years old, but includes complete redo of kitchen and baths. Siding replaced and retrofitted with energy-efficient windows, addition of Energy Star® appliances and lighting, and new energy-efficient heating and air conditioning system.	
4. Same house, 75 years old, but nothing done since it was updated at age 50. House is kept clean and neat. Real estate agent mentions in the listing data sheet that house needs fresh décor.	
5. Same house, 100 years old. Structure has been moved to a desirable location and placed on a new foundation. Interior is totally gutted and new components installed throughout.	

D. Overview of depreciation methods

You identify depreciation by analyzing improvements and the market's reaction to their perceived condition. For now, you'll take a quick overview of the three methods. A more in-depth discussion will follow in Part 12.

1. _____

   This method relies on the availability of comparable sales from which you can extract the depreciation.

2. _____

   Depreciation from all sources is grouped together in a lump-sum amount that is derived through the use of a ratio applied to the current cost of the structure.

3. _____

   In this method, *the total diminution in the value of a property is estimated by analyzing and measuring each cause of depreciation (physical, functional, and external) separately.*

Review Part 11

Learning Objectives

Now that you've completed Part 11, you should be able to

- ☑ Recognize construction classifications for commercial structures.
- ☑ Identify the basic components of depreciation.
- ☑ List the three primary methods of estimating accrued depreciation.
- ☑ Recognize the definitions of economic life, remaining economic life, actual age, and effective age.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 29, P. 539–542, and Chapters 30–31, P. 543–597

Appraising Residential Properties, 4th ed., Chapter 15, P. 283–309

The Dictionary of Real Estate Appraisal, 6th ed.

Terms and Concepts to Remember

Actual age	Effective age	Physical deterioration
Depreciation	External obsolescence	Remaining economic life
Economic life	Functional obsolescence	

Resources

In Defense of the Cost Approach: A Journey into Commercial Depreciation by E. Nelson Bowes, MAI

You can check resources such as the *Marshall Valuation Service* and the *Residential Cost Handbook* on the Marshall & Swift—CoreLogic website at www.corelogic.com/solutions/marshall-swift.aspxwww.corelogic.com/marshall-swift.aspx. This and other similar services can provide remodeling and retrofit cost data when analyzing depreciation factors.

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.

Review Quiz

Below are examples of different kinds of depreciation. Classify each by entering on the line next to the statement a letter that is best represented by one of the following:

P Physical deterioration

F Functional obsolescence

E External obsolescence

_____ A warehouse building rated for 80 mph winds that is located in a hurricane zone with the potential for 120 mph winds

_____ A 40-year-old oak floor

_____ A 40-year-old kitchen

_____ A broken screen door

_____ A house with a 24-hour truck-stop next door

_____ A house with six bedrooms and one bath

_____ A $200,000 house in a $100,000 neighborhood

_____ A hotel in Phoenix without air conditioning

_____ A restaurant in a town where a major employer has just closed

_____ A restaurant with inadequate on-site parking

_____ A two-bedroom house in a development of four-bedroom houses

Suggested answers are provided in the Solutions Booklet.

Part 12 Preview

Applied Depreciation

Part 12 takes a close-up view of the three methods of depreciation that were introduced at the end of Part 11. There is no practice test at the end of this part, but six problems on depreciation have been included midway through Part 12 that serve the same purpose. For this course, greater emphasis is placed on the market extraction and age-life methods of depreciation. The breakdown method is discussed only briefly since it is an advanced technique and beyond the scope of this course. Nonetheless, it is important for you to understand the general concept of the breakdown method and the terminology associated with this method.

Learning Objectives

To prepare for Part 12, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Use the market extraction method to derive an estimate of total depreciation.
- ☐ Apply the formulas for the age-life method of estimating depreciation.
- ☐ Recognize the terms used in the breakdown method of estimating depreciation.

Learning Tips

Focus on the first two methods of depreciation (market extraction and age-life). You can acquaint yourself with the terms used in the breakdown method, and it would be good to have a general idea of how the breakdown method differs from the other two methods.

Part 12 has six depreciation problems that involve basic math using percents. The formulas have been provided, but remember that these formulas can be used in reverse. For example, if the formula indicates multiplication to solve for a particular component, to solve for another component you will need to use division. The T-Bar can be used to solve percentage problems, but it's now time for you to decide when to insert it as you work through these problems.

One problem (#4) is identified as a "challenge" problem. You can try it, but if you have trouble, complete Problems 5 and 6 before coming back to it.

Part 12.
Applied Depreciation

Part 12 looks at each of the three primary methods used to estimate depreciation. Each method has its strengths and weaknesses. There are some formulas you need to know, but the math is straightforward and easy to understand.

I. Market Extraction Method

A. To derive the depreciation estimate, select similar improved property sales and apply the extraction process.

1. Market extraction can be used to calculate the total depreciation from a sale of an improved property.

2. The extraction process separates component parts from the whole—in this case, the total amount of depreciation is separated from the sale price of a comparable improved property.

B. Steps to use for the extraction method

Step	Procedure
1	Select verified sales of similar improved properties that appear to have incurred a comparable amount of depreciation as the subject property.
2	Adjust the sales for certain factors such as property rights conveyed, financing, and conditions of sale, if necessary.
3	Subtract the value of the land at the time of sale from the sale price of each comparable property to obtain the depreciated cost of the improvements.
4	Estimate the cost of the improvements for each comparable property at the time of sale.
5	Subtract the depreciated cost of each improvement from the cost of the improvements to arrive at an estimate of total depreciation in dollars. This is a lump-sum amount that includes all forms of depreciation.
6	Convert the dollar estimates of depreciation into percentages by dividing each estimate of total depreciation by the cost.
7	Divide the percentage of *depreciation* by the age of the building to convert the percentage to an annual rate.

C. Example of extraction of depreciation

Assume a one-story residence with an actual age of 15 years recently sold, and you're appraising a similar residence located near that sale.

Step	Procedure	Amount
1	Sale price of comparable property	*$ 355,000*
2	Adjustments to sale, if necessary	*-0-*
3	Estimate land value and subtract it from the price	
	Depreciated cost of the improvements	
4	Estimate cost of improvements (rounded)	
5	Subtract the depreciated cost of the improvements	
	Dollar amount of depreciation	
6	Convert to percentage (see formula below)	
7	Convert percent of *depreciation* to an annual rate by dividing it by the age of 15 years	

The formula for Step 6 above:

Depreciation amount

Percent of depreciation | Cost of improvements

1. The extraction procedure above could be employed with a number of sales comparable to the subject property to indicate a discernible pattern.

Market Data	#	Sale Price	Extracted Depreciation	Age	Annual Rate of Depreciation
	1	$337,900	17.5%	15	1.17%
	2	$365,000	16.1%	15	1.07%
	3	$345,000	15.6%	15	1.04%
	4	$358,000	13.9%	12	1.16%

2. The extracted depreciation is total depreciation for each sale. If the sale property has no observable functional or external drawbacks, the depreciation is attributable to physical deterioration (such as wear and tear).

3. The extracted annual rate of depreciation is applied to the subject property's actual age (rather than effective age) to derive the depreciation.

D. Limitations of using extraction for estimating depreciation

1. Accuracy of the method depends on the availability of comparable improved property sales and also on vacant land or site sales.

2. Real property interests conveyed should be the same for the comparable sales and the subject property because adjusting such sales would be difficult.

3. As noted before, the extraction method does not separate the depreciation into categories such as physical, functional, or external.

4. Other limitations are more subtle.

   a. If you use the same properties within the sales comparison approach, there might be a limitation when crosschecking the analysis, because some of the adjustments would have the same source.

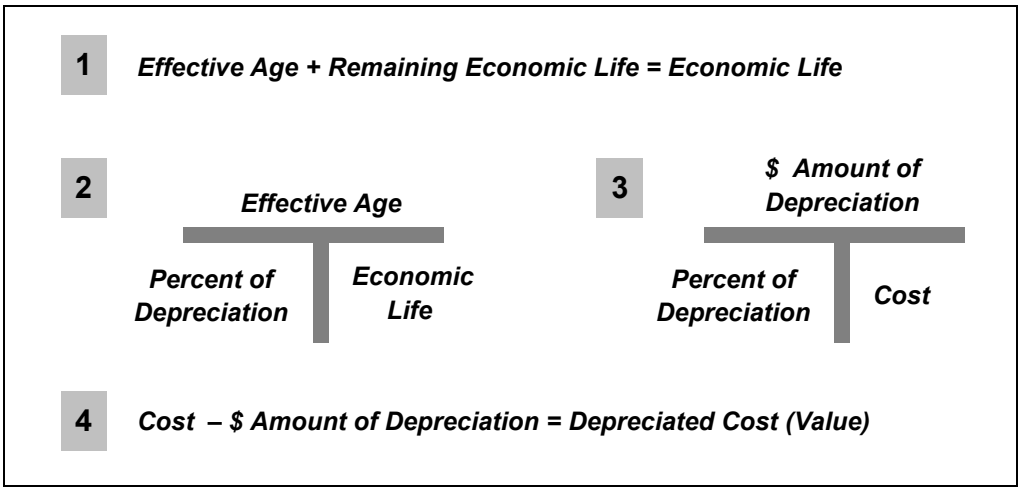
   b. Estimating the cost of a comparable sale in which you have not observed the building interior can be problematic, but not insurmountable.

II. Age-Life Method of Depreciation

A. The age-life method produces an estimate of total depreciation. In other words, depreciation cannot be broken down into the categories of physical, functional, or external.

1. The simplicity of the age-life method is probably its greatest strength, although it does require the appraiser to make judgments about the effective age and remaining economic life of the subject property.

2. The essential formulas for the age-life method include



B. The best way to learn the various components of the age-life method is to work with them. Here are six problems that will bring it together for you.

1. Cole has been working on an appraisal assignment and has estimated the land value at $75,000 and the replacement cost at $260,000. Cole estimates the economic life at 80 years and the remaining economic life at 60 years.

   a. *What is the effective age?*

   b. *What is the percent of accrued depreciation?*

   c. *What is the depreciated cost of the improvement?*

   d. *What is the indicated value using the cost approach?*

2. *If the effective age is 15 years and the remaining economic life is 60 years, what is the percent of accrued depreciation?*

3. Bob is taking courses in how to become an appraiser and has a dog named Bart. He owns a building that has a current cost of $400,000. Economic life is 80 years and I_0 is $35,000. The capitalization rate is 9% and remaining economic life is 70 years. *What is the percent of depreciation for the building?*

4. **Challenge:** Pierce was given the acquisition cost of the property as $876,000 including the land. Actual age is unknown, but Pierce estimated the economic life of the building at 50 years. *What is the annual percent of depreciation?*

5. A property sold for $925,000 and the appraiser concluded the land value is $250,000 based on a comparison of land sales. The appraiser's analysis of the improvements estimates the building has an effective age of 10 years and its replacement cost today is $843,750.

   What is the annual percent of depreciation for the building?

   a. 2.5%

   b. 18.25%

   c. 2%

   d. 20%

   Hint: An initial step must be taken to derive the depreciated cost of the building before the depreciation formulas can be applied.

6. Hagen has estimated the current cost on a building at $435,000 and the land is valued at $150,000. Comparable buildings of similar age and condition have an economic life of about 90 years. Hagen has estimated the remaining economic life at 75 years.

   What is the value of the property by the cost approach?

   a. $512,500

   b. $362,500

   c. $541,500

   d. $487,500

C. Strengths and limitations of the age-life method of depreciation

1. The age-life method is the simplest way to estimate accrued depreciation.

    a. It is the most commonly used method of depreciation, although that doesn't make it the most preferred method. The age-life method works best for newer properties.

2. Because age-life is based on a ratio, it assumes every building depreciates on a straight-line basis over the course of its economic life.

    a. A building that has twice the effective age of another is presumed to suffer from twice as much depreciation.

    b. Not all buildings depreciate in a straight-line manner.

3. Age-life does not divide depreciation into subcategories.

    a. In market areas where properties suffer from different types and amounts of depreciation, the age-life might be difficult to justify.

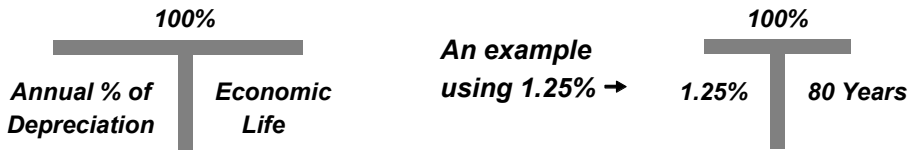
    b. Age-life does not distinguish between short-lived and long-lived items of depreciation. *These two terms will be defined shortly*.

    c. The estimate of remaining economic life is a component used to formulate the ratio of age-life depreciation. This component requires a judgment about future events and thus might be difficult to support.

        - Address this issue by studying the longevity of similar structures.

        - The remaining economic life is still a judgment, but your consistency in using the same approach over multiple assignments will tend to refine your estimate of remaining life.

    d. Since depreciation for this method is assumed to be straight line, you can use market data to derive the economic life from comparable sales. The formula for this process is



4. The age-life method can be modified to account for curable items and external depreciation prior to implementing the formula. This approach enhances its accuracy. These techniques will be addressed in upcoming courses.

III. Breakdown Method of Depreciation

While the breakdown method of depreciation typically is used more in commercial appraisal applications, it is used in residential applications as well. Here is an overview of this method as well as definitions of the associated terms.

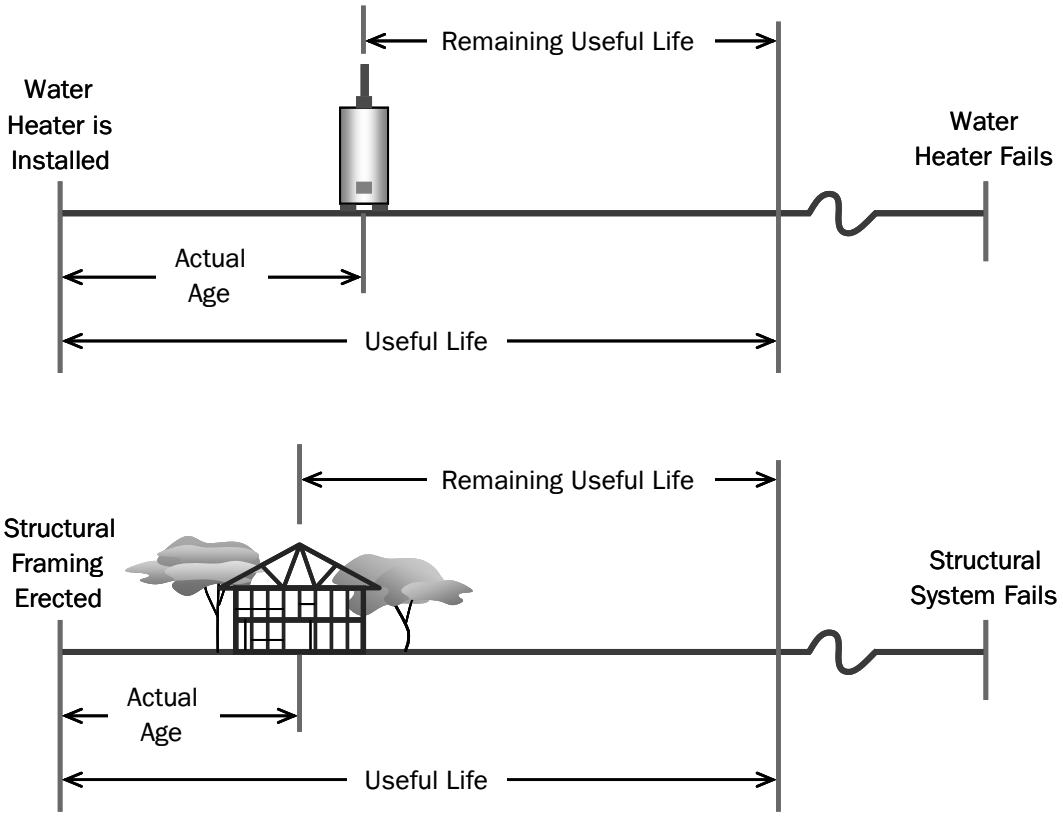
A. Definitions

1. _____

   This is *the period of time over which a structure or a component of a property may reasonably be expected to perform the function for which it was designed.* Useful life is used in the breakdown method to estimate physical depreciation on short-lived and long-lived components.

2. _____

   The estimated period during which improvements will continue to provide utility; an estimate of the number of years remaining in the useful life of the structure or structural components as of the effective date of the appraisal; used in the breakdown method of estimating depreciation.



a. **Actual age** rather than effective age is used in estimating remaining useful life. So, if a water heater has a life expectancy of 10 years, and its actual age is 4 years, the remaining useful life is 6 years.

b. Using actual age for individual building components is less daunting than trying to estimate the effective age for each of these items. Consider the following problematic examples:



- An average asphalt shingle roof has a life expectancy of 16 years. If the roof shingle is protected from the sun's UV rays, the "effective" life could be extended.

- A hot water boiler has a life expectancy of 20 years. But the cast-iron boiler on the right was 66 years old at the time the photo was taken and was still adequately functioning.

B. Depreciation types within the breakdown method

1. Physical deterioration

a. **Curable physical deterioration**

- These are relatively minor items that are normally taken care of in the course of regular maintenance. These items as often referred to as **deferred maintenance**.

- Examples include broken windows, broken steps, and peeling paint on window trim.

- Curable physical deterioration is measured as the cost to cure the identified items.

  Example: A house has a driveway that is cracked and needs repair at a cost of $2,000.

b. **Incurable physical deterioration**

- These are items of *deterioration that cannot be practically or economically corrected as of the effective date of appraisal.*

- Deduct the cost to cure from the cost of improvements (reproduction or replacement cost) after the physically curable items have been addressed and deducted.

– **Short-lived items.** These are components that have an expected useful life that is shorter than that of the entire structure. Examples include roof cover, boiler, carpeting,and appliances.

Depreciation in short-lived building components is measured by applying an age-life ratio to the cost of each component. The age-life ratio is the actual age of the component divided by the estimated total useful life.

Example. The roof on a house is 8 years old and has a useful life of 20 years. The depreciation of this short-lived item is 40% based on the calculation of 8 years / 20 years.

– **Long-lived items.** These are building components expected to have the same useful life as the entire structure. Examples include rafters, framing studs, and foundation walls.

Depreciation in long-lived building components is measured by first deducting the cost of the curable physical items and the incurable physical short-lived components from the total cost estimate. Depreciation in the long-lived components is measured by using an age-life ratio comprised of actual age to total useful life, which is applied to the remaining cost (that is, the cost of the incurable, long-lived physical components).



Digging Deeper

Example. Long-lived items in a house have an actual age of 15 years and a useful life of 60 years. The curable physical items total $5,000. Short-lived components have a cost of $80,000. The cost of the entire property is $250,000. Long-lived components would, therefore, have a cost of $165,000 ($250,000–$5,000–$80,000 = $165,000). This cost of the long-lived items is depreciated at 25% (15 years / 60 years). Applying the 25% estimated depreciation to the $165,000 cost of long-lived items indicates the depreciation in the long-lived items is $41,250 ($165,000 × 25%).

End Digging Deeper

2. Functional obsolescence

   This is a loss in value from defects in design. Examples include an insufficient number of baths, an old-fashioned kitchen, poor layout and design, inadequate heating and cooling, lack of closets, or inadequate insulation.

   a. **Curable functional obsolescence**

      - The cost of replacing the outmoded or unacceptable component must be the same as or less than the anticipated increase in value. For example, a cost benefit analysis may suggest energy retrofitting the structure, potentially resulting in substantially lower maintenance costs that would outweigh minor upfront costs.
      - Functional obsolescence is curable from an economic standpoint.
      - Three categories
        - Deficiency requiring addition
        - Deficiency (defect) requiring substitution or modernization
        - Superadequacies

   b. **Incurable functional obsolescence**

      - The cost of replacing the outmoded or unacceptable component is more than the anticipated increase in value.
      - Two categories
        - Deficiencies
        - Superadequacies

3. External obsolescence

   a. Diminished utility of a structure due to negative influences outside the site and generally incurable. This obsolescence can be temporary or permanent.

   b. When applying the cost approach, the loss in value due to external influences allocated to the improvements can be measured in two primary ways:

      - You can select comparable sales exposed to the same influence as the subject and then pair them against sales that are not exposed to the detriment. When data is available, this is the preferred method.
      - Capitalize the income or rent loss to the building that is attributable to the negative influence. This requires a residual technique.

- An alternative procedure capitalizes the total loss due to external obsolescence at the overall capitalization rate (R_O) or gross rent multiplier (*PGIM* or *EGIM*) and uses the land-to-building ratio to identify the loss in building value. This is because the land has already been valued subject to the obsolescence.

C. Procedures for applying the breakdown method



Purpose: If the purpose is to develop an estimate of total depreciation one item at a time, then follow this procedure:

Step	Procedure
1	Calculate all items of physical deterioration, including deferred maintenance if present, using the appropriate techniques and then add up all the estimates to arrive at total physical deterioration.
2	Calculate all items of functional obsolescence, again using appropriate techniques, and add these estimates together to arrive at total functional obsolescence.
3	Calculate external obsolescence. When external obsolescence cannot be allocated from a lump-sum estimate, it is calculated either through analysis of market data or by capitalization of income loss. Sometimes part of the loss in property value is due to a decline in land value.
4	Add together all physical deterioration (including the cost to cure deferred maintenance), functional obsolescence, and external obsolescence to arrive at an estimate of total depreciation.

Source: *The Appraisal of Real Estate,* 15th ed., Appraisal Institute, Chapter 31, P. 577.

Note. If the purpose is to allocate a known estimate of total depreciation among its various components, a different procedure is employed (see D.2 on the following page).

End Digging Deeper

D. Strengths and limitations of the breakdown method of depreciation

1. The breakdown method is the most comprehensive and detailed way to measure depreciation.

2. When used in conjunction with the market extraction and the age-life methods, the breakdown method can separate the total depreciation into its component parts (physical deterioration, functional obsolescence, and external obsolescence). These can be further broken down into more precise components such as curable and incurable functional obsolescence.

3. Generally, full application of the breakdown method requires too much time and expense to serve as a practical appraisal technique in all situations.

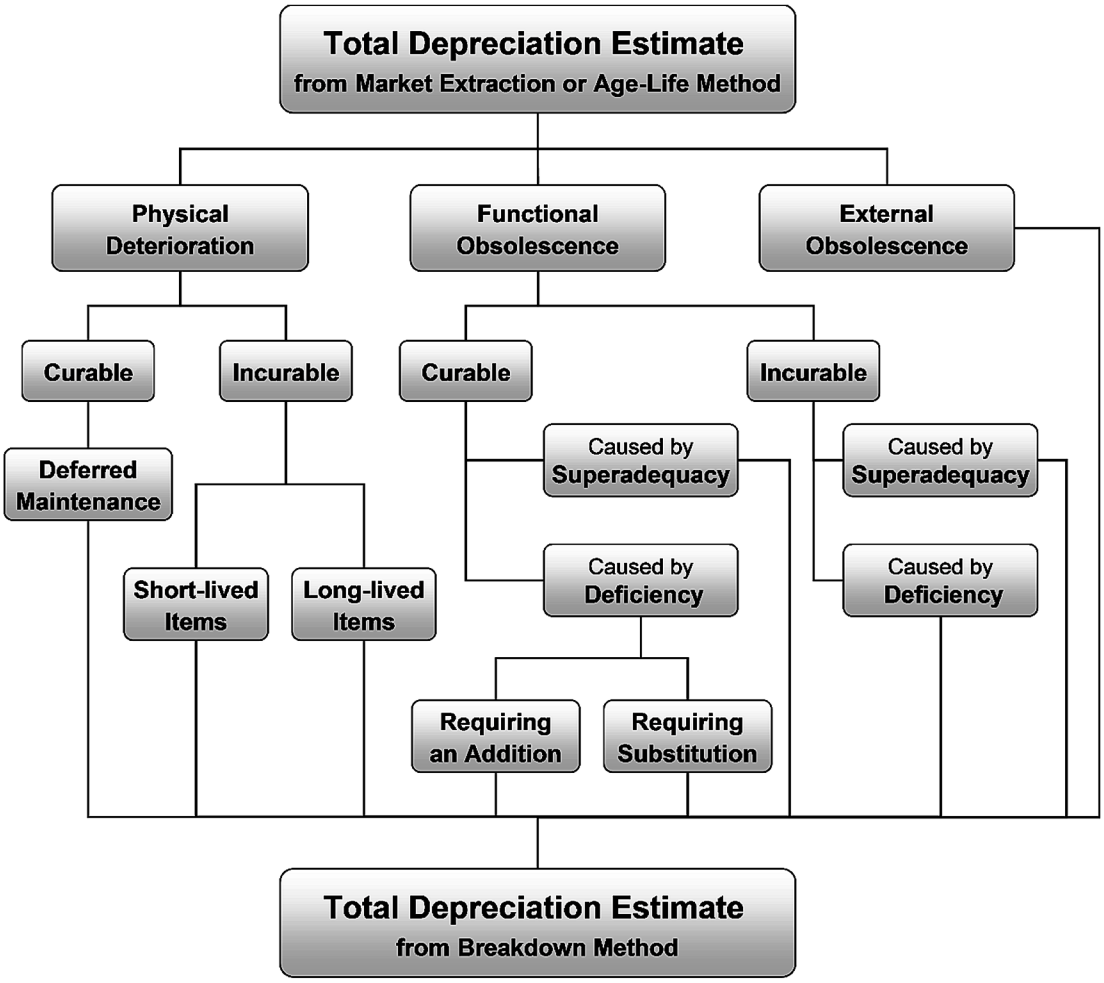
    a. It is primarily used when the appraisal assignment requires that each form of depreciation be accounted for in the appraisal report.

    b. The breakdown method can also be used when the market extraction and age-life methods cannot be applied.

    c. The breakdown method is covered in advanced courses that address cost and depreciation methodology.

Digging Deeper

Breakdown Method—Putting it All Together



Source: *The Appraisal of Real Estate,* 15th ed., Appraisal Institute, Chapter 31, P. 575.

End Digging Deeper

Review Part 12

Learning Objectives

Now that you've completed Part 12, you should be able to

- ☑ Use the market extraction method to derive an estimate of total depreciation.
- ☑ Apply the formulas for the age-life method of estimating depreciation.
- ☑ Recognize the terms used in the breakdown method of estimating depreciation.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 31, P. 559–597

Appraising Residential Properties, 4th ed., Chapter 15, P. 283–309

The Dictionary of Real Estate Appraisal, 6th ed.

Terms and Concepts to Remember

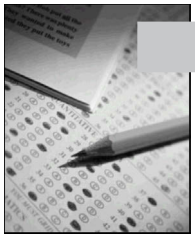
Deficiency	Long-lived items	Short-lived items
External obsolescence	Physical deterioration	Useful life
Functional obsolescence	Remaining useful life	

Resources

In Defense of the Cost Approach: A Journey into Commercial Depreciation by E. Nelson Bowes, MAI

You can check resources such as the *Marshall Valuation Service* and the *Residential Cost Handbook* on the Marshall & Swift—CoreLogic website at www.corelogic.com/solutions/marshall-swift.aspxwww.corelogic.com/marshall-swift.aspx. This and other similar services can provide remodeling and retrofit cost data when analyzing depreciation factors.

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.



Practice Test Section 4

This multiple-choice test is for your benefit and provides a review of everything covered in Section 4. This is a closed-book test. Choose the most correct answer.

1. What type of wall enclosure for a porch is the most costly?

   A. knee wall with glass
   B. open with post supports
   C. screen only
   D. solid wall

2. In the marketplace, a commercial broker might refer to a property as a "Class A" building. This rating refers to

   A. a rating established by the taxing district.
   B. competitive ranking for leasing purposes.
   C. construction classification based on Marshall and Swift/Boeckh.
   D. the building's Blue Book classification.

3. In the cost approach, an appraiser may categorize high interest rates as what type of depreciation accruing to the property?

   A. external obsolescence
   B. financial obsolescence
   C. functional obsolescence
   D. physical deterioration

4. Jacobs is trying to estimate the depreciation of a building's roof by the breakdown method. He knows that the useful life of the roof is 25 years and the actual age is 10 years. Jacobs' trainee, however, believes the effective age of the roof is 15 years due to some storm damage. What is the percent of depreciation for the roof?

   A. 28.5%
   B. 37.5%
   C. 40%
   D. 60%

5. Hopkins sold a warehouse for $950,000, in which the land value was estimated at $250,000. If the cost to replace the existing warehouse building is $1.5 million, what is the dollar amount of depreciation accrued to the building?

- A. $550,000
- B. $700,000
- C. $800,000
- D. $1,250,000

6. A manufactured home has an effective age of 30 years and a remaining economic life of 20 years. What is the percent of depreciation for the building?

- A. 40%
- B. 50%
- C. 60%
- D. 67%

7. An apartment building has plumbing and electrical systems that are deteriorated to the point of requiring complete replacement. This depreciation can be identified as

- A. external obsolescence.
- B. functional curable obsolescence.
- C. physical curable deterioration.
- D. physical incurable deterioration.

8. When using the economic age-life method of depreciation, what type of depreciation is actually measured?

- A. external obsolescence
- B. functional obsolescence
- C. physical deterioration
- D. all types of depreciation

9. **Challenge:** A buyer was interested in building on a lot next to a highway and wanted to know how much of a loss might be attributed to the traffic influence. The buyer's new house will cost $375,000 and the site was recently purchased for $150,000. What is the value of the property if the market indicates a 15% loss due to the highway influence?

- A. $431,250
- B. $446,250
- C. $468,750
- D. $502,500

Section 5

5

Part 13. Land or Site Valuation

Part 14. Property Description

Part 15. Sales Comparison Approach

Part 13 Preview

Land or Site Valuation

While land valuation is the first step of the cost approach, its importance in appraisal analysis goes beyond the cost approach. That's why all of Part 13 is devoted to this topic. The primary material is introduced on the third page under the heading of *Land Valuation Procedures.* This is where the discussion about the six procedures for analyzing land or site value begins.

Learning Objectives

To prepare for Part 13, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Identify reasons why appraisers need to value land separately in appraisal assignments.
- ☐ Recognize the economic principles that influence land or site value.
- ☐ Identify the six procedures for analyzing land or site value.
- ☐ Identify the (+ or –) direction of adjustments in sales comparison analysis.

Learning Tips

You should be able to recall the six procedures for estimating land or site value from Part 2. The good news is that you don't have to be concerned about knowing how to carry out the last three procedures (which are land residual, ground rent capitalization, and subdivision development analysis). For Part 13, you'll spend most of your time on the first three procedures. That doesn't mean the remaining three procedures are unimportant. The reason they are not covered in this course is that they fall into the area of advanced income capitalization.



Toward the end of the Part 13, there is a continuation of the Oak Street Case Study. You will use the techniques you've learned in this part and apply them to the case study property. The exercise on sales comparison might look overwhelming with the market grids for six sales, but it is not as complex as it appears. You should enjoy this application of sales comparison in relation to valuing finished sites.

Part 13.
Land or Site Valuation

You know that land valuation is part of the cost approach, but you'll want to look at land valuation in this session in a broader context.

> **Step 1**. The first step of the cost approach is to estimate the value of the land as though vacant and available to be developed to its highest and best use.

I. Overview of Land or Site Valuation

A. The following are some reasons why appraisers might need to value land or a site in an appraisal assignment.

1. **Vacant land or site.** The appraiser would obviously need to value the land or site in this type of assignment. This could include raw undeveloped land or a finished site.

2. **Highest and best use as though vacant.** If the land is improved with buildings, the appraiser still has to estimate the value of the site as if it were vacant and available to be put to its highest and best use.

3. **Cost approach.** As part of the cost approach, the appraiser values the land or site separately as if vacant and then adds the depreciated value of the building and site improvements.

4. **Income capitalization approach.** Some techniques in the income capitalization approach, in particular residual techniques, require an estimate of the land or site value.

5. **Property taxation.** When assessed values are calculated, a separate valuation is performed for the land or site.

6. **Insurance.** Fire insurance is typically written on the building improvements—not on the land or site.

7. **Condemnation.** When a portion of a property is condemned in eminent domain proceedings, it is often necessary to identify separate values for the area acquired by the condemning authority and the remaining land or site area.

B. Land or site value is an integral part of the valuation process in addition to being one of the steps in the cost approach. Analysis performed in Step 4 establishes the basis for the estimate of land value.

Land Value Opinion

Application of the Approaches to Value		
Sales Comparison Approach	Income Capitalization Approach	Cost Approach

C. Relationship to appraisal concepts, highest and best use, and economic principles

1. Highest and best use. Land has first claim on any income generated by the property and takes priority over any return on the improvements. Land is said to *have* value, while improvements *contribute* to value. When improvements no longer contribute to property value, demolition is indicated.

2. Land and site value is influenced by economic principles.

    a. Anticipation

    b. Change

    c. Supply and demand

    d. Substitution

    e. Balance

    f. Externalities

3. The supply of land is relatively stable, so it is particularly sensitive to laws of supply and demand.

4. Land has value because it provides potential utility for development.

5. Property rights attached to the land are the focus of the appraiser's initial analyses. Of particular interest is the influence of government or public controls that may limit development of land, such as

    a. Zoning

    b. Master plans

    c. Other restrictions placed on land for development, such as moratoriums, open space or green belts, and environmental screening.

d. Eminent domain is one of the four powers of government and can be used to remove land from private use and augment the supply of public land.

e. Transferable development right (TDR). Examples of TDRs might be excess water and sewer capacity, air space, and builder's density rights (such as in the use of FAR).

> **Transferable development right (TDR).** *A development right that cannot be used by the landowner, or that the owner chooses not to use, but can be conveyed to landowners in another location or leased for a period of years to then revert back to the original owner; TDRs are said to be transferred from a landowner in a sending district to the use of a landowner in a receiving district.* TDRs are generally used to preserve agricultural land; may also be used to preserve historic sites or buildings and open space or to protect scenic features.

f. Open space and conservation easements. These are permanent encumbrances that limit or prohibit future development.

6. Land cannot physically depreciate in value, although the value of land and sites can be affected as a result of external conditions and market forces.

II. Land or Site Valuation Procedures

The six procedures for analyzing and deriving a land value opinion

1. Sales comparison
2. Extraction
3. Allocation
4. Land residual
5. Ground rent capitalization
6. Subdivision development analysis

On the pages to follow, we will look more closely at the first three procedures in the list for valuing land or site. The other three are more commonly used in commercial land or site valuation (i.e., Procedures 4–6) and will be discussed in more detail in other courses.

A. **Sales comparison.** In this procedure, the appraiser selects sales of similar parcels. The sales are analyzed, compared, adjusted, and reconciled into an indicated value for the subject property. Sales comparison is the most common procedure used to value land or site—and **it is the preferred method** when adequate data is available.

Sales comparison analysis is also the preferred method for valuing improved properties (as will be evident in Part 15 on the Sales Comparison Approach).

1. Data requirements

    a. **Sales**

        - The appraiser typically will check several sources such as
            - Multiple listing service (MLS), sale databases, and exchanges
            - Newspaper stories and advertisements
            - Public records
            - Interviews with buyers, sellers, and agents
            - Data can also be obtained from lawyers, lenders, assessors, municipal and county employees (such as planners), as well as other appraisers
        - Investigation process includes
            - Zoning
            - Highest and best use
            - Site improvements, if any
            - Physical characteristics
        - The appraiser will also need to verify retrieved information to ensure it is reasonably reliable for valuation purposes.

    b. **Listings** can be used to analyze current market competition. When the subject property is offered for sale, comparing competitive transactions, listings, and other offerings to the subject property's list price helps to give a perspective of what might be a reasonable marketing time in situations where this is an assignment condition.[6]

6. USPAP provides additional guidance in Advisory Opinion 1, Sales History.

c. **Offers to purchase**, when available, can give the appraiser the most current picture on what is taking place in the market.

d. **Options** provide the appraiser with information on potential competition.

2. Elements of comparison

> **Elements of comparison.** *The characteristics or attributes of properties and transactions that cause the prices of real property to vary.*

In land and site valuation (as well as for improved properties), the adjustments for the elements of comparison are usually applied in the following order:

a. **Property rights conveyed.** The appraiser must ascertain the ownership rights that are involved in the sale transactions.

b. **Financing terms.** Non-market financing might be involved in the sale transaction, and the appraiser must analyze the financing and make an adjustment if necessary.

c. **Conditions of sale.** The sale is analyzed for any unusual motivations on the part of the buyer or the seller.

d. **Expenditures made immediately after purchase.** A knowledgeable buyer considers expenditures that will have to be made upon purchase of a property. These potential expenditures can have an effect on the price.

e. **Market conditions.** Market conditions can quickly change during the normal marketing period from which the appraiser retrieves data.

f. **Location and geography.** Land and sites are particularly sensitive to their immediate environments. External factors may significantly affect value, including

   - View
   - Climate/weather issues/environmental hazards
   - Linkages
   - Recreational facilities
   - Population/density

g. **Physical and geographical characteristics**

- Size of the parcel or site
- Shape
- Frontage (road, river, lake, ocean)
- **Corner influence.** *The effect on value produced by a property's location at or near the intersection of two streets; the increment of value or loss in value resulting from this location or proximity.*
- **Plottage value.** *The increment of value that often occurs when two or more sites are combined to produce greater utility.* The process that creates plottage is called **assemblage.**
- Excess land and surplus land
- Topography/terrain
- Orientation
- Solar access
- Drainage/water table/topsoil and subsoil conditions
- Utilities
  - Water
  - Sewers
  - Storm drains
  - Electricity
  - Gas
  - Telephone, cable, fiber optics
- On-site improvements
  - Grading
  - Landscaping
  - Paving
  - Electricity
- Off-site improvements
  - Streets
  - Curbs
  - Sidewalks
  - Lighting
  - Connecting utility lines
- Accessibility

h. **Economic characteristics.** Interest rates, credit availability, employment levels, and the general economic outlook form these characteristics.

i. **Use/zoning.** The area comprehensive plan influences present/future use.

j. **Non-realty items.** These can include furniture, fixtures, and equipment.

3. Units of comparison

> **Units of comparison.** *The components into which a property may be divided for purposes of comparison, e.g., price per square foot, front foot, cubic foot, room, bed, seat, apartment unit.* These units usually facilitate analysis even when the properties are not very comparable.

Land and site characteristics can vary significantly, making it difficult to directly compare two land parcels. The size difference in comparable parcels can be problematic. For example, the appraiser may find land or site sales that range from $50,000 to $150,000; however, when these sales are broken down to price per acre, the appraiser finds a much tighter pattern. The range could easily be $10,000 to $15,000 per acre. The lesson is that sales data must be carefully selected and analyzed using all appropriate units of comparisons.

Units of comparison considered by the appraiser are the same as those used by participants in the market. For example, buyers and sellers of farmland and other large parcels think in value terms of "x" dollars per acre. Appraisers apply these same units of comparison found in the marketplace to their analysis of the land or site to derive a credible value opinion.

Common units of comparison are

a. **Acre**

b. **Square foot.** Used for smaller-sized parcels, usually less than 1 acre.

c. **Front foot.** Usually used in waterfront or commercial properties where the most important consideration is how much frontage there is on the water or on a busy thoroughfare.

d. **Lot or plot.** In some instances, an appraiser may observe a pattern in lots that are ready for improvement in which the price does not vary based on discernible differences. In other words, a 1.5-acre parcel may sell at the same price as a 2.5-acre parcel because buyers treat them as comparable lots.

e. **Buildable unit.** For development land, a pattern may develop where builders pay consistent prices for a site based on how many units the site will support (depending on what is allowed by zoning, topography, access, and utilities). Some parcels may sell at a certain price per permitted unit.

Unit of Comparison Problem

Examine the sale data below and determine which unit of comparison the market appears to be favoring for comparison purposes.

DATA	Sale 1	Sale 2	Sale 3	Sale 4
Sale price	$110,000	$160,000	$126,000	$143,500
Size	5 acres	8 acres	6 acres	7 acres
Front footage	846 feet	800 feet	840 feet	820 feet
Buildable units	10	16	10	10

WORKSHEET	Sale 1	Sale 2	Sale 3	Sale 4
Sale price	*$110,000*	*$160,000*	*$126,000*	*$143,500*
Price per acre				
Price/front foot				
Price per unit	*$11,000*	*$10,000*	*$12,600*	*$14,350*

What is the best unit of comparison?

4. Adjustment process. The appraiser must perform several tasks in developing an opinion of site value.

   a. Gather data on actual sales as well as listings, offers, and options.

   b. Identify the similarities and differences in the data.

   c. Identify the highest and best use of each potential comparable sale.

d. Identify units of comparison that explain market behavior.

e. Adjust the sale prices of the comparable sales to account for the dissimilar relevant characteristics of the land being appraised.

f. Form a conclusion as to the market value of the subject land or site.

5. During reconciliation of the comparable sales, the appraiser will use various **measures of reliability** to weigh the sales for their comparability to the subject property. The following measures can be used for that purpose:

   a. **Number of adjustments.** Generally, the fewer the adjustments, the more comparable the property.

   b. **Gross adjustments.** This is the total dollar amount of adjustments regardless of whether they are positive or negative.

   c. **Net adjustments.** This is the net dollar amount after all plus and minus adjustments have been applied.

   d. **Amount of available data.** This affects the overall reliability of the approach.

6. Derivation of adjustments

   a. Paired data analysis

   b. Cost to cure

      - Lack of utilities
      - Demolition required
      - Contamination or hazards (such as remediation cost)

   c. Capitalization of ground rent. In this analysis, the appraiser compares the capitalized values of leased land (or site) parcels.

   d. Present value calculations

      - *Financing.* If financing is involved, a cash equivalent price can be calculated.
      - *Property rights.* Comparison of market rent and contract rent plus consideration of reversionary value.

   e. Linear regression

   f. Interviews with market participants, or surveys

g. Personal judgment

7. Types of adjustments

   a. **Percentage adjustments.** Used frequently in land and site appraisals. For example, an appraiser might indicate that Comparable A is 10% superior in location to the subject property, rather than using a dollar amount.

   b. **Dollar amounts.** This is a more common method and preferred by lenders. For example, Comparable A is $10,000 inferior to the subject property in location.

8. Entering adjustments on a market grid

   Based on the features below, write in whether the adjustment should be a plus or a minus for the comparable sale.

Feature	Subject Property	Comparable Sale	
Value Adjustments	Description	Description	+/− Adjustment
If the feature is…	Average	Superior	
If the feature is…	Average	Inferior	
If the feature is…	Size related	Smaller	
If the feature is…	Quantity related	More	
If the feature is…	Absent	Present	

   a. The subject property is treated as the base, and the comparable sales are adjusted for differences when compared to the subject property.

   b. The value of an item superior to the subject property is subtracted from the comparable price. The value of an inferior item is added to the comparable sale price.

   c. The net adjustment is the sum of all the individual line adjustments.

   d. The net adjustment is added or subtracted from the sale price to provide an adjusted sale price of the comparable sale.

B. **Extraction**

> **Extraction**. *A method of estimating land* (or site) *value in which the depreciated cost of the improvements on an improved property is calculated and deducted from the total sale price to arrive at an estimated sale price for the land* (or site). (Words in parentheses were added for clarity.)

1. Appraisers are not always fortunate to have vacant land or site sales. Extraction is an alternative procedure the appraiser can use to derive land or site value.

2. **Extraction steps**

   a. Find an improved property sale in which the site is comparable to the subject's site.

   b. Obtain an accurate description of the improvements.

   c. Undertake a cost analysis and develop the depreciated cost of all site improvements for the comparable sale.

   d. Deduct the depreciated cost from the sale price. The residual value can be attributed to the site.

C. **Allocation**

> **Allocation**. *A method of estimating land value in which sales of improved properties are analyzed to establish a typical ratio of land value to total property value and this ratio is applied to the property being appraised or the comparable sale being analyzed.*

1. The principles of balance and contribution affirm that there is a normal, or typical, ratio of land value to property value for specific types of properties.

2. When vacant land sales are rare or nonexistent, the appraiser can analyze sales of improved properties in competitive neighborhoods and apply an allocation procedure to derive the land value.

3. To use the allocation procedure, the appraiser must identify the typical land-to-property-value ratio in the subject's area. Sources might include

   a. Mass appraisal data (assessor's office is a common source for this data)

   b. Developers

   c. Data derived from appraisals in which extraction procedures were used.

      Example. Over a period of several years, an appraiser might perform a number of appraisals in the same market area using extraction to derive land value. That data can be accumulated and studied to indicate a typical allocation between land and total property value. If the appraiser's data indicates an allocation of 40%, the percent can be applied as follows:

      Total property value = $150,000. Land allocation = 40%. Land = $60,000.
      Calculation: $150,000 × 0.40 = $60,000

4. The appraiser can derive the ratio from extracted sales data and then apply the allocation ratio to the subject property.

Sale	Sale Price	Estimated Land Value	Allocation
1	$325,000	$125,000	38.5%
2	$310,000	$109,000	35.2%
3	$345,000	$139,000	40.3%
4	$295,000	$100,000	33.9%
5	$314,000	$120,000	38.2%

Example. Subject property's appraised value is $330,000. If the allocation ratio is derived as 38%, the indicated land value for the subject property is $125,400.



Digging Deeper

D. Land or site valuation using income capitalization procedures

1. Direct capitalization—**land residual**. This method can be used to estimate land or site value in income-producing properties when

> **Land residual technique.** *A method of estimating land value in which the net operating income attributable to the land* (or site) *is capitalized to produce an indication of the land's contribution to the total property.* (Words in parentheses were added for clarity.)

   a. Building value is known or can be accurately estimated.

   b. Stabilized, annual net operating income (I_O) is known or can be accurately estimated.

   c. Building and land capitalization rates can be extracted from the market.

2. Direct capitalization—**ground rent capitalization**

> **Ground rent capitalization.** *A method of estimating land* (or site) *value; applied by capitalizing ground rent at a market-derived rate. This method is useful when comparable rents, rates, and factors can be developed from an analysis of sales of leased land* (or site parcels) *or other market sources.* (Words in parentheses were added for clarity.)



Digging Deeper, cont.

a. Ground rent is the amount paid for the right to use and occupy the land (or site) according to the terms of a ground lease.

b. If the current rent is not market rent, the market rent must be estimated and used in the analysis. The rent is then divided by an appropriate capitalization rate to derive the estimate value.

c. This procedure is rarely used in residential land or site valuation, except in some areas like Hawaii where much residential development takes place on land or site that is under long-term lease.

d. It is more applicable to commercial properties where improvements may be built to suit a tenant on leased land (or site parcel). Differences in lease terms, escalation clauses, and option periods must be ascertained and accounted for.

3. Yield capitalization—**subdivision development analysis**

> **Subdivision development method.** *A method of estimating land value when subdividing and developing a parcel of land is the highest and best use of that land. When all direct and indirect costs and entrepreneurial incentive are deducted from an estimate of the anticipated gross sales price of the finished lots (or the completed improvements on those lots), the resultant net sales proceeds are then discounted to present value at a market-derived rate over the development and absorption period to indicate the value of the land.*

a. This procedure is used to value unimproved or improved land when subdivision and development is the highest and best use.

b. It may involve residential, industrial, or recreational land.

c. The value of the land is estimated by subtracting all the costs of development (including hard costs, selling costs, contractor's overhead and profit, and developer's profit) from the anticipated total of the projected sale prices, discounted for sell-out time.

   Note. In subdivision development, *entrepreneurial incentive* may be referred to as *developer's profit*.

d. The method makes use of discounted cash flow (DCF) analysis.

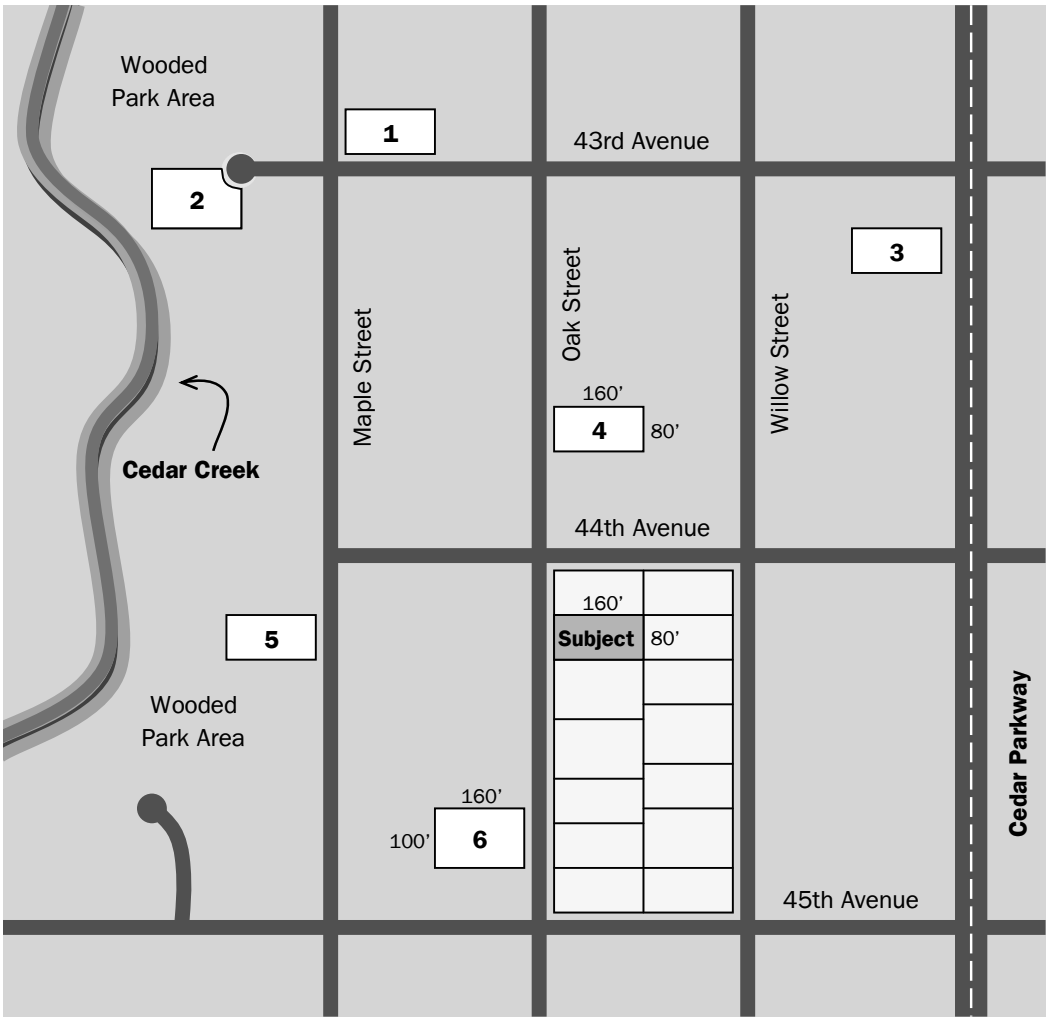
End Digging Deeper



Oak Street Case Study (Part II)—Sales Comparison and Site Valuation

The map below will help you visualize the location of the comparable site sales and the market factors influencing value.

Location of Comparable Site Sales



Vacant Lot (Site) Sales

Feature	Sale 1	Sale 2	Sale 3	Sale 4	Sale 5	Sale 6
Address	4240 Maple	3512 43rd	4315 Cedar	4330 Oak	4415 Maple	4435 Oak
Sale price	**$62,000**	**$78,900**	**$55,500**	**$60,000**	**$66,500**	**$68,600**
Dimensions	80' × 160'	100' × 160'	80' × 160'	80' × 160'	80' × 160'	100' × 160'
View	None	Creek/Trees	None	None	Creek/Trees	None
Amenities	None	Cul-de-sac	None	None	None	None
Externalities	None	None	Traffic	None	None	None

Sales Comparison Adjustment Process

Sales 1 and 4 are considered standard **base lots** for the area. The features identified below are either superior or inferior to this base. Research has uncovered the following:

1. Sales backing up to the wooded creek are about _____
2. Sales with larger (100' wide) lots are about _____
3. Sales with frontage on Cedar Parkway are about _____
4. Sales located on a cul-de-sac are about _____

Note. If the featured item is superior to the base, subtract the amount; if inferior, add the amount.

Feature	Sale 1		Sale 2		Sale 3	
Address	4240 Maple Street		3512 43rd Avenue		4315 Cedar Parkway	
	Description	+/– Adjust.	Description	+/– Adjust.	Description	+/– Adjust.
Sale price		$62,000		$78,900		$55,500
Dimensions	80' x 160'		100' x 160'		80' x 160'	
View	None		Creek/Trees		None	
Amenities	None		Cul-de-sac		None	
Externalities	None		None		Traffic	
Net adjustment						
Adjusted price						

Feature	Sale 4		Sale 5		Sale 6	
Address	4330 Oak Street		4415 Maple Street		4435 Oak Street	
	Description	+/– Adjust.	Description	+/– Adjust.	Description	+/– Adjust.
Sale price		$60,000		$66,500		$68,600
Dimensions	80' x 160'		80' x 160'		100' x 160'	
View	None		Creek/Trees		None	
Amenities	None		None		None	
Externalities	None		None		None	
Net adjustment						
Adjusted price						

The subject property is a **base lot** located at 4410 Oak Street. Once the six sales are adjusted to the base, reconcile the sales into an indicated site value for the subject property.

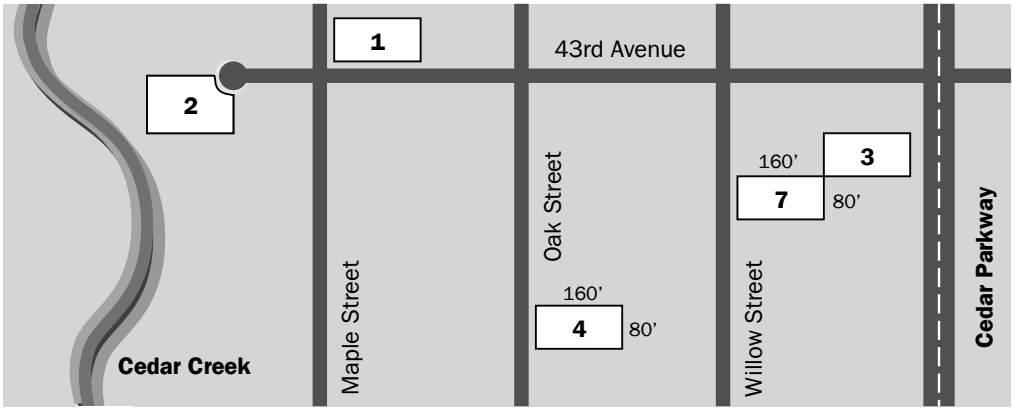
Indicated site value for the subject property by Sales Comparison: _____

Oak Street Case Study (Part II continued)—Extraction Example

Now that we have an indicated site value based on sales comparison, let's try an extraction procedure to derive a site value for 4410 Oak Street.

Sale 7 is located at 4320 Willow Street and is also a base lot with similar features to the subject property, but it is improved with a residential dwelling.

Feature	Subject Property	Sale 7
Address	4410 Oak Street	4320 Willow Street
Sale Price		**$176,000**
Dimensions	80' × 160'	80' × 160'
View	None	None
Amenities	None	None
Externalities	None	None



Sale 7 includes a one-story dwelling, and the current cost of improvements is **$156,000**. *If the effective age is estimated at 20 years and the remaining economic life at 60 years, what is the depreciated cost of the improvements?*

What is the indicated site value for the subject property based on extraction of Sale 7?

Review Part 13

Learning Objectives

Now that you've completed Part 13, you should be able to

- ☑ Identify reasons why appraisers need to value land separately in appraisal assignments.
- ☑ Recognize the economic principles that influence land or site value.
- ☑ Identify the six procedures for analyzing land or site value.
- ☑ Identify the (+ or –) direction of adjustments in sales comparison analysis.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 19, P. 335–349, and Chapter 28, P. 512–517 (pertains to Digging Deeper section)

Appraising Residential Properties, 4th ed., Chapter 12, P. 237–255

Additional Sources

Land Valuation: Adjustment Procedures and Assignments by James H. Boykin, MAI, SRA, 2001

Subdivision Valuation by Don M. Emerson, Jr., MAI, SRA, 2008

Note. More advanced books on land valuation specialties such as conservation easements, wetlands, water rights, and contaminated properties can be found at www.appraisalinstitute.org. Click on "Publications" and "All Books."

Terms and Concepts to Remember

Allocation	Extraction	Sales comparison
Corner influence	Plottage (assemblage)	Units of comparison
Elements of comparison		

Resources

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.

Review Quiz

This multiple-choice quiz is similar to a practice test. You can look up an answer if you get stumped on a particular question. Choose the most correct answer.

1. Which land/site valuation procedure requires a cost estimate of the improvements for each of the comparable sales?

   A. extraction
   B. ground rent capitalization
   C. land residual technique
   D. sales comparison

2. Assemblage is the process of combining two or more sites in order to produce greater utility. The increment of value created from assemblage is called

   A. ground capitalization.
   B. plottage.
   C. residual value.
   D. subdivision incremental value.

3. An appraiser made the following dollar adjustments to a comparable sale of vacant land: +$5,000; –$2,000; and –$6,000. What is the gross adjustment for the land comparable?

   A. –$8,000
   B. –$2,000
   C. +$3,000
   D. +$13,000

4. Components into which a property may be divided for purposes of comparison are called

   A. adjustment items.
   B. attribute characteristics.
   C. elements of comparison.
   D. units of comparison.

5. What is the preferred method of land or site valuation when adequate data is available?

- A. allocation
- B. extraction
- C. land residual technique
- D. sales comparison

Part 14 Preview

Property Description

In the materials package that came with your Course Handbook you will find some forms. You will use these appraisal reporting forms as part of an extended case study. Because there are multiple pages to the Fannie Mae appraisal form, your instructor will help you to identify the first page where you will start.

Important Note. Please keep in mind that our purpose in using the Uniform Residential Appraisal Report (URAR) form in this case study is twofold:

1. To see how the valuation process works through the use of a common appraisal report form
2. To demonstrate the sales comparison approach in a practical manner

Our goal is not to teach you how to fill out the URAR form. Instead, we want the form to serve as a structural blueprint for selecting, analyzing, and reconciling sales data into a value opinion. Some sections and individual entries of the URAR will not be addressed during the class, so the form will be used for selected parts of the valuation process.



In order to effectively carry out the sales comparison approach, the appraiser must know something about the property to be appraised. What better way to accomplish this task than to work it all out on an appraisal report form? With the form in front of you, you will notice that the *Subject* and *Neighborhood* sections are already filled in. We want you to read this information to gain a better understanding of the market for the subject property on Oak Street. Your instructor may elect to highlight certain areas in the neighborhood section. In case you've forgotten the terms *exposure time* and *marketing time* from *Basic Appraisal Principles*, we have included information in the review section of Part 14 that will help you recall and expand your understanding of these terms, as well as detail *reasonable exposure time*.

Learning Objectives

To prepare for Part 14, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Develop a property site description in an appraisal report.
- ☐ Recognize zoning terminology.
- ☐ Describe residential improvements on an appraisal report form.
- ☐ Recognize the components of a neighborhood analysis created for a form report.

Learning Tips

Your instructor cannot cover every detail while addressing the various components of the form—that's not our objective. We want you to work on the form at a comfortable pace—there is no need to rush through it.

What About UAD Compliance?

In 2011, Fannie Mae and Freddie Mac implemented the **Uniform Appraisal Dataset (UAD)**. The UAD defines all fields required for an appraisal submission of specific appraisal forms and it standardizes definitions and responses for a key subset of fields. The UAD protocol is now required for appraisal reports that are submitted to Government Sponsored Enterprises (GSEs) such as Fannie Mae and Freddie Mac, as well as FHA and VA. However, the **Oak Street Case Study** is not intended to teach class participants how to complete the URAR form—either for lending purposes or for meeting the UAD requirements.

The purpose of the Oak Street Case Study is to facilitate your understanding of the valuation process—which is the central theme of the course. The use of a commonly used appraisal report format such as the URAR is helpful in accomplishing that purpose. Because the learning focus is the valuation process and not how to complete a specific report form, no attempt is made to have the case study comply with the UAD protocol. To do so would likely cause confusion because the GSEs did not update the URAR form to accommodate the new protocol. Instead, the UAD repurposes existing fields in the URAR form to include a standardized response or, in some cases, more data points. UAD also requires specific abbreviations that would be burdensome to learn, and knowledge of such terminology is not part of state license exams for appraisers.

Please be aware that UAD compliance is required under specified conditions—such as for appraisal reports that are transmitted by a lender to Fannie Mae, Freddie Mac, FHA, and VA. However, a lender may choose to order an appraisal for internal use that does not conform to UAD. That will be our assumption for the Oak Street Case Study.

Part 14.
Property Description

Are you ready to do an appraisal assignment? Well, that's your job for the remainder of this course. To learn appraising, it certainly makes sense that you should do an appraisal. Since this is a residential assignment, we may have a few detours here and there to cover issues important to commercial or agricultural appraising. For the most part, you will find that the procedures and techniques in sales comparison analysis are very similar whether you are appraising a residence or a commercial property.

Appraisal Report Form Handout. At this time, your instructor will help you to find the Fannie Mae – Freddie Mac appraisal report form that was included with your materials. The Uniform Residential Appraisal Report (URAR) form is widely used by financial institutions for the valuation of one-unit residences. Portions of the form are already filled in, while other sections have been left blank for you to complete.

I. The Valuation Process in a Form

A. The Uniform Residential Appraisal Report (URAR) form is commonly referred to as the Fannie Mae 1004 appraisal. The form was jointly designed by Fannie Mae and Freddie Mac. Numerous agencies such as Housing and Urban Development (HUD), FHA, and VA also use this same form for residential lending valuations.

1. There are 11 sections in the URAR.

   a. Subject
   b. Contract
   c. Neighborhood
   d. Site
   e. Improvements
   f. Sales Comparison Approach
   g. Reconciliation
   h. Additional Comments
   i. Cost Approach
   j. Income Approach
   k. PUD Information

2. The URAR also has three pages that address

    a. Scope of work

    b. Intended use

    c. Intended user

    d. Definition of market value

    e. Statement of assumptions and limiting conditions

    f. Appraiser's certification and supervisory appraiser's certification

3. Large volume users of appraisal services, such as HUD and Fannie Mae, have their own appraisal guidelines for completion of the URAR form. For our purposes in class, we will generally follow guidelines published by Fannie Mae.

    a. Guidelines from major providers typically include a list of unacceptable appraisal practices. Periodically, we will reference these items.

    b. HUD requires appraisers to complete the URAR form in a slightly different manner than Fannie Mae. That's because each client has specific issues that are important to the client. For example, HUD is more stringent on requiring repairs for specific conditions, whereas Fannie Mae is less so in that regard. Other than these types of distinctions, appraisers address the same issues in the form for all their clients.

B. As you begin your appraisal career, you will discover that your clients use different types of appraisal report forms to meet their specific needs. Lenders use a variety of residential appraisal report forms. Commercial appraisals may be performed using the Uniform Commercial Industrial Appraisal Report (UCIAR) form.

C. In addition to the URAR, other commonly used forms in residential assignments include

1. Form 1004C—Manufactured Home Appraisal Report

2. Form 1025—Small Residential Income Property Appraisal Report

3. Form 1073—Individual Condominium Unit Appraisal Report

4. Fannie Mae, Freddie Mac, and other organizations have specialized forms that are continuously updated to meet the needs of their underwriting programs. One such recent form is the Fannie Mae **Market Conditions Addendum**, form 1004MC, which is included in your materials package.

    Note. Although the Market Conditions Addendum Form 1004MC is no longer required by Fannie Mae or Freddie Mac, some lenders still require it.

II. Oak Street Case Study (Part III)—Property Description



This is the third part of this extended case study. In Part 9, you analyzed current cost. In Part 13, you derived a land value for the Oak Street property. In this part, you'll be completing several sections of the URAR form in order to better understand property description and its importance to the valuation process.

> **Note.** There are many ways to communicate the description of a property to the client. We'll be looking at one method that is universally accepted by many clients involved in lending.



4410 Oak Street, Mayberry, USA

Background Notes:

1. The subject property is located at 4410 Oak Street in the Cedar Creek neighborhood.
2. This is the same market area we worked in when we derived our land valuation for the site.
3. The *Subject* and *Neighborhood* sections of the URAR handout are already filled in. Please read the information on the form to understand the valuation issues in the neighborhood. (We previously looked at market area issues in *Basic Appraisal Principles*, Part 19—*Analyzing Market Areas*.)

4. The subject property and its neighborhood don't actually exist, but they are typical of what an appraiser might encounter in an actual appraisal assignment.

5. We already have the detailed replacement cost for this property (check your notes in Part 9). You will need to transfer that data to the URAR at the end of this part, and your instructor will help you with that process.

6. To complete the URAR form, you will need additional details about the construction of the subject property—beyond what you know from the cost case study.

7. Some of the essentials such as the GLA for the subject property that we previously worked out in the cost approach section have been added to the form.

Date conventions

8. The **effective date** of the appraisal is today.

9. As you look at the form and the sales data supplied in this handbook, you will notice that we've used terms such as "current" or "3 months ago" in lieu of actual dates (such as month and year).

    a. *Subject* section: The space for **Tax Year** has been filled in as "current." In reality, you would insert the actual tax year that applies to the assignment.

        - The tax year links to the *R.E. Taxes* in the very next space on the form.

        - If you are performing the valuation in, say January, the tax year will likely be the prior year. Often, the new property taxes are not available until after the first quarter of the year. Provide the currently available tax dollar amount and its associated tax year.

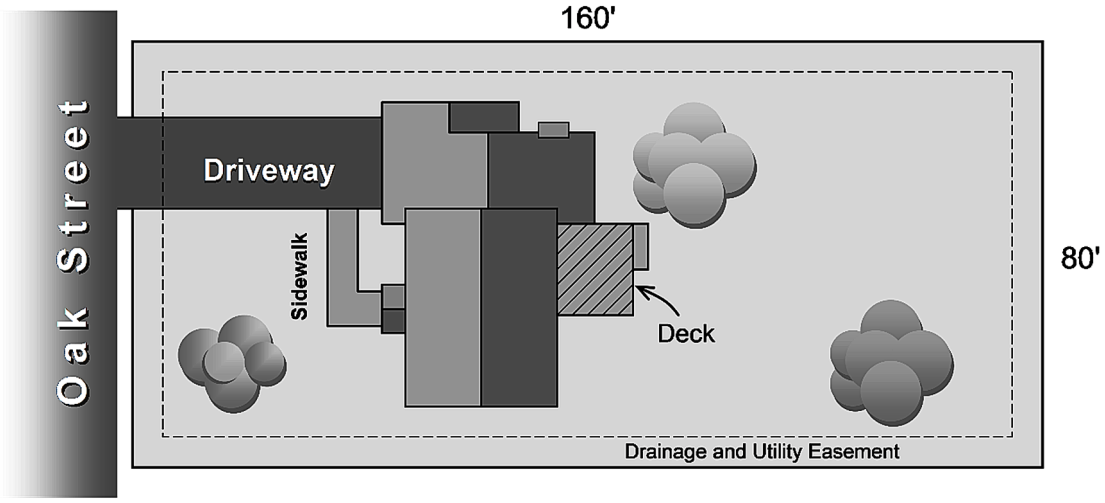
    b. *Sales Comparison Approach* section: The date of sale is often reported as **month and year** rather than the method we're using in this case study.

Getting started

Instructions: Complete the *Site* section of the URAR form using the following data. Please refer to the guide notes provided in this handbook. Your instructor will assist you as well. Remember that the comments and descriptions you make (in the blank spaces) should help your client understand the property and identify the factors that influence its value.

A. **SITE** section of the URAR form

1. The principle of conformity contends that properties generally have a higher value and greater marketability when their size, topography, and other site conditions are similar to other properties in the market area.

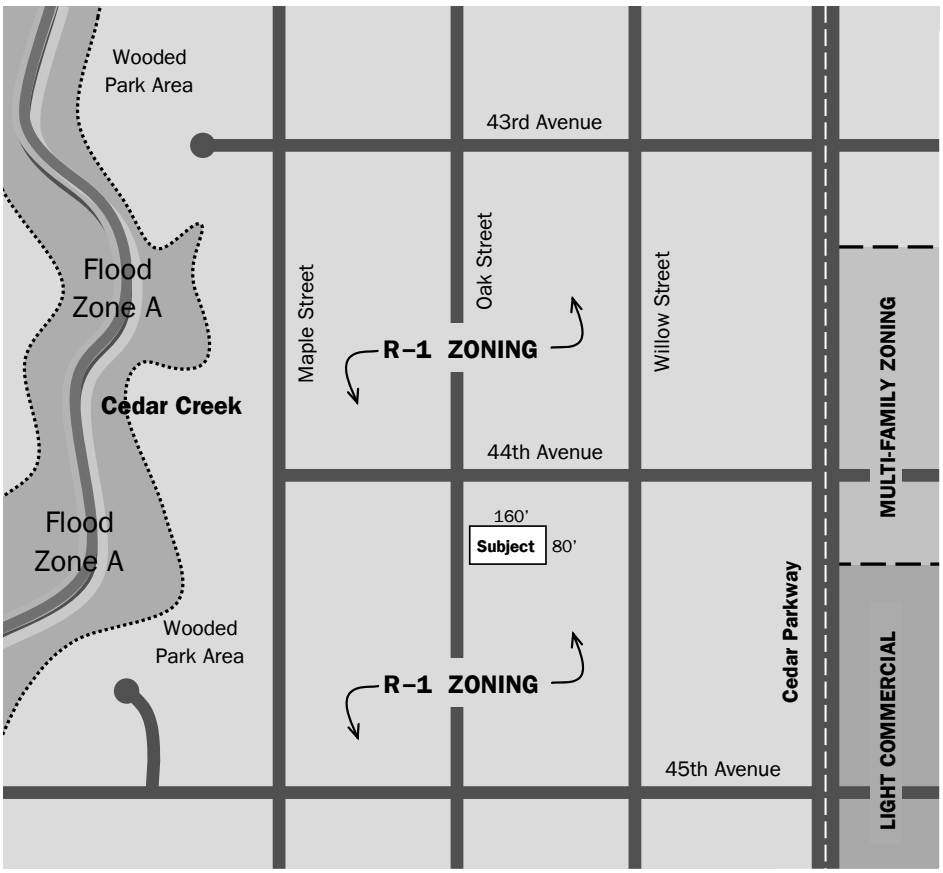


Field observations for the SITE. The site faces west and is modestly elevated from the street to provide adequate drainage. The street surface is asphalt and has a concrete curb and gutters. The streets have storm drains and street lighting. The area has public sewer and water, and there is a natural gas line in the street. The area is served by cable. The subject has views of neighboring houses and there are mature trees throughout the general area giving it an established look.

The zoning for the area permits some multifamily and light commercial uses along Cedar Parkway. From the parkway to the creek, the area has a zoning classification of R-1 (low-density, one-unit residential). The subject property is legally conforming in this regard.

The appraiser checked the flood insurance rate maps (FIRM) published by the Federal Emergency Management Agency (FEMA), and the subject is not located in a designated flood area.

Use Zoning and Designated Flood Areas



2. Dimensions and area

   a. List the perimeter dimensions of the site. If there are too many dimensions to fit in the allotted space, you will typically add an addendum to the appraisal report to list the dimensions.

   b. The site area is reported in square feet or acres. If the site is irregular, you may need to attach a sketch of the site.

   c. Corner lot. If the market pays more or less for a corner site than an inside lot, explain influence factor in the comments area.

> **Corner influence.** *The effect on value produced by a property's location at or near the intersection of two streets; the increment of value or loss in value resulting from this location or proximity.*

   d. Corner influence can take place when properties with frontage on two or more streets have a higher or lower unit value than those with frontage on only one street.

Corner lots

- May allow greater utility and flexibility in the layout of building improvements, greater visibility, and added egress or ingress opportunities (particularly important in commercial properties)
- Tend to have diminished privacy and higher costs for special assessments, which are often based on front footage
- Vary in desirability depending on residential, commercial, or industrial usage

3. Specific zoning classification

   Examine zoning ordinances (and building codes as well) for current regulations and analyze the likelihood of change. Consider the following factors:

   Note. These factors can apply to both residential and commercial properties.

   General use. The legally permitted uses of a site make up its general use.

   a. **Density of use.** Questions to determine density of use include
      - How many units are permitted?
      - Can the units be clustered?
      - Are green belts permitted or required?

   b. **Specific requirements.** Possibilities include setback, building height restrictions, lot coverage ratios, parking restrictions, and sign regulations.

   c. **Nonconforming.** You must identify whether the current use complies with the zoning for the site.
      - A "grandfathered use" means that the use is nonconforming to the current zoning. However it is permitted and thus it is a legal use. You must investigate zoning rules regarding the ability to rebuild the current improvements in the event they are substantially damaged (such as in the case of a fire or flooding).
      - If the current use is illegal, you must find out the specific conditions that would make the property legally conforming to the zoning ordinance. Conformity might not be financially feasible.

4. **Highest and best use as improved.** You must comment if another highest and best use is indicated rather than its present use.

5. **Utilities.** Use the check boxes for public services and the blank lines for private or community services (such as a community well shared by a group of properties). Other utilities can include private well and septic, and propane or fuel oil tank could be listed here.

6. **Off-site improvements.** Write in a descriptive term that identifies the item, such as gravel, asphalt, or concrete for Street and then check the box as to whether the improvement is public or private. In the case of private roads, analyze and comment on the maintenance of the private road.

7. **Site characteristics.** Use descriptive terms to identify the characteristics of shape, view, orientation, and topography.

8. **Comments** in the Site section

    a. Use the blank lines at the bottom of the Site section to discuss relevant site and land issues that a client might want to know.

        - Adverse site conditions or external factors
        - Special assessments, easements, and encroachments
        - Private well and septic systems, cisterns, and drainage pond on site
        - Steep grades, slide areas, soil and drainage conditions
        - Special views (favorable and unfavorable)
        - Orientation (south-facing site may be preferable in some areas)
        - Flooding potential (property is within a designated flood zone)
        - Zoning issues such as illegal or legal nonconforming zoning uses and highest and best use issues

    b. Avoid "canned" comments used as filler such as "no apparent adverse conditions noted." Lending clients find these statements to be of little value. If no comments are necessary, then simply state "none."

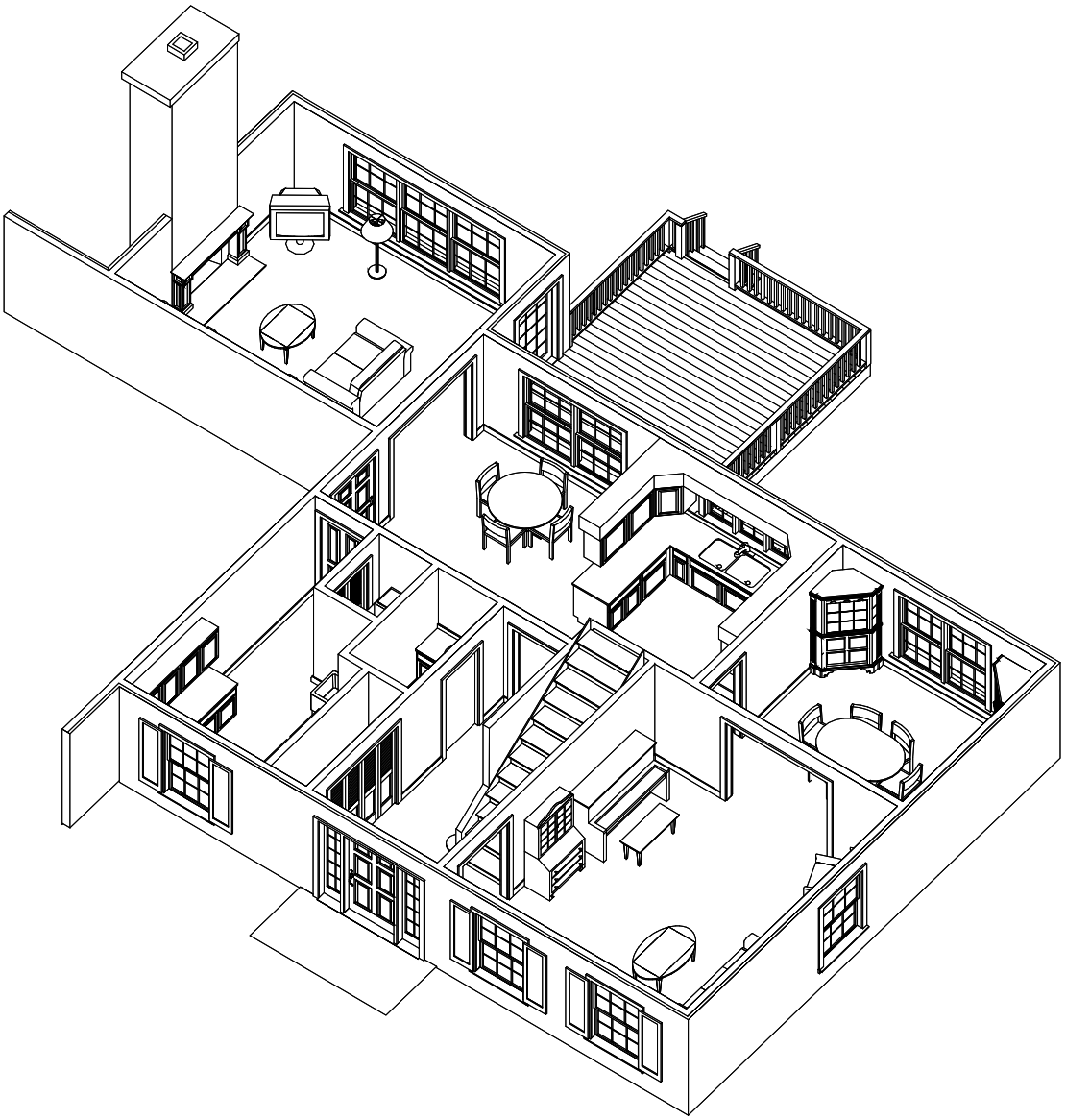
B. **IMPROVEMENTS** section of the URAR form

1. The URAR provides a streamlined reporting process for describing building improvements. Your goal is to provide a sufficient description of the property's component features together with their related quality and condition.

2. For any property, you can supplement the form description with more detail where necessary. For instance, high-performance properties are more adequately described using the Appraisal Institute's Residential Green and Energy Efficient Addendum report form (820.04), which is in the appendix. An additional text addendum also would be appropriate for an older residence that has deferred maintenance or a house that has a large number of salient features (such as additional plumbing fixtures, specialized mechanical systems, a spa, or outbuildings).

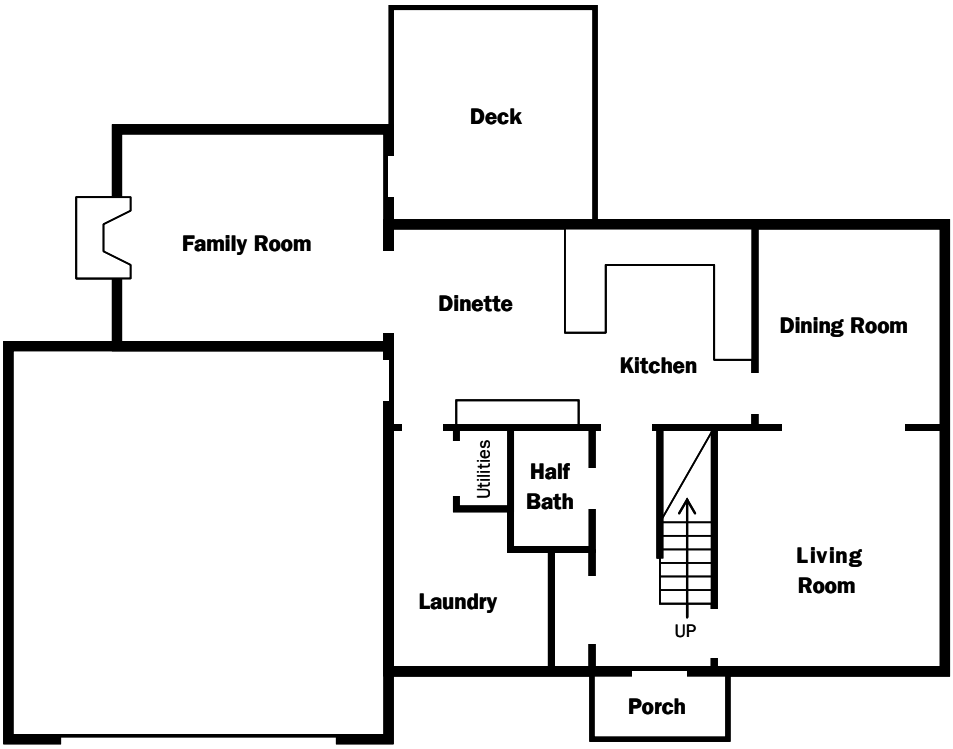


View of the Subject Property's First Floor

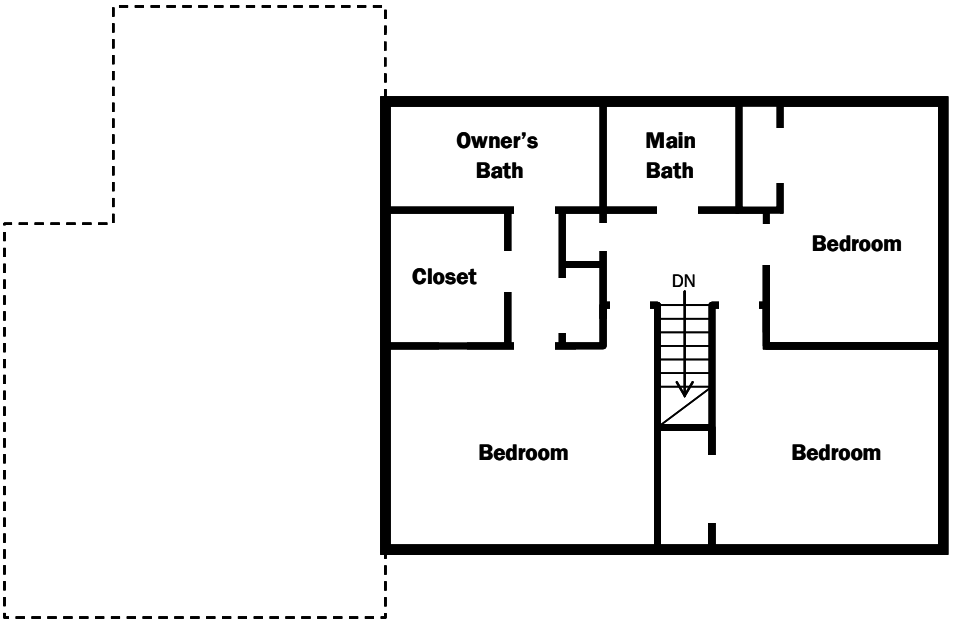


Size Areas for the Subject	Total GLA	2,128 sq. ft.
	Foundation	1,176 sq. ft.
	2-Car Garage	528 sq. ft.
	Wood Deck	168 sq. ft.
	Entry Porch	32 sq. ft.

Subject Property Floor Plan—First Floor (1,176 sq. ft.)



Subject Property Floor Plan—Second Floor (952 sq. ft.)



Note: The following is a reprint of the information on the subject property from when you worked on the cost analysis the previous day.

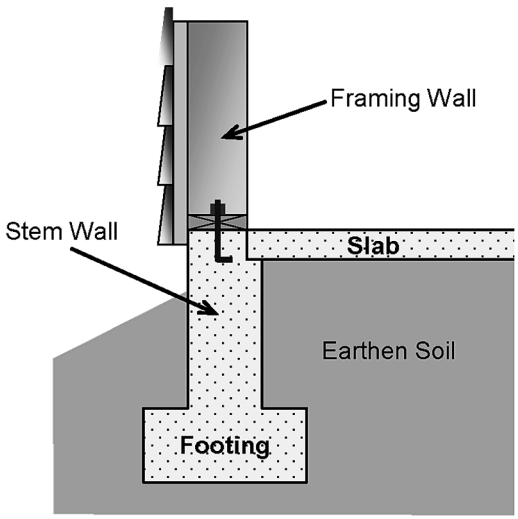
Oak Street Case Study—Cost Analysis from Part 9

Description: The property you've been asked to appraise is a detached two-story house of average quality located in a market area that is not subject to any earthquake or hurricane activity. The home is built on a **perimeter stem wall foundation** with a reinforced **concrete slab floor**. The exterior wood frame walls have an interior wall height of 8 feet on each level. The **interior walls** are plaster throughout. The home has three bedrooms, two full baths on the second floor, and a half bath on the main floor. The home has no rough-in plumbing for future fixtures. A laundry tub is located in a utility room together with the air handler for the home's **forced air heating and cooling system**. The water heater is located in the utility room.

The **floor cover** is carpet, except for sheet vinyl in the foyer entry and kitchen. The baths have ceramic tile floors. The **built-in kitchen appliances** include a range/oven, dishwasher, hood and fan, and disposal. There is also an exhaust fan in one of the baths. The home is located in a moderate climate area and has typical **insulation** in the walls and ceiling, and the windows are double-glazed. A **masonry fireplace** with a raised brick hearth is located in the first-floor family room.

The exterior has an **asphalt shingle roof** with a typical 6/12 pitch and **vinyl lap siding** over a **wood frame (2 x 4) construction**. The attached **double-car garage** has a 9-foot wall height. It is not insulated or finished except on the wall attached to the house as required by fire and building codes. There is a **wood deck** at the rear of the residence. The deck is slightly elevated (about 18 inches) off the ground. There is also a small **entry porch** over the front stoop. This is an open porch with a roof and finished ceiling.

While touring the property, you estimate the **carpeting covers** about 75% of the interior floor area; sheet vinyl covers 15%; and ceramic tile in the baths is 10% of the floor area.



Field observations for the IMPROVEMENTS. The subject is a "traditional" two-story set on a perimeter stem wall foundation. Actual age is 40 years old; however, the home has been substantially updated, including a new kitchen. The original double-hung windows have been replaced with new energy-efficient units with insulated glass (and screens). The frame structure has new vinyl siding installed in the last five years. The gas-fired furnace, water heater, roof shingle, and floor coverings have all been updated in the last several years. The house has good maintenance levels and is decorated to current market tastes.

The sandy soil and adequate site drainage have kept termites at bay, and the home is regularly checked for the presence of wood-destroying pests. The soil conditions also negated the need for perimeter drain tile and sump pump. Gutters and downspouts with extenders appear to effectively channel any rainwater away from the foundation.

Insulation has been added in the ceiling and there is a scuttle door access to the attic area. The owner verified the presence of standard fiberglass batt insulation in the exterior walls when the siding was replaced.

The subject's driveway is asphalt and a concrete walkway from the drive leads to the front door of the home, which has a small covered entry porch.

3. **General Description**

Many of the components in the general description section are easily identified. We won't look at every one. Your instructor will assist you on estimating the effective age.

General Description
Units ☐ One ☐ One with Accessory Unit
of Stories
Type ☐ Det. ☐ Att. ☐ S-Det./End Unit
☐ Existing ☐Proposed ☐ Under Const.
Design (Style)
Year Built
Effective Age (Yrs.)

a. **Units.** The form is intended to be used for a one-unit dwelling or a one unit with an accessory unit.

b. **# of stories.** This is specific to all levels above grade. The basement is not to be included.

c. **Type.** Identifies whether the structure is detached, attached, or semi-detached. Identification can be made for an end unit (townhouse/ rowhouse).

d. **Stage of construction.** Existing, proposed, or under construction.

e. **Design (style).** It is best to keep to the basics, such as one-story, two-story, or four-level split, rather than using local terms or a builder's model name.

f. **Year Built and Effective Age.** Allows the client to compare the year built and effective age.

4. **Foundation**

   a. The appraiser can identify the type of foundation among four choices.

      - Concrete slab
      - Crawl space
      - Full basement
      - Partial basement

   b. Basement area is identified by its total square foot size.

   c. Finished basement is identified as a percent of the total basement area.

   d. Outside entry to the basement such as a "walkout" feature may enhance the livability and marketability of the lower level.

   e. Other areas that should be addressed are identification of a sump pump, which may be connected with a perimeter drain tile system; evidence of infestation such as termites; and evidence of dampness or settlement in the foundation's floor and/or walls.

5. **Exterior Description**

   a. **Foundation walls.** Typically the walls will be poured concrete or concrete block. But other wall types such as all-weather wood foundations may be present.

   b. **Exterior walls.** Wood frame or concrete block are the most common as far as the structural aspect, But the finish surface or siding is often listed here such as stucco, aluminum, or vinyl siding, to name a few.

   c. **Roof surface.** The type of roofing material might include composition shingle, asphalt shingle, wood shake, clay tile, and slate.

   d. **Gutters and downspouts.** If present, identify the type of material such as galvanized, aluminum, copper, or vinyl.

e. **Window type.** If there is a variety of window types in one residence, choose the predominant type and list it on the form. Some of the more common window types are

- Casement
- Slider (or glider)
- Double-hung
- Awning
- Hopper
- Low E
- High impact (used in hurricane zones in lieu of storm shutters)

Exterior Description	materials/condition
Foundation Walls	
Exterior Walls	
Roof Surface	
Gutters & Downspouts	
Window Type	
Storms Sash/Insulated	
Screen	

f. **Storm sash and screens.** The appraiser should identify whether the windows have insulated glass (double-glazed) or separate storm windows.

g. **Condition.** Some appraisers rate the condition of each component with a single capital letter to represent good, average, or fair. For example, if the house exterior is stucco and in good condition, you would place "Stucco (G)" in the space for *Exterior Walls*.

6. **Interior Materials**

a. The *Interior Materials/Condition* section of the URAR is easy to understand and nearly self-explanatory.

- Floors: Usually a combination of carpet and perhaps some other floor material such as sheet vinyl, wood, or tile.
- Walls: Common options are gypsum board, plaster, and paneling.
- Trim/Finish: Common options are hardwood (oak, maple, etc.) or softwoods. In some cases, you may note that the trim is "painted" and leave it at that.
- Bath Floor and Bath Wainscot: For the wainscot, identify the type of material used to protect the walls from moisture such as ceramic tile or fiberglass tub enclosures.

Interior	materials/condition
Floors	
Walls	
Trim/Finish	
Bath Floor	
Bath Wainscot	

7. **Other Interior Descriptions**

   a. **Attic.** Seven options to select and all are readily understandable. In the case of a heated attic with stair access, the appraiser must decide if the space qualifies as GLA or habitable living space.

   b. **Heating** and **Cooling.** The acronyms are FWA for forced warm air and HWBB for hot water baseboard. The other categories are fairly self-explanatory. High-performance properties have high-efficiency mechanical systems.

   c. **Amenities.** Fireplaces, woodstoves, patios/decks, and porches are the typical items selected. Pools and fences are also listed. If the appraiser selects one or more of these amenity items, further explanation should follow in the comments area of the form.

   d. **Car/Storage.** Selection is available for the "# of cars" that the space specified allows. For example, the driveway space typically states the number of parking spaces available. If the driveway is particularly large, the word "ample" might suffice for most lenders.

   e. **Appliances.** The appraiser must distinguish between free-standing appliances, which are tangible personal property, and built-in appliances, which are fixtures and thus real estate. Special feature appliances like Energy Star® rated or similarly rated appliances should be recognized because they are known to use less energy. When valuing a high-performance property, such special feature appliances are commonly incorporated and need to be reported.

   f. **Finished area above grade.** The appraiser should list the total number of rooms, bedrooms, and baths together with the gross living area (GLA). Depending on the custom for the geographic area, some rooms are not listed in the total room count. Areas that might be excluded from the room count but certainly may be included in the GLA are foyers, dinettes, and laundry rooms.

C. **COMMENTS** section of the URAR form

1. **Additional energy-efficient features.** Comment on additional energy-efficient features of the dwelling, or indicate in the report that the Residential Green and Energy Efficient Addendum report form is attached.

2. **Condition of the property.** More lines are provided to discuss condition, remodeling, or repairs that are needed. This would be a good place to explain lead-based paint issues, energy-efficient items, and any significant updating or deferred maintenance observed at the property.

3. **Adverse physical deficiencies.** These typically pertain to what is known as the 3-S Rule – Safety, Soundness, and Security. The appraiser should identify observed hazards that might affect the safety and health of the occupants, the structural soundness and integrity of the building and whether it qualifies as a long-term asset from the lending perspective. In other words, will the property be economically viable for the term of the loan?

4. **Conformity to the neighborhood.** This is an economic principle that plays a vital role in the value of real property. If the property is nonconforming to its market area, the appraiser must comment on how the issue might affect value.

III. Manufactured Homes

Manufactured homes are very common throughout the country. Fannie Mae and Freddie Mac have a special appraisal report for manufactured housing. That's why the regular 1004 form doesn't address any issues specific to this type of construction. Appraisals of manufactured homes are reported on the 1004C form, and every appraiser should have some knowledge about manufactured homes.

A. Factory-built housing

1. Factory-built housing includes manufactured homes, modular homes, and other types of prefabricated, panelized, or sectional housing. High-performance manufactured homes exist in Vermont and in the Pacific Northwest states of Oregon, Idaho, and Washington. These homes are growing in popularity. To find more information, type "high-performance manufactured homes" and/or "Energy Star® Manufactured Homes" into a search engine.

2. When appraising a factory-built home, the appraiser should be careful to identify what kind of factory-built dwelling it actually is.

3. The Fannie Mae 1004C appraisal form is specific to manufactured homes.

B. What identifies a manufactured home?

1. The housing must be legally classified as real estate (not personal property).

2. At least 400 sq. ft. in gross living area (GLA)

3. The towing hitch, wheels, and axles must be removed and the dwelling must assume the characteristics of site-built housing.

4. A manufactured home must be attached to a permanent foundation system. The house cannot be moved after its final placement on site.

5. Built on or after June 15, 1976. A manufactured home acceptable for most lending clients must be built in compliance with the Federal Manufactured Home Construction and Safety Standards that were established on June 15, 1976.

6. The land on which the manufactured home is situated must be owned by the borrower in fee simple, unless the manufactured home is located in a cooperative or condominium project.

7. A manufactured home must have a HUD Certification Seal affixed to the exterior and a HUD Data Plate on the inside, which has the identifying information of where the home was constructed.

C. Appraising a manufactured home requires special knowledge and skills.

IV. Cost Approach on the URAR

Toward the bottom of Page 3 of the URAR is the cost approach section of the form. It will be helpful to complete this section of the form now because the data will help you in the sales comparison analysis, which begins in the afternoon session. However, you will need to convert the data from the cost, and your instructor will guide you through those numbers and also help you with deriving the depreciation percentage.

ITEM 1 Insert the land value derived from the work we did in Part 13.

ITEM 2 Go to the *Square Foot Appraisal Form* found in Part 9. Add Lines 1–13 to a subtotal and factor that number by the multipliers on Line 24. Take that total and divide it by the GLA of the subject property to derive the basic cost rate.

COST APPROACH TO VALUE (not required by Fannie Mae)

COST APPROACH					
	OPINION OF SITE VALUE			ITEM 1 = $	
	Dwelling 2,128 Sq. Ft. @ $ 59.02			ITEM 2 = $	
	Sq. Ft. @ $			= $	
	Fireplace, Deck, Entry Porch and Built-ins			ITEM 3 = $	8,965
	Garage/Carport 528 Sq. Ft. @ $ 17.14			ITEM 4 = $	
	Total Estimate of Cost-New			= $	
	Less Physical	Functional	External		
	Depreciation			ITEM 5 = $	
	Depreciated Cost of Improvements			= $	
	"As-is" Value of Site Improvements			= $	5,000
	INDICATED VALUE BY COST APPROACH			= $	

Source: Adapted from the Fannie Mae Form 1004 (aka, Freddie Mac Form 70) dated March 2005

ITEM 3 From the *Square Foot Appraisal Form,* add Lines 14, 15, 18, and 19 to a subtotal and factor that number by the multipliers on Line 24. Take that total and enter it on the form.

ITEM 4 From the *Square Foot Appraisal Form,* take the cost number for Line 22 and factor it by the multipliers on Line 24. Divide the result by the square foot size of the garage to derive the rate and enter the results on the form.

ITEM 5 Use your estimate of effective age. Your instructor will help you estimate the remaining life. Once you have those components, you can calculate an age-life deprecation rate and complete the cost approach.

Review Part 14

Learning Objectives

Now that you've completed Part 14, you should be able to

- ☑ Develop a property site description in an appraisal report.
- ☑ Recognize zoning terminology.
- ☑ Describe residential improvements on an appraisal report form.
- ☑ Recognize the components of a neighborhood analysis created for a form report.

Recommended Reading

Appraising Residential Properties, 4th ed., Chapter 7, P. 111–136; Chapter 8, P. 137–162; Chapter 10, P. 197–219

Additional Sources

Property Inspection: An Appraiser's Guide by John A. Simpson, MAI, 1997

Using the Individual Condominium Unit Appraisal Report Forms: Forms 1073 and 1075 by Mark R. Rattermann, MAI, SRA, 2006

Using Residential Appraisal Report Forms: URAR, Form 2055, and the Market Conditions Form, 2nd ed. by Mark R. Rattermann, MAI, SRA, 2009

Using the Small Residential Income Property Appraisal Report: Form 1025/72 by Mark R. Rattermann, MAI, SRA, 2006

Note. For sources on commercial properties such as industrial, office, and apartment properties, go to www.appraisalinstitute.org. Click on "Publications" and "All Books."

Terms and Concepts to Remember

Corner influence	Legal nonconforming use
Exposure time	Manufactured house
Federal Emergency Management Agency (FEMA)	Marketing time
Grandfathered use	Neighborhood

Resources

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.

Note. There is no review quiz for Part 14.

For Further Review

Exposure Time, Reasonable Exposure Time, and Marketing Time
The following material was expanded from Part 9 of *Basic Appraisal Principles*.

When exposure time is a component of the definition for the value opinion being developed in an assignment, the appraiser must also develop an opinion of reasonable exposure time connected to that value opinion.

> **Exposure time.** "An opinion, based on supporting market data, of the length of time that the property interest being appraised would have been offered on the market prior to the hypothetical consummation of a sale at market value on the effective date of the appraisal. (USPAP, DEFINITIONS)

1. **Exposure time** is the time a property was available for sale in the market and always presumes to occur prior to the effective date of the appraisal. The concept of reasonable exposure includes not only sufficient and reasonable time but also reasonable effort to sell the property.

2. **Reasonable exposure time** is linked to the subject and its market value. It will differ depending on the subject's property type and relevant characteristics, value range, and market conditions as of the effective date. The following are some examples of transactions that might not meet the definition of market value if it includes the common element of reasonable exposure time:

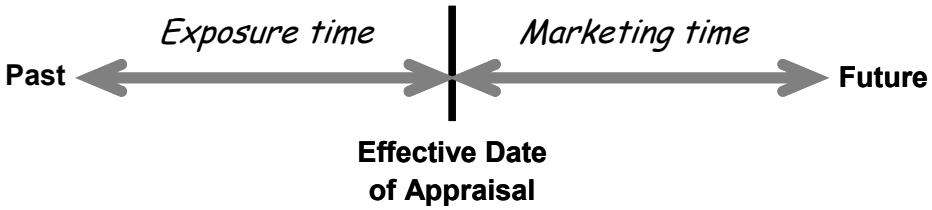
   a. Non-arm's-length transaction (sale between relatives or business partners)

   b. Uninformed or out of state buyer

3. **Marketing time** is *an opinion of the amount of time it might take to sell a real or personal property interest at the concluded market value level during the period immediately after the effective date of an appraisal.*

   In other words, it is the typical length of time the properties in the subject's market or neighborhood would be expected to be on the market prior to a sales agreement. It is not linked to the subject property or the market value of the subject property, which is why common form reports include marketing time in the neighborhood section.

4. Exposure time occurs *before* the effective date of the appraisal, whereas marketing time occurs *after* the effective date.



5. An estimate of reasonable exposure time is required by USPAP when reasonable exposure time is a component of the definition for the value opinion being developed. An estimate of marketing time is not mandated by USPAP but may be required by the client.

Note. USPAP provides guidance on these two topics in the form of Advisory Opinions, specifically ADVISORY OPINION 7 (AO-7), SUBJECT: Marketing Time Opinions, and ADVISORY OPINION 35 (AO-35), SUBJECT: Reasonable Exposure Time in Real Property and Personal Property Opinions of Value, and Frequently Asked Questions (see the index in USPAP). Appraisal Institute Guide Note 14: Concept of Exposure Time also provides guidance.

Part 15 Preview

Sales Comparison Approach

We're going to take a break from working on the URAR form and introduce the basic concepts of the sales comparison approach. We'll come back to the case study in Part 16 after we have a better idea of how the appraiser carries out the five steps in the sales comparison approach.

Most of Part 15 will focus on elements of comparison. We looked at this earlier in Part 13 when we addressed land valuation for the site.

One element of comparison is financing, and we'll look more closely at non-market financing that requires adjusting. You will need to have your **HP 12C calculator** if you want to work the calculations in the ***Digging Deeper*** section that cover non-market financing.

Learning Objectives

To prepare for Part 15, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Identify the applicability and limitations of the sales comparison approach.
- ☐ Identify the appraisal concepts and principles that influence the sales comparison approach.
- ☐ Identify typical elements of comparison used in the sales comparison approach.
- ☐ Identify typical units of comparison for specific types of property uses.
- ☐ Apply an adjustment for non-market financing.

Learning Tips

Yes, we know you're anxious to get back to work on the URAR form and tackle those comparable sales coming up in Part 16. But this session is very important. In regard to the HP 12C calculations for non-market financing, we don't want you to get stressed out. Any exam questions that involve non-market financing will not require a financial calculator. We use the HP 12C financial calculator here to show you a real world application and to help you better understand why adjustments for favorable financing are necessary. When we say *favorable* we mean financing that inflates the price of the property. Since market value is based on cash equivalency, the appraiser must be wary of sales with favorable financing.

Part 15.
Sales Comparison Approach

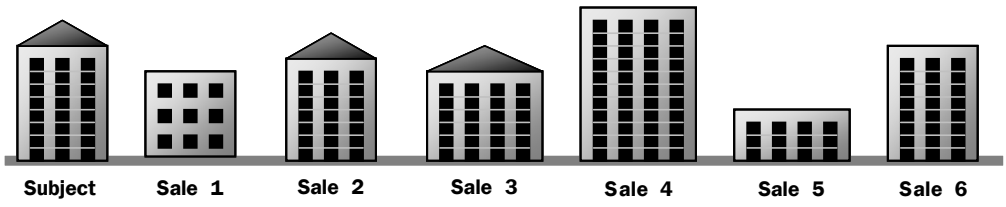
Before we continue with our appraisal assignment on the URAR form, we need to look at some important concepts and principles connected to the sales comparison approach.

I. Overview of the Sales Comparison Approach

A. Definition

> **Sales Comparison Approach.** *The process of deriving a value indication for the subject property by comparing sales of similar properties to the property being appraised, identifying appropriate units of comparison, and making adjustments to the sale prices (or unit prices, as appropriate) of the comparable properties based on relevant, market-derived elements of comparison.*

Which sales could be comparable?



B. Relationship to appraisal concepts and economic principles

1. **Highest and best use.** Properties are compared on the basis of their use.

2. **Supply and demand.** Buyers constitute market demand and the properties offered for sale make up the supply. If demand is high, prices tend to increase and vice versa. Shifts in supply frequently lag behind shifts in demand.

3. **Substitution.** This principle affirms that the value of a property tends to be set by the price that would be paid to acquire a substitute property of equal utility and desirability within a reasonable amount of time.

4. **Balance.** The relationship between land and improvements and between a property and its environment must be in balance for a property to achieve its optimum value.

5. **Externalities.** Positive and negative external forces affect all types of property.

C. Applicability and limitations of the approach

1. Applicability: The sales comparison approach is relevant to all types of property if there are a sufficient number of recent, reliable transactions to indicate value patterns in the market.

2. Applicability: When data is available, it is the most direct and systematic approach to value estimation. It usually provides the primary indication of value in non-income producing properties and in small, owner-occupied commercial and industrial properties.

3. Limitation: When data is insufficient, the sales comparison approach will have less reliability.

4. Limitation: Rapidly changing economic conditions or governmental legislation may also limit the reliability of the approach.

D. Data requirements

1. Data on properties comparable to the subject property can be derived from the following—and ideally in this order

   a. Closed sales

   b. Contracts on current sales that have not yet closed

   c. Offers and refusals can give an indication of market interaction.

   d. Active listings. The appraiser can examine the current competition and price levels of competitive properties. The time between listing and sale (closing) can give an indication of the **exposure time** and reasonable exposure time for similar properties to the subject currently on the market.

   e. Expired and cancelled listings also provide insight into the market direction and trends.

   f. Options are another part of effective demand. If the options are exercised, more properties are removed from the supply.

2. Sources for the above data are the same as those previously discussed in the sales comparison analysis for deriving a land value opinion in Part 13.

3. Area searched. The geographic limits for sales data depend on the nature and type of real estate being valued. Certain types of properties have regional, national, or international markets. The market determines the boundaries.

E. Five steps of the sales comparison approach

1. Research the market for information on transactions, listings, and other offerings of properties similar to the subject property. This is based on elements of comparison.

2. Verify information on each sale

    a. Reasons

        - The appraiser must use factually correct information.

        - Some sales may not be arm's-length transactions. When identified, such sales should be treated with caution, and if used, they may require an adjustment for conditions of sale.

        - The verification process often brings additional insight about the market that the appraiser might otherwise overlook.

    b. Procedure for verification

        - Contact a knowledgeable source; typically this will be one of the parties to the transaction or their agent(s).

        - The appraiser should prepare in advance and have as much information as possible before the source is actually contacted.

        - Using a checklist of critical items to be verified helps uncover the motivations behind the market decisions.

3. Select relevant units of comparison and develop a comparative analysis for each unit. It might be dollars per square foot or dollars per room.

4. Compare the comparable sale properties with the subject property using the elements of comparison, and adjust the sale price of each comparable sale appropriately.

5. Reconcile multiple indications of value for the subject property into a single value indication or a range of values.

F. Elements of comparison

1. The order in which they are commonly applied

    a. Real property rights conveyed

    b. Financing terms

    c. Conditions of the sale

    d. Expenditures made immediately after purchase

    e. Market conditions

    f. Location

    g. Relevant physical characteristics

    h. Relevant economic characteristics

    i. Use/zoning

    j. Non-realty components of value

2. Used by an appraiser in a valuation assignment, they are the basis for

    a. Comparing differences between comparable properties and the subject property

    b. Adjustments made to the sale property to make it equal to the subject property on the date of valuation

3. Amount of adjustment for each depends on the extent of difference between the comparable property and the subject property.

4. Can vary based on the assignment, but the 10 listed above are the most common and are always considered in sales comparison analysis, even if some elements may not apply.

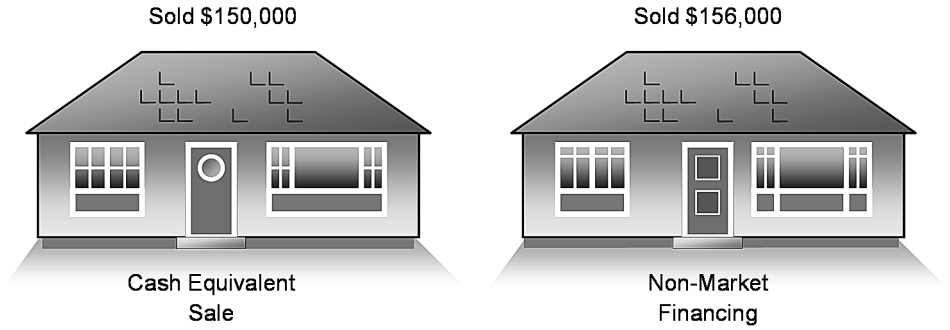
    a. **Real property rights conveyed**

    When comparable sales have the same property rights as the subject property, no adjustment is needed. If the subject property were being appraised in fee simple and a comparable were subject to long-term leases at other than market rent, the appraiser should consider an adjustment for this difference. The procedure for such an adjustment is beyond the scope of this course.

b. **Financing**

Non-market financing can affect the sale prices of comparable properties. The mode and terms of financing must be investigated and an adjustment made (if necessary) to **establish a cash equivalent price**.

Example



FEATURE	SUBJECT	COMPARABLE SALE # 1		COMPARABLE SALE # 2	
Address	*5121 Plymouth Circle Pleasantville*	*5625 Settlers Lane Pleasantville*		*5017 Landing Street Pleasantville*	
Proximity to Subject		*5 Blocks East*		*3 Blocks South*	
Sale Price	*Refinance*		*$150,000*		*$156,000*
Sale Price/Gross Liv. Area	sq.ft.	*$125.00* sq.ft.		*$130.00* sq.ft.	
Data Source(s)		*MLS (63 Days on Market)*		*MLS (45 Days on Market)*	
Verification Source(s)		*Public Records*		*Selling Broker*	
VALUE ADJUSTMENTS	DESCRIPTION	DESCRIPTION	+/− Adjust.	DESCRIPTION	+/− Adjust.
Sales or Financing Concessions		*Conventional*		*Points Paid by Seller*	

In the above example, the financing adjustment can be derived by pairing the two sales. When that option is not available, an initial adjustment can be derived for cash equivalency based on mathematical calculations. However, a cash discount indicated by mathematical calculations may not reflect the market's interaction of buyers and sellers. Therefore, the appraiser must ensure the adjustment reflects the reactions of the market.

Situations that may require adjustments to ensure cash equivalency include

- Mortgage assumptions at favorable rates
- Installment sale contracts
- Wraparound loans
- Points paid by seller (to lower the monthly payments of the buyer)
- Seller-financed loans

Digging Deeper

To work the following problem you will need your HP 12C financial calculator.

Sales Concession Problem. An appraiser is analyzing a comparable sale that sold for $250,000 and discovers the seller provided financing of $200,000 to the buyer at an interest rate of 6% when the current market rate is 8%. The term of the contract-for-deed is 15 years. *What is the cash equivalent sale price of this comparable sale?*

Calculations—*Set your calculator to display 2 decimal points to begin the steps.*

Step	Explanation	HP 12C	Display
1	Clear memory	f REG	0.00
2	Number of periods	15 g n	180.00
3	Interest rate	6 g i	0.50
4	PV of financing	200000 PV	200,000.00
5	Calculates monthly payment	PMT	–1,687.71
6	Interest rate at current market	8 g i	0.67
7	Calculates PV of payments at 8%	PV	176,603.36

- Add the result in Step 7 to the buyer's down payment of $50,000 to calculate the cash equivalent price.

  $176,603.36 + 50,000 = $226,603.36 ($226,600 rounded)

- The difference in the actual sale price of $250,000 and the adjusted sale price of $226,600 is $23,400. This amount represents how much the original price was inflated due to favorable financing terms provided by the seller.

- The above is a mechanical calculation to derive a cash-equivalent price. It assumes the buyer will stay in the property for the next 15 years (which may not be likely). The mechanical calculation is useful, but cash equivalency is based on market reaction to the favorable financing. In other words, how would a typical buyer think, and what would that buyer be willing to pay for the favorable financing? Let's assume the appraiser found the following market data:

Contract Sale	Comparable # 1	Comparable # 2	Comparable # 3
Sold – **$250,000**	Sold – **$230,000**	Sold – **$232,000**	Sold – **$228,500**
15-Year Contract $200,000 @ 6%	Conventional Financing	Cash Sale	Cash Sale

- The above information suggests the favorable financing inflated the sale price of the property from $18,000 to $21,500. The appraiser can use this information together with the HP 12C calculation to determine an appropriate cash-equivalent adjustment.

End Digging Deeper

c. **Conditions of sale.** An adjustment for these may be necessary to reflect the motivations of the buyer and the seller. Some situations include

- The buyer or seller is in hurry (a job transfer or a death in the family)
- Sales between relatives
- Sales between wholly owned subsidiaries
- Forced sales (such as a foreclosure or an auction)

> **Arm's-length transaction**. *A transaction between unrelated parties who are each acting in his or her own best interest.*

d. **Expenditures made immediately after purchase.**

- Some appraisers make this adjustment before considering any others.
- A knowledgeable buyer considers expenditures that will have to be made upon purchase of a property because these costs affect the price the buyer agrees to pay.
- Such expenditures may include costs to cure deferred maintenance (for example, resurface a parking lot or replace a roof), costs to demolish and remove any portion of the improvements, costs to petition for a zoning change, or costs to remediate environmental contamination.
- An uninformed buyer might pay an inflated price, whereas an informed market buyer would discount the price to account for the anticipated expenditures.

e. **Market conditions**

This is commonly referred to as a "time adjustment." That is inaccurate because the change reflected in the adjustment is brought about by a change in market conditions, not the passage of time. These adjustments are usually measured as a percentage of previous prices. Examples of market conditions that may affect sale prices include changes in

- Income tax laws
- Economic conditions—recession or depression
- Supply and demand
- Interest rates
- Inflation rates

f. **Location**

- The adjustment is for differences in relevant locational characteristics between the comparable sale and the subject property.
- The subject property and comparable sale can be located in different neighborhoods or even in dissimilar locations in the same neighborhood, project, or building. This adjustment is generally made on a percentage basis.

g. **Physical characteristics**

The value added or lost by the presence or absence of a differing item in a comparable property does not usually equal the cost of installing or removing the item. Appraisers make the adjustment according to the contributory value of the item or component. The cost to cure deferred maintenance items, however, may be reflected in an adjustment in the sales comparison approach. Relevant physical differences may include

- Site size
- Building size
- Quality of construction
- Age
- Condition
- Functional utility
- Energy efficiency

h. **Economic characteristics**

These include all the relevant attributes of a property that affect its net operating income, such as

- Operating expenses
- Quality of management
- Tenant mix
- Rent concessions
- Lease terms
- The appraiser must recognize that a property's relevant physical and locational characteristics affect its income-producing capability. While details about the relevant economic characteristics of a property are

studied, direct adjustments for such characteristics must be made carefully.

i. **Use/zoning**

- An appraiser must address any difference in the use or highest and best use of a potential comparable sale and the subject property.
- Zoning is a primary consideration in the selection of comparable sales.

j. **Non-realty components**

- These do not constitute real property but may be included in the sale price of either the comparable sales or the subject property.
- Examples include furnishings or business equipment. These components should be analyzed separately.

G. Units of comparison

1. The use of units of comparison facilitates the analysis of comparability between the subject property and comparable properties.
2. The units selected depend on the appraisal problem and the nature of the property. Following are some of the common units:

   a. Price per entire property

   b. Price per square foot or cubic foot

   - Price per square foot of gross building or leasable area (common in commercial properties).
   - Price per square foot of net rentable area (common in office buildings).

   c. Price per acre (large parcels and agricultural properties)

   d. Price per apartment unit, price per boat slip, price per storage space

   e. Price per guest room (hotels), price per seat capacity (restaurant, theater)

3. Analyze comparable sales using all available and appropriate units of comparison.

4. Make adjustments to the comparable sales based on units of comparison.

5. Some units of comparison are derived for application in the income approach. These units should not be adjusted. Such units include

    a. Income multipliers

    b. Capitalization rates and yield rates

Review Part 15

Learning Objectives

Now that you've completed Part 15, you should be able to

- ☑ Identify the applicability and limitations of the sales comparison approach.
- ☑ Identify the appraisal concepts and principles that influence the sales comparison approach.
- ☑ Identify typical elements of comparison used in the sales comparison approach.
- ☑ Identify typical units of comparison for specific types of property uses.
- ☑ Apply an adjustment for non-market financing.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapters 20 and 21, P. 351–396

Appraising Residential Properties, 4th ed., Chapters 16 and 17, P. 311–332

Additional Sources

Property Inspection: An Appraiser's Guide by John A. Simpson, MAI, 1997

Using the Individual Condominium Unit Appraisal Report Forms: Forms 1073 and 1075 by Mark R. Rattermann, MAI, SRA, 2006

Using Residential Appraisal Report Forms: URAR, Form 2055, and the Market Conditions Form, 2nd ed. by Mark R. Rattermann, MAI, SRA, 2009

Using the Small Residential Income Property Appraisal Report: Form 1025/72 by Mark R. Rattermann, MAI, SRA, 2006

Valuation by Comparison: Residential Analysis and Logic by Mark R. Rattermann, MAI, SRA, 2007

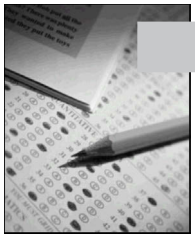
Note. For sources on commercial properties such as industrial, office, and apartment properties, go to www.appraisalinstitute.org. Click on "Publications" and "All Books."

Terms and Concepts to Remember

Cash equivalency	Non-market financing	Units of comparison
Elements of comparison	Seller concessions	

Resources

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.



Practice Test Section 5

This multiple-choice test is for your benefit and provides a review of everything covered in Section 5. This is a closed-book test. Choose the most correct answer.

1. All of the following data can be considered on sales comparable to the subject property ***EXCEPT***

   A. active listings.
   B. closed sales.
   C. expired listings.
   D. fraudulent contracts.

2. What unit of comparison is appropriate in the appraisal of a hotel?

   A. price per apartment
   B. price per bed
   C. price per cubic foot
   D. price per guest room

3. Which type of market would provide the best market conditions for an appraiser to employ the sales comparison approach?

   A. active market
   B. buyer's market
   C. seller's market
   D. slow market

4. What does grandfathered use mean?

   A. a legal use that is permitted only for a specified time
   B. an illegal use
   C. a use that is nonconforming to the current zoning, but is permitted
   D. housing adapted for the elderly

5. What type of factory-built structure must have a HUD seal affixed to the exterior?

- A. manufactured home
- B. modular home
- C. panelized housing
- D. sectionalized housing

6. In the appraisal of manufactured homes, which of the following is ***NOT*** required by a lending client?

- A. The manufactured home must assume the characteristics of a site-built housing.
- B. The manufactured home must be built on a permanent foundation.
- C. The manufactured home must be legally classified as real estate.
- D. The towing hitch and axles must remain in place and not be removed.

7. A buyer paid more for a property because he was uninformed about the cost to petition for a zoning change. What element of comparison would this fall under?

- A. expenditure made immediately after purchase
- B. financing
- C. market conditions
- D. use

8. Lenders concerned about adverse conditions affecting a property may require appraisers to apply the 3-S Rule, which stands for

- A. safety, soundness, and security.
- B. sanitary, safe, and stable.
- C. sturdy, safe, and strong.
- D. none of the above.

9. What components in a residence should ***NOT*** be accounted for in the value of the property?

- A. built-in cabinetry for a home theater
- B. free-standing kitchen appliances
- C. installed fiber-optic cables in the walls
- D. termites living in the crawl space and wall cavities

10. Aronson is using a comparable sale in which the seller paid discount points to lower the buyer's monthly mortgage payment. The property sold for $300,000 and the buyer is paying 20% down. If the seller paid 5 discount points on the mortgage amount, what is the cash-equivalent sale price?

- A. $285,000
- B. $288,000
- C. $300,000
- D. $315,000

Note. Question 10 is based on mathematical calculations to derive an indication of cash equivalency. In real world appraising, market evidence must support the adjustment made by the appraiser. If the cash discount indicated by the calculations is not recognized by buyers and sellers, the adjustment is not justified.

Section 6

6

Part 16. Comparable Property Selection

Part 17. Adjustments

Part 18. Oak Street Case Study—Market Grid Application

Part 16 Preview

Comparable Property Selection

Your task in this part is to select comparable sales that will be placed on the market grid of the Fannie Mae reporting form (case study handout). Be sure not to get ahead of yourself and start writing the comparable sale data into the URAR; that task will be carried out in the next two parts.

Part 16 presents six sales for you to consider. You will organize into groups with other class participants and analyze the sales data provided. Your instructor will give you guidance on how to perform the various tasks of the exercise.

Learning Objective

To prepare for Part 16, read the following learning objective and refer back to it as you study this part of the handbook.

- ☐ Analyze sales to select appropriate comparable sales.

Learning Tips

This is a very practical learning exercise. Before you can adjust sales, you first have to select them. You'll work in groups, so be prepared to get involved and give the appraisal process a good workout!

Part 16.
Comparable Property Selection

Step 6 of the valuation process covers the three approaches to value. Therefore, you have one foot firmly planted in the sales comparison approach, which has five steps of its own. At the same time, you also have another foot planted way back in Step 3. You've already nailed down data on the market area (neighborhood) and the subject property. Now it's time to do some work in selecting comparable sales.

Data Collection and Property Description		
Market Area Data General characteristics of region, city, and neighborhood	**Subject Property Data** Subject characteristics of land use and improvements, personal property, business assets, etc.	**Comparable Property Data** Sales, listings, offers, vacancies, cost and depreciation, income and expenses, capitalization rates, etc.

Application of the Approaches to Value		
Sales Comparison Approach	Income Capitalization Approach	Cost Approach

I. Preliminary Selection Process

Before you get started. Avoid working ahead and placing the comparable sales on the market grid; there will be ample time to do that after you've gone through the selection process.

A. Each appraisal assignment is unique, and the criteria for ***selecting sales*** will vary based on property type.

1. Elements of comparison provide a logical order for making adjustments. You will often adjust the various elements in a progressive manner. Property rights first, financing terms second, conditions of sale third, etc.

2. The above progression used for the elements of comparison is often critical to the adjustment process, but it is difficult to initially select properties using the progression. For example, most appraisers don't initially select sales for possible consideration based on the property rights conveyed. In that case, the pool of available sales would be very wide and deep.

3. The initial selection typically begins with elements of location and physical characteristics. From there sales with non-market financing or issues involving property rights and even highest and best use can be weeded out.

B. Considering the residential nature of our subject property, what characteristics within the elements of location or physical attributes would you use to begin the selection process? You know that location will head the list. But which physical characteristics will be in your initial search?

1. *Location*
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. The preliminary data will be analyzed and many "comparable" sales will be filtered out. The above considerations are used to obtain the initial data pool of sales. Therefore, try to start out with a large group.

C. Database analysis

1. For many years, appraisers looked for sales in sold report books. In small markets, appraisers may still visit several local real estate companies if no multiple listing service (MLS) exists in the area.

    a. With the advancement of technology, sophisticated databases have become more common in major metropolitan areas around the country.

    b. Electronic data is not searched by visual means; instead, appraisers enter search parameters to identify the initial pool of comparable sales.

        - The preliminary data can include active listings, sold properties, and even expired or cancelled listings.

        - If the initial search gathers very little data, the appraiser will widen the search parameters. The reverse is true when too much data comes back as the result of an initial query.

    c. Searching through data effectively is a skill every appraiser must develop. The Oak Street Case Study provides an opportunity for you to do that.

II. Oak Street Case Study (Part IV)—Comparable Sales Selection



Instructions:

1. The sales data has been presented on the following pages in a manner similar to what you might see in a MLS printout (from an online database).

2. For this classroom exercise, you can't go out and drive by the comparable sales like you would in a normal appraisal assignment. To make up for that, additional comments have been provided under ***Appraiser's Field Observations and Research*** following the MLS data on each sale.

3. Work with the others at your table area to analyze the comparable data. First, **select the best three sales** and rank them in order. Second, select one sale that your group believes is the worst sale of the six. You may use the blank grid on the following page if you like.

Notes on Reading an MLS Sheet

MLS listing sheets are designed for real estate agents and brokers. The data presented has a language of its own that you must learn. Also, be aware that agents don't always insert the information where it is designed to go. You must read these data sheets carefully to understand the property—and filter the sales remarks.

1. Under the year built, the agent will typically insert the actual year it was built. The number of years (age, rather than year built) has been inserted so that the case study stays consistent with the effective date that you will be using.

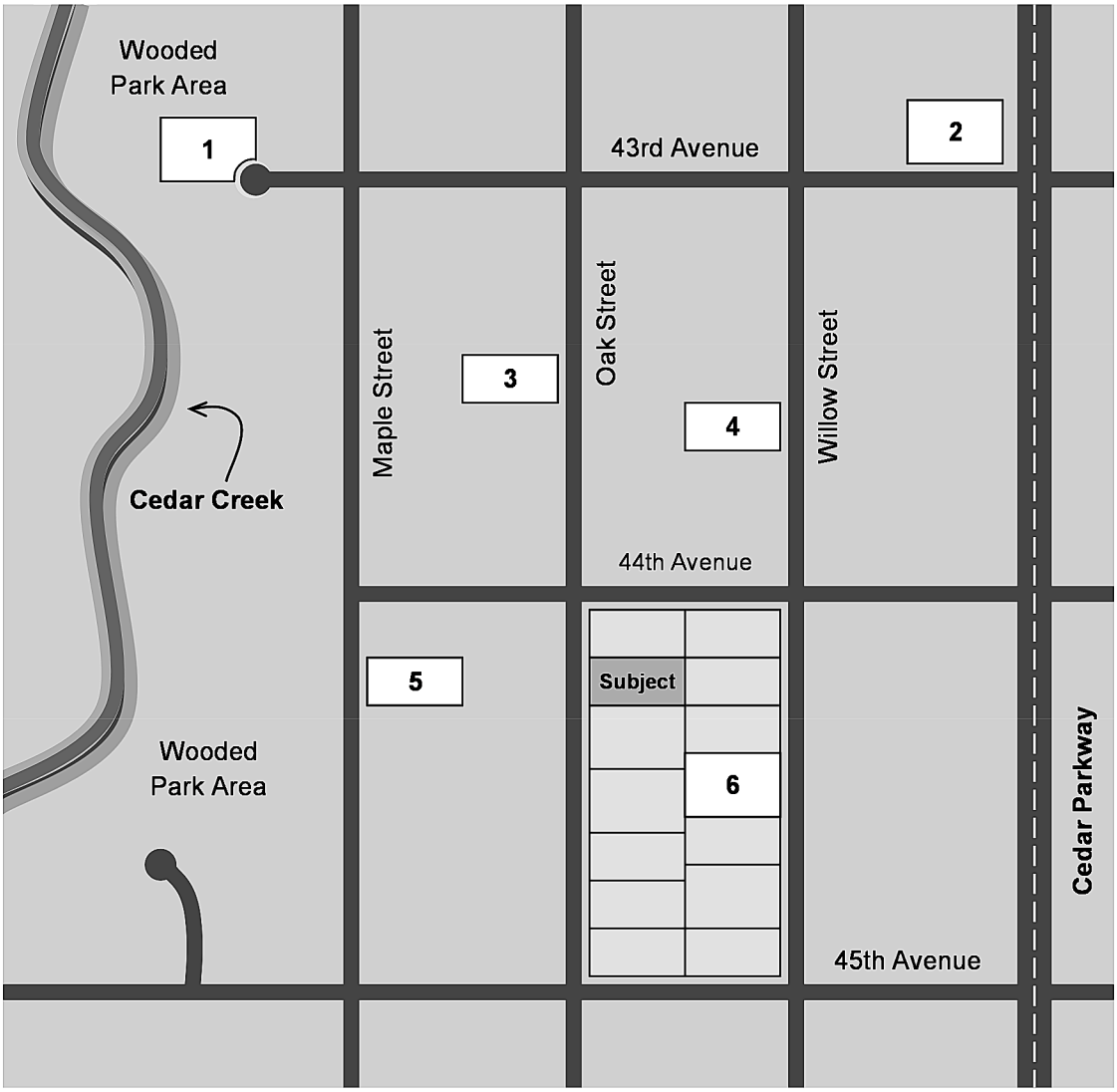
2. It should be easy to figure out the actual meaning of most terms, such as "**AbvGrd Fin Sqft.**" In this case, it means *Above Grade Finished Sq. Ft.*

3. The "Date Closed" is the date you will enter on the appraisal report form as the date of sale. Think of it as the transaction date for appraisal purposes.

4. There is data on the MLS sheet that may have little or no use in an appraisal assignment. In other assignments, however, that same data might be very relevant. For example, information on homeowners' association fees would be relevant in an assignment involving a condominium or a planned unit development.

5. For this appraisal assignment, assume that the market has been stable over the last 12 months.

Sales Location Map



Comparable Sales Selection Grid

Feature	Sale 1	Sale 2	Sale 3	Sale 4	Sale 5	Sale 6
Location	Near creek	Traffic street				
Date of sale	1 month ago	3 months ago	6 months ago	2 months ago	2 months ago	5 months ago
Lot size	100 × 160	100 × 160	80 × 160	80 × 160	80 × 160	100 × 160
Site features	Cul-de-sac					
GLA size	2,192 sq. ft.	1,988 sq. ft.	2,016 sq. ft.	2,100 sq. ft.	2,368 sq. ft.	2,040 sq. ft.
Age	42 Years	35 years	39 years	45 years	45 years	42 years
Condition						
Bedrm*/bath	7 / 3 / 2.5	7 / 3 / 2	7 / 3 / 2.5	8 / 3 / 2.5	8 / 4 / 2.5	7 / 3 / 2
Garage	2 car	3 car	2 car	2 car	2+ car	3 car
Fireplaces	1	1	2	1	2	1 direct vent
Deck/porch	Deck	Deck	Screen porch	3-Sea. porch	Large deck	Gazebo/deck
Other						

***Note.** The market is not making a value distinction between 3-bedroom and 4-bedroom homes in the subject property's price range.

The space below is for notes.

SALE 1



Status: **Sold**
Style: **(SF) Two Stories**
Construction Status: **Existing**

Year Built: **42 Years**
Bedrooms: **3**
Total Bath: **2.5**
Garage: **2**
Lot size: **100 × 160**
Acres: **0.37**
Foundation Size: **1256**
AbvGrd Fin Sqft: **2192**
BelGrd Fin Sqft: **None**
Total Fin Sqft: **2192**
List Date: **2 Months Ago**
Market Time: **30 Days**
Date Closed: **1 Month Ago**
Terms: **CONV**

List Price: **$210,000**
List #: **67129**
Sold Price: $201,000
Orig. List Price: **$210,000**
MLS Area #: **515**
Map Page: **24**
Map Coordinate: **C–3**

TAX INFORMATION
Tax Year: **Current**
Tax Amount: **$2,472**
Tax w/assess: **$2,536**
Assess Bal: **$0**
Assess Pending: **No**
Homestead: **Y**
Property ID: **C20225500060**

3506–43rd Avenue
Mayberry, USA

GENERAL PROPERTY INFORMATION

Directions: **CEDAR PARKWAY TO 43RD AVENUE AND WEST TO CUL-DE-SAC**
Legal: **LOT 6, BLOCK 1, CEDAR CREEK RIDGE ADDITION**
County: **Madison**
School District: **#116**
Complex/Development/Subdivision: Common Wall: **No**
Restrictions/Covenants: **None**
Association Fee: **$0** Frequency: Fee Includes:
Zoning: **R-1** Road Frontage: **Cul-de-sac**

REMARKS

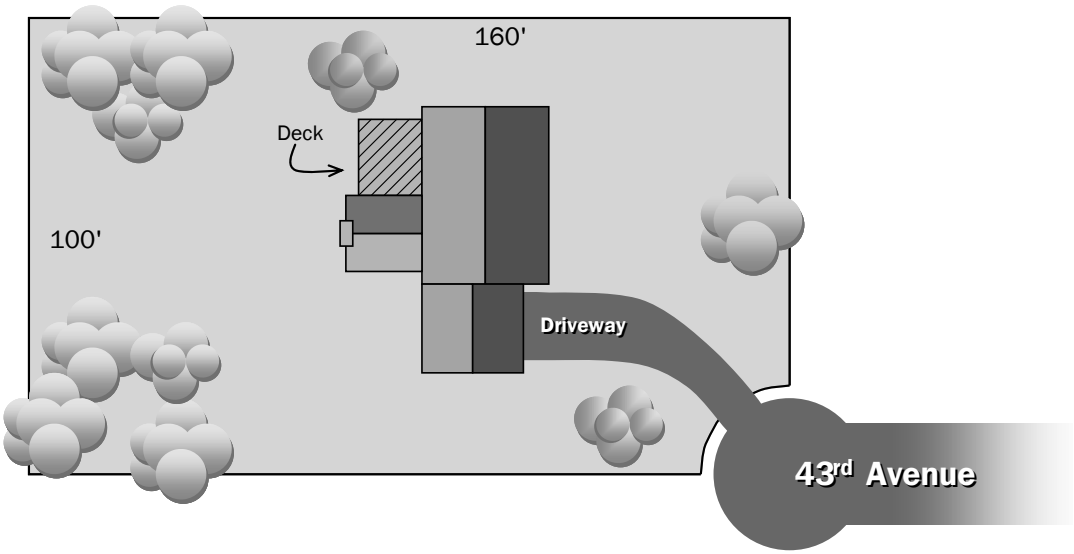
Agent Remarks: **CLASSIC 2-STORY LOCATED ON CUL-DE-SAC LOT OVERLOOKING WOODED AREA OF CEDAR CREEK. LOTS OF UPDATING TO THIS BEAUTIFUL HOME. NEW KITCHEN AND DECORATING INCLUDING CARPETING. IN THE LAST FIVE YEARS THE HOME HAS HAD NEW SIDING, ROOF COVER AND MANY OF THE WINDOWS ARE ALSO NEW. ELECTRICAL AND HVAC ALL UPDATED.**

STRUCTURE INFORMATION

ROOM	LEVEL	DIMEN	ROOM DESCRIPTION	LEVEL	DIMEN	MISC
Living Rm	**MAIN**	**12 × 18**	**Informal Dining Room**	**MAIN**	**10 × 12**	Heat: **Forced Air**
Dining Rm	**MAIN**	**12 × 12**	**Laundry**	**MAIN**	**12 × 8**	Fuel: **Natural Gas**
Family Rm	**MAIN**	**15 × 19**	**Deck**	**MAIN**	**12 × 14**	Air Conditioning: **Central**
Kitchen	**MAIN**	**11 × 12**				Water: **City Water - Conn**
Bedroom 1	**UPPER**	**16 × 14**				Sewer: **City Sewer - Conn**
Bedroom 2	**UPPER**	**10 × 11**				Garage Stalls: **2**
Bedroom 3	**UPPER**	**12 × 12**				Other Parking : **0**
Bedroom 4						Pool:

Total Baths: **2.5** Full: **1** ¾: **1** ½: **1** ¼: **0**
Bath Characteristics: **Main floor half bath, whirlpool tub in bath off owner's bedroom**
Dining Room: **Formal dining room and separate informal dining area off the kitchen**
Family Room: **Main**
Fireplaces: **1** Fireplace Characteristics: **Masonry**
Appliances: **Built-in range-oven, dishwasher**
Basement: **None – Slab Foundation**
Exterior: **Vinyl Siding and Aluminum Trim** Roof: **Composition Shingle**

SALE 1—Additional Information





Appraiser's field observations and research. Sale 1 is located on a premium site. There are a number of good-sized trees on the lot. As the grade slopes toward the creek (just beyond the site boundary) the terrain becomes more heavily wooded. The site offers pleasing views of the creek parkland area.

From a conversation with the listing agent, it appears Sale 1 has updating (including a new kitchen) that is similar to the subject property. The family room is behind the main house structure and has ample windows to take in views of the wooded creek area in the rear. A fireplace is located in the family room. The owner's bath has a whirlpool tub that was recently added, but otherwise the bath has only minor updating. The main floor has 9-foot high ceilings.

SALE 2



Status: **Sold**
Style: **(SF) Two Stories**
Construction Status: **Existing**

Year Built: **35 Years**
Bedrooms: **3**
Total Bath: **2**
Garage: **3**
Lot size: **100 × 160**
Acres: **0.37**
Foundation Size: **1092**
AbvGrd Fin Sqft: **1988**
BelGrd Fin Sqft: **None**
Total Fin Sqft: **1988**
List Date: **6 Months Ago**
Market Time: **90 Days**
Date Closed: **3 Months Ago**
Terms: **CONV**

List Price:**$179,900**
List #: **63352**
Sold Price: $175,900
Orig. List Price: **$179,900**
MLS Area #: **515**
Map Page: **24**
Map Coordinate: **C–2**

TAX INFORMATION
Tax Year: **Current**
Tax Amount: **$2,160**
Tax w/assess: **$2,185**
Assess Bal: **$0**
Assess Pending: **No**
Homestead: **Y**
Property ID: **C20225500175**

4245 Cedar Parkway
Mayberry, USA

GENERAL PROPERTY INFORMATION

Directions: **NW CORNER OF CEDAR PARKWAY AT 43RD AVENUE**
Legal: **LOT 15, BLOCK 5, CEDAR PARK ADDITION**
County: **Madison**
School District: **#116**
Complex/Development/Subdivision: Common Wall: **No**
Restrictions/Covenants: **None**
Association Fee: **$0** Frequency: Fee Includes:
Zoning: **R-1** Road Frontage:

REMARKS

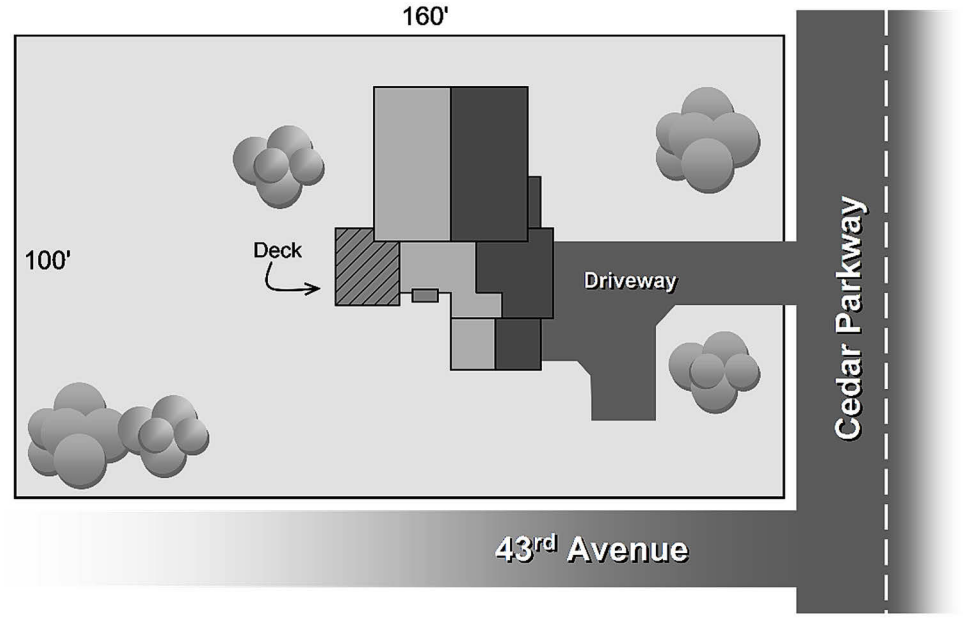
Agent Remarks: **WONDERFUL 2-STORY RESIDENCE IN THE CEDAR CREEK NEIGHBORHOOD. HUGE LOT AND A 3-CAR GARAGE TO BOOT! KITCHEN HAS NEW COUNTERTOPS AND FIXTURES. OWNER'S BEDROOM BATH HAS BEEN TOTALLY REMODELED. MAINTENANCE-FREE STUCCO HAS BEEN RECENTLY REDASHED AND NEW SHINGLES ON THE ROOF. FURNACE AND ELECTRICAL ALL UPDATED.**

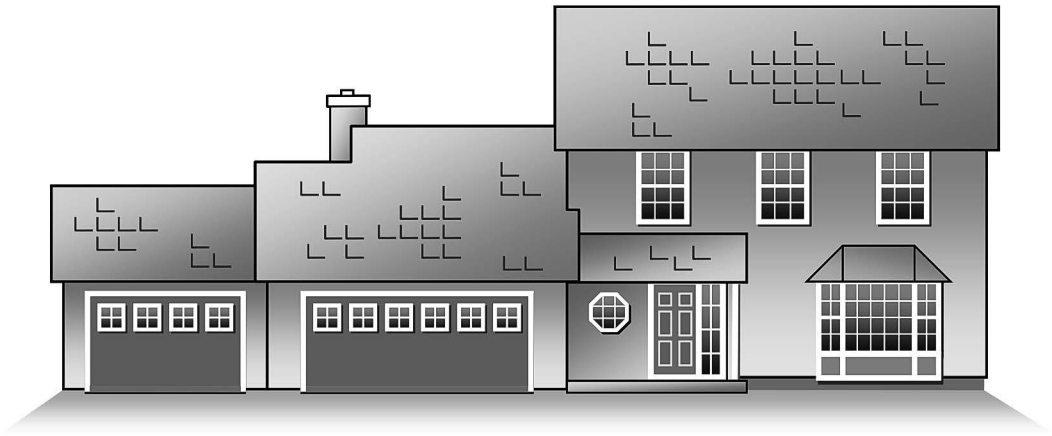
STRUCTURE INFORMATION

ROOM	LEVEL	DIMEN	ROOM DESCRIPTION	LEVEL	DIMEN	MISC
Living Rm	**MAIN**	**12 × 16**	**Informal Dining Room**	**MAIN**	**10 × 11**	Heat: **Forced Air**
Dining Rm	**MAIN**	**10 × 12**	**Laundry**	**MAIN**	**10 × 9**	Fuel: **Natural Gas**
Family Rm	**MAIN**	**13 × 13**	**Deck**	**MAIN**	**12 × 14**	Air Conditioning: **Central**
Kitchen	**MAIN**	**11 × 12**				Water: **City Water - Conn**
Bedroom 1	**UPPER**	**14 × 12**				Sewer: **City Sewer - Conn**
Bedroom 2	**UPPER**	**10 × 11**				Garage Stalls: **3**
Bedroom 3	**UPPER**	**10 × 9**				Other Parking : **0**
Bedroom 4						Pool:

Total Baths: **2** Full: **2** ¾: **0** ½: **0** ¼: **0**
Bath Characteristics: **Two full baths on the second floor. Owner's bath is completely new.**
Dining Room: **Formal dining room and separate informal dining area off the kitchen**
Family Room: **Main**
Fireplaces: **1** Fireplace Characteristics: **Masonry**
Appliances: **Built-in range-oven, dishwasher**
Basement: **None – Slab Foundation**
Exterior: **Stucco** Roof: **Composition Shingle**

SALE 2—Additional Information

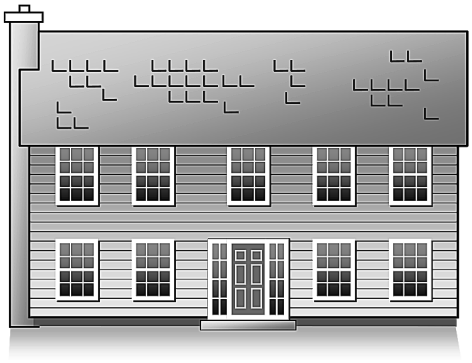




Appraiser's field observations and research. Sale 2 is located on a large corner lot. Cedar Parkway is a light traffic, arterial feeder street with moderate traffic during the rush hour periods. Sale prices on Cedar Parkway are about 5% less than those for similar properties located on less-traveled streets.

From a conversation with the agent, it was learned that Sale 2 has the original kitchen, but with new counters, sink, and hardware. The agent said the kitchen looked very good and that the original cabinetry had good quality. The owner's bath has been totally renovated. The stucco exterior and asphalt shingle roof appeared to be nearly new. The overall condition might be similar to that of the subject property since it is 5 years newer in actual age.

SALE 3



Status: **Sold**
Style: **(SF) Two Stories**
Construction Status: **Existing**

Year Built: **39 Years**
Bedrooms: **3**
Total Bath: **2.5**
Garage: **2**
Lot size: **80 × 160**
Acres: **0.29**
Foundation Size: **1008**
AbvGrd Fin Sqft: **2016**
BelGrd Fin Sqft: **None**
Total Fin Sqft: **2016**
List Date: **7 Months Ago**
Market Time: **30 Days**
Date Closed: **6 Months Ago**
Terms: **CONV**

List Price: **$189,900**
List #: **62582**
Sold Price: $189,000
Orig. List Price: **$189,900**
MLS Area #: **515**
Map Page: **24**
Map Coordinate: **C–3**

TAX INFORMATION
Tax Year: **Current**
Tax Amount: **$2,325**
Tax w/assess: **$2,364**
Assess Bal: **$0**
Assess Pending: **No**
Homestead: **Y**
Property ID: **C20225500015**

4325 Oak Street
Mayberry, USA

GENERAL PROPERTY INFORMATION

Directions: **PARKWAY TO 44TH W TO OAK ST**
Legal: **LOT 6, BLOCK 8, CEDAR CREEK ADDITION**
County: **Madison**
School District: **#116**
Complex/Development/Subdivision:
Common Wall: **No**
Restrictions/Covenants: **None**
Association Fee: **$0**
Frequency:
Fee Includes:
Zoning: **R-1**
Road Frontage:

REMARKS

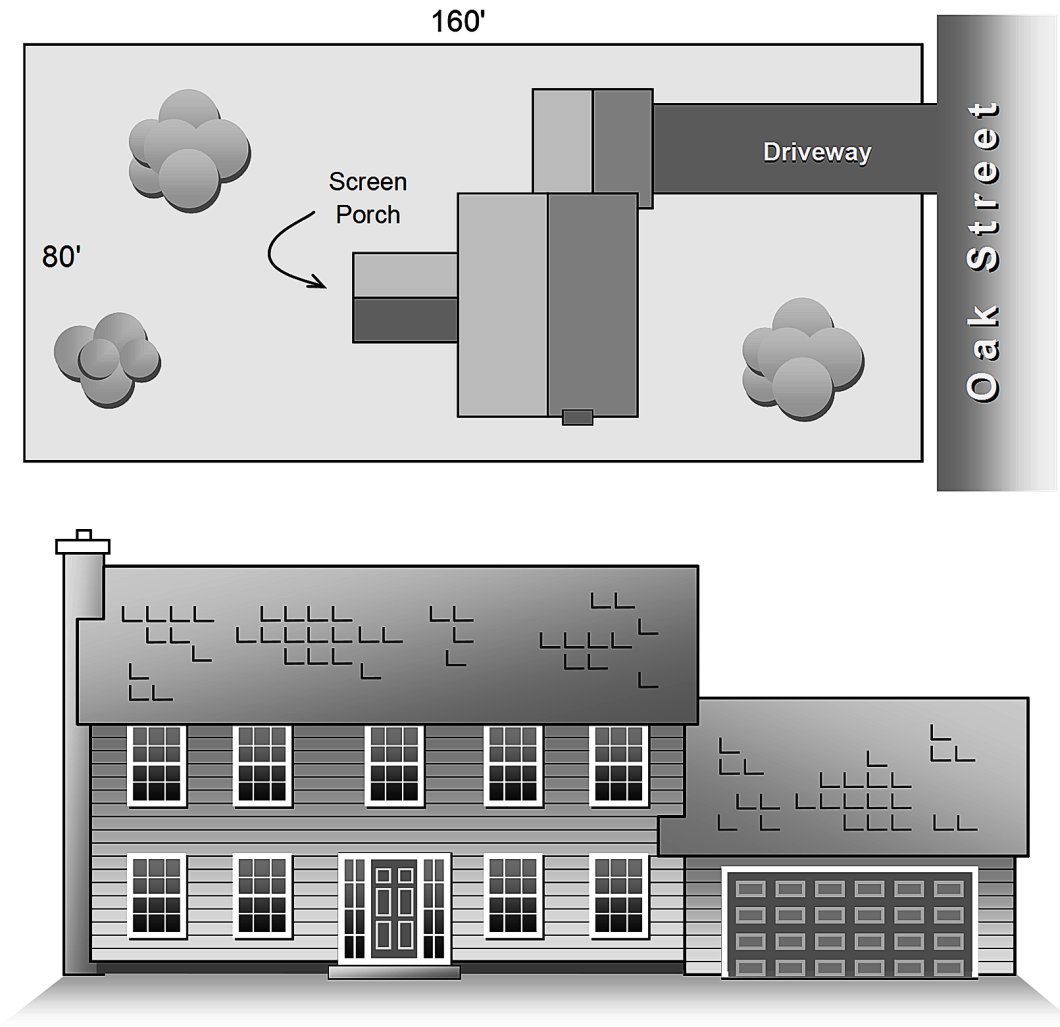
Agent Remarks: **TRADITIONAL 2-STORY COLONIAL TOTALLY RENOVATED INSIDE AND OUT. EVERYTHING IS TOP-OF-THE-LINE IN THIS LOVELY FAMILY HOME. GOURMET COOKING AWAITS YOU AT THE CENTER ISLAND IN THIS MAGNIFICENT NEW KITCHEN WITH CUSTOM CABINETRY. GAS FIREPLACE IN THE FAMILY ROOM COMPLEMENTS THE CLASSIC BRICK FIREPLACE IN THE LIVING ROOM. ENJOY THOSE LAZY SUMMER EVENINGS FROM THE COMFORT OF A LARGE SCREENED PORCH THAT OVERLOOKS A GARDENER'S DELIGHT OF FLOWERS AND METICULOUS LANDSCAPING. INCLUDES ENERGY-EFFICIENT UPGRADES THAT SIGNIFICANTLY REDUCE MONTHLY ENERGY BILL (NEW ENERGY STAR LIGHT FIXTURES AND APPLIANCES, TIMER ON WATER HEATER, UPDATED INSULATION, NEW DUCT WORK, NEW INSULATION, AND INSERT FOR FIREPLACE). MONTHLY ELECTRIC AND GAS LESS THAN $125 PER MONTH LAST YEAR.**

STRUCTURE INFORMATION

ROOM	LEVEL	DIMEN	ROOM DESCRIPTION	LEVEL	DIMEN	MISC
Living Rm	**Main**	**12 × 18**	**Informal Dining Room**	**Main**	**10 × 12**	Heat: **Forced Air**
Dining Rm	**Main**	**12 × 12**	**Laundry**	**Main**	**12 × 8**	Fuel: **Natural Gas**
Family Rm	**Main**	**12 × 16**	**Screen Porch**	**Main**	**14 × 16**	Air Conditioning: **Central**
Kitchen	**Main**	**11 × 12**				Water: **City Water - Conn**
Bedroom 1	**Upper**	**15 × 12**				Sewer: **City Sewer - Conn**
Bedroom 2	**Upper**	**10 × 11**				Garage Stalls: **2**
Bedroom 3	**Upper**	**12 × 12**				Other Parking : **0**
Bedroom 4						Pool:

Total Baths: **2.5** Full: **1** ¾: **1** ½: **1** ¼: **0**
Bath Characteristics: **Main floor half bath, 2 baths on second level**
Dining Room: **Formal dining room and breakfast bar off the dinette-kitchen area**
Family Room: **Main**
Fireplaces: **2** Fireplace Characteristics: **Masonry living room and gas direct vent in family room**
Appliances: **Built-in range-oven, dishwasher, Sub-Zero built-in refrigerator**
Basement: **None – Slab Foundation**
Exterior: **Vinyl siding and aluminum trim** Roof: **Composition shingle**

SALE 3—Additional Information



Appraiser's field observations and research. Sale 3 is one block northwest of the subject property. This home has the same overall level of updating as the subject property, but components are of higher quality and the renovation is more extensive. Not all of the high-end features may be recaptured in the market. The agent said the home showed exceptionally well and felt like a new home in many respects. You believe the overall condition is superior compared to the subject property.

The home has a few additional features such as the screen porch (14′ × 16′) and a direct vent gas fireplace in the family room. The residence also has a regular masonry fireplace in the living room.

SALE 4



Status: **Sold**
Style: **(SF) Two Stories**
Construction Status: **Existing**

Year Built: **45 Years**
Bedrooms: **3**
Total Bath: **2.5**
Garage: **2**
Lot size: **80 × 160**
Acres: **0.29**
Foundation Size: **1148**
AbvGrd Fin Sqft: **2100**
BelGrd Fin Sqft: **None**
Total Fin Sqft: **2100**
List Date: **5 Months Ago**
Market Time: **90 Days**
Date Closed: **2 Months Ago**

List Price: **$185,900**
List #: **64887**
Sold Price: $183,900
Orig. List Price: **$187,900**
MLS Area #: **515**
Map Page: **24**
Map Coordinate: **D–2**

TAX INFORMATION
Tax Year: **Current**
Tax Amount: **$2,265**
Tax w/assess: **$2,310**
Assess Bal: **$0**
Assess Pending: **No**
Homestead: **Y**
Property ID: **C20225500105**

Terms: **CONV – Seller paid 3 Points on a $143,000 mortgage**

4330 Willow Street
Mayberry, USA

GENERAL PROPERTY INFORMATION

Directions: **PARKWAY TO 44TH THEN WEST TO WILLOW ST AND NORTH TO HOUSE**
Legal: **LOT 7, BLOCK 7, CEDAR PARK ADDITION**
County: **Madison**
School District: **#116**
Complex/Development/Subdivision:
Restrictions/Covenants: **None**
Association Fee: **$0**
Zoning: **R-1**
Frequency:
Road Frontage:
Common Wall: **No**
Fee Includes:

REMARKS

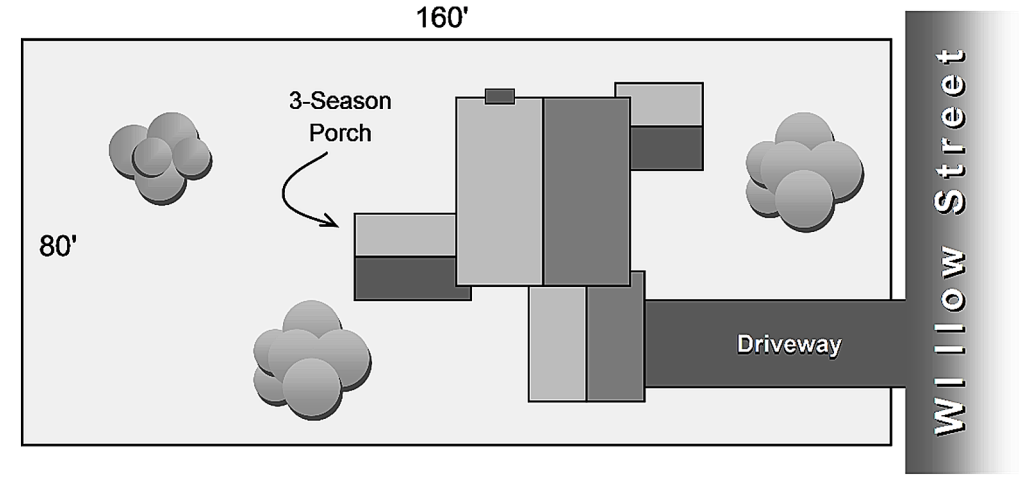
Agent Remarks: **PERFECT CEDAR CREEK COLONIAL READY TO MOVE IN. HOME HAS BEEN IMPECCABLY MAINTAINED WITH NEWER VINYL SIDING AND ROOF SHINGLE. MECHANICALS HAVE BEEN UPDATED. HOME SECURITY SYSTEM PROVIDES PEACE OF MIND. THE 3-SEASON PORCH IS GORGEOUS AND INCLUDES TONGUE AND GROOVE CEDAR PLANK PANELING AND A VAULTED CEILING. A COZY DEN IS LOCATED JUST OFF THE FRONT ENTRY.**

STRUCTURE INFORMATION

Room	Level	Dimen	Room Description	Level	Dimen	Misc
Living Rm	**Main**	**12 × 15**	**Den**	**MAIN**	**10 × 9**	Heat: **Forced Air**
Dining Rm	**Main**	**12 × 11**	**Informal Dining Room**	**MAIN**	**10 × 11**	Fuel: **Natural Gas**
Family Rm	**Main**	**14 × 17**	**Laundry**	**MAIN**	**9 × 7**	Air Conditioning: **None**
Kitchen	**Main**	**11 × 12**	**3-Season Porch**	**MAIN**	**16 × 16**	Water: **City Water - Conn**
Bedroom 1	**Upper**	**14 × 15**				Sewer: **City Sewer - Conn**
Bedroom 2	**Upper**	**11 × 9**				Garage Stalls: **2**
Bedroom 3	**Upper**	**12 × 11**				Other Parking : **0**
Bedroom 4						Pool:

Total Baths: **2.5** Full: **1** ¾: **1** ½: **1** ¼: **0**
Bath Characteristics: **Main floor half bath, 2 baths on second level**
Dining Room: **Formal Dining room and separate informal dining off the kitchen**
Family Room: **Main**
Fireplaces: **1** Fireplace Characteristics: **Masonry**
Appliances: **Built-in range and dishwasher**
Basement: **None – Slab Foundation**
Exterior: **Vinyl siding and aluminum trim** Roof: **Composition shingle**

SALE 4—Additional Information





Appraiser's field observations and research. Sale 4 is less than a block north of the subject property. The broker indicated that the home is very well-maintained and tastefully decorated. The kitchen has been remodeled, but not as recently as the subject property's kitchen. Baths are original, but include new floor covers and other minor updating. In your opinion, the home's effective age is a little older than that of the subject property. The 3-season porch is very attractive and likely the strongest selling feature of the property. Sale 4 has a private rear yard area and quality landscaping.

SALE 5



Status: **Sold**
Style: **(SF) Two Stories**
Construction Status: **Existing**

Year Built: **45 Years**
Bedrooms: **4**
Total Bath: **2.5**
Garage: **2+**
Lot size: **80 × 160**
Acres: **0.29**
Foundation Size: **1360**
AbvGrd Fin Sqft: **2368**
BelGrd Fin Sqft: **None**
Total Fin Sqft: **2368**
List Date: **4 Months Ago**
Market Time: **60 Days**
Date Closed: **2 Months Ago**

List Price: **$182,900**
List #: **63924**
Sold Price: $179,500
Orig. List Price: **$185,900**
MLS Area #: **515**
Map Page: **24**
Map Coordinate: **D–3**

Tax Information
Tax Year: **Current**
Tax Amount: **TBD**
Tax w/assess: **TBD**
Assess Bal: **$0**
Assess Pending: **No**
Homestead: **Y**
Property ID: **C20225500025**

Terms: **CONV 4 Points paid by the buyer on $140,000 mortgage**

4410 Maple Street
Mayberry, USA

GENERAL PROPERTY INFORMATION

Directions: **PARKWAY TO 44TH W TO MAPLE ST AND SOUTH TO HOME**
Legal: **LOT 16, BLOCK 9, CEDAR CREEK ADDITION**
County: **Madison**
School District: **#116**
Complex/Development/Subdivision:
Common Wall: **No**
Restrictions/Covenants: **None**
Association Fee: **$0**
Frequency:
Fee Includes:
Zoning: **R-1**
Road Frontage:

REMARKS

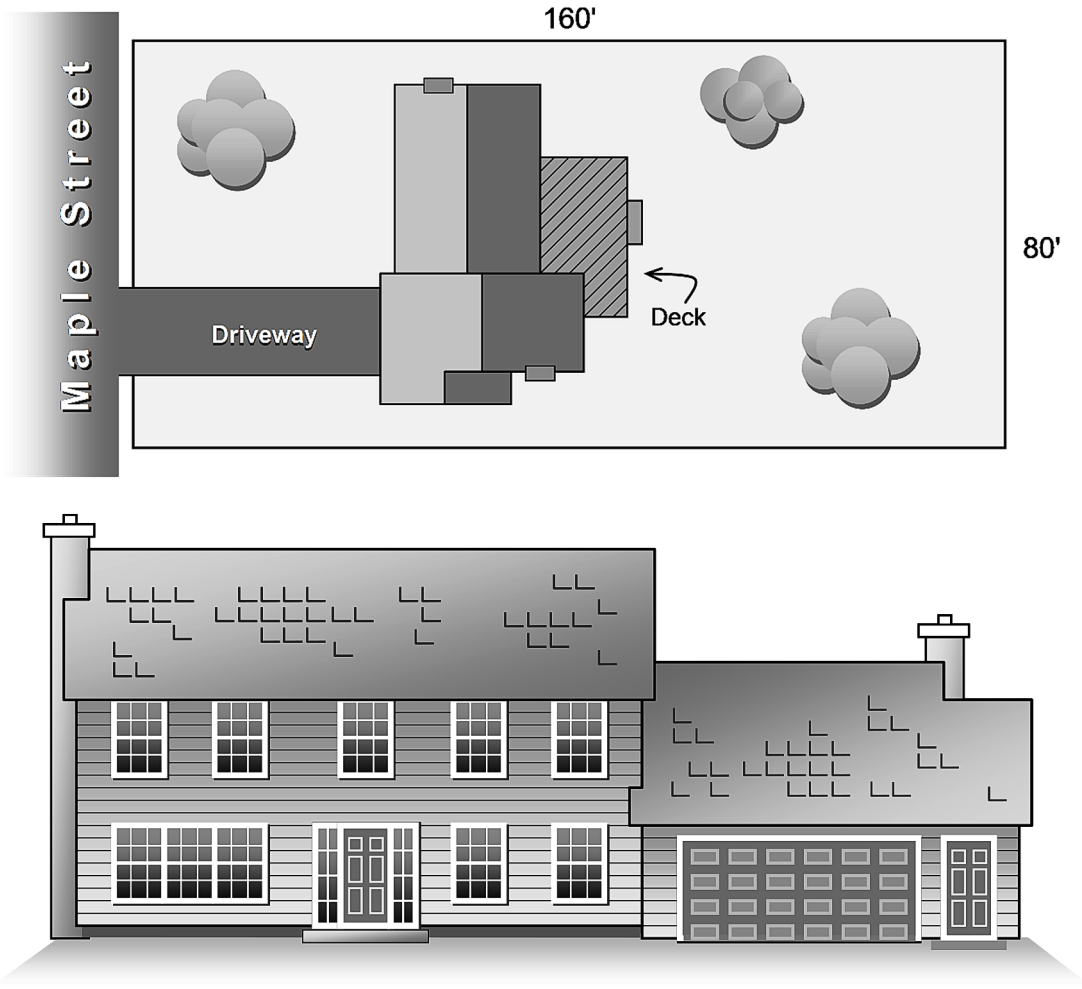
Agent Remarks: **SPACIOUS 4 BEDROOM READY FOR YOUR DECORATING FLAIR. GREAT FAMILY HOME LOCATED ACROSS THE STREET FROM CEDAR CREEK. ALUMINUM SIDING AND NEW ROOF SHINGLE. THE 2-CAR GARAGE IS OVERZIED. HUGE DECK. TWO BRICK FIREPLACES.**

STRUCTURE INFORMATION

Room	LEVEL	DIMEN	ROOM DESCRIPTION	LEVEL	DIMEN	MISC
Living Rm	**MAIN**	**12 × 18**	**Informal Dining Room**	**MAIN**	**10 × 11**	Heat: **Forced Air**
Dining Rm	**MAIN**	**12 × 12**	**Laundry**	**MAIN**	**7 × 11**	Fuel: **Natural Gas**
Family Rm	**MAIN**	**15 × 21**	**Deck**	**MAIN**	**20 × 16+**	Air Conditioning: **Central**
Kitchen	**MAIN**	**11 × 12**				Water: **City Water - Conn**
Bedroom 1	**UPPER**	**15 × 14**				Sewer: **City Sewer - Conn**
Bedroom 2	**UPPER**	**10 × 11**				Garage Stalls: **2**
Bedroom 3	**UPPER**	**12 × 11**				Other Parking : **0**
Bedroom 4	**UPPER**	**10 × 11**				Pool:

Total Baths: **2.5** Full: **1** ¾: **1** ½: **1** ¼: **0**
Bath Characteristics: **Main floor half bath, 2 baths on second level**
Dining Room: **Formal dining room and separate informal dining area off the kitchen**
Family Room: **Main**
Fireplaces: **2** Fireplace Characteristics: **Masonry**
Appliances: **Range-oven, dishwasher, and disposal**
Basement: **None – Slab Foundation**
Exterior: **Aluminum siding and trim** Roof: **Composition shingle**

SALE 5—Additional Information



Appraiser's field observations and research. Sale 5 is a block west of the subject property and is close to the Cedar Creek Park area. You have noticed that sales across from Cedar Creek sometimes sell more quickly than those a block away. The home is clean, but lacks the updating and renovation found in competing properties. Its aluminum siding is 20 years old. There are two separate masonry fireplaces. The garage is oversized (2+ car) and there is a large deck at the rear that is estimated at 20′ × 16′ plus an 8′ × 8′ area. The deck appears to be in good condition. The agent's remarks and the observation from the exterior suggest that the effective age is substantially inferior to that of the subject property.

SALE 6



4440 Willow Street
Mayberry, USA

Status: **Sold**
Style: **(SF) Two Stories**
Construction Status: **Existing**

Year Built: **38 Years**
Bedrooms: **3**
Total Bath: **2**
Garage: **3**
Lot size: **100 × 160**
Acres: **0.37**
Foundation Size: **1260**
AbvGrd Fin Sqft: **2040**
BelGrd Fin Sqft: **None**
Total Fin Sqft: **2040**
List Date: **6 Months Ago**
Market Time: **30 Days**
Date Closed: **5 Months Ago**
Terms: **CONV**

List Price: **$194,900**
List #: **63417**
Sold Price: $189,000
Orig. List Price: **$194,900**
MLS Area #: **515**
Map Page: **24**
Map Coordinate: **D–2**

Tax Information
Tax Year: **Current**
Tax Amount: **$2,325**
Tax w/assess: **$2,410**
Assess Bal: **$0**
Assess Pending: **No**
Homestead: **Y**
Property ID: **C20225500225**

GENERAL PROPERTY INFORMATION

Directions: **PARKWAY TO 44TH W TO WILLOW ST AND SOUTH TO PROPERTY**
Legal: **LOT 11, BLOCK 5, CEDAR PARK ADDITION**
County: **Madison**
School District: **#116**
Complex/Development/Subdivision:
Common Wall: **No**
Restrictions/Covenants: **None**
Association Fee: **$0**
Frequency:
Fee Includes:
Zoning: **R-1**
Road Frontage:

REMARKS

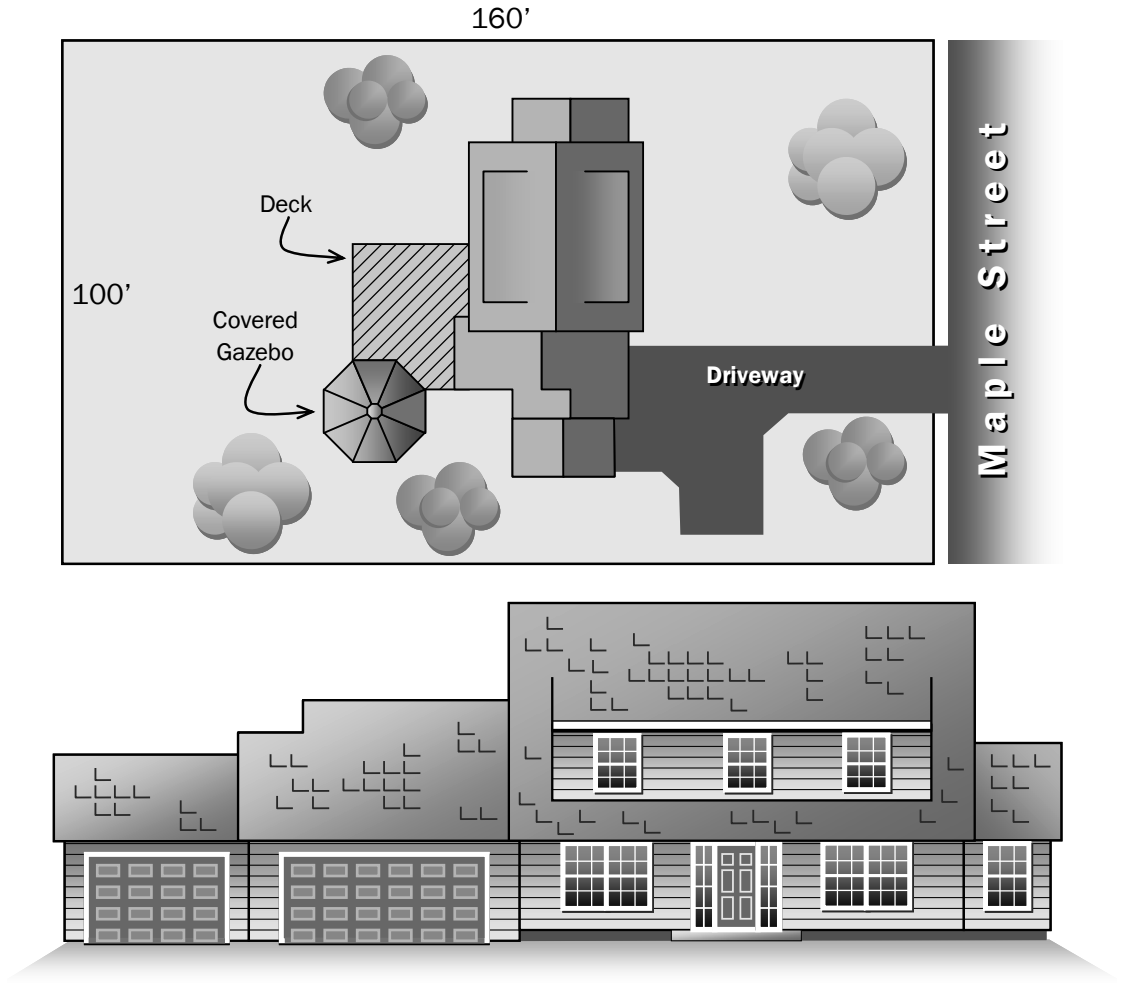
Agent Remarks: **DARLING COLONIAL WONDERFULLY UPDATED THROUGHOUT WITH A FABULOUS NEW KITCHEN. THIS HOME FEELS VERY SPACIOUS AND DECORATED IN NEUTRAL TONES. ALL MECHANICALS AND ELECTRICAL HAVE BEEN UPDATED. LARGE DECK LEADS TO A SCREENED GAZEBO PORCH. 3-CAR GARAGE AND LARGE LOT MAKE THIS ONE OF THE MOST SOUGHT-AFTER PROPERTIES IN CEDAR CREEK. HURRY—THIS ONE WON'T LAST LONG!**

STRUCTURE INFORMATION

ROOM	LEVEL	DIMEN	ROOM DESCRIPTION	LEVEL	DIMEN	MISC
Living Rm	**MAIN**	**12 × 17**	**Informal Dining Room**	**MAIN**	**11 × 10**	Heat: **Forced Air**
Dining Rm	**MAIN**	**12 × 13**	**Laundry**	**MAIN**	**10 × 7**	Fuel: **Natural Gas**
Family Rm	**MAIN**	**12 × 14**	**Deck and Gazebo**	**MAIN**		Air Conditioning: **Central**
Kitchen	**MAIN**	**12 × 13**				Water: **City Water - Conn**
Bedroom 1	**UPPER**	**15 × 12**				Sewer: **City Sewer - Conn**
Bedroom 2	**UPPER**	**10 × 12**				Garage Stalls: **3**
Bedroom 3	**UPPER**	**12 × 12**				Other Parking : **0**
Bedroom 4						Pool:

Total Baths: **2** Full: **2** ¾: **0** ½: **0** ¼: **0**
Bath Characteristics: **2 baths on second level**
Dining Room: **Formal dining room and informal dining off the kitchen**
Family Room: **Main**
Fireplaces: **1** Fireplace Characteristics: **Direct vent**
Appliances: **Built-in range-oven, dishwasher, and disposal**
Basement: **None – Slab Foundation**
Exterior: **Vinyl siding and aluminum trim** Roof: **Composition shingle**

SALE 6—Additional Information



Appraiser's field observations and research. Sale 6 is a half-block southeast of the subject property. The updating and condition of the property is comparable to that of the subject property. The deck's size is estimated at 260 sq. ft. and the gazebo at 192 sq. ft. There is a direct vent fireplace in the family room, but no masonry fireplace. The design of the home competes well against traditional two-story residences, and you did not observe any market differences due to the design.

Review Part 16

Learning Objective

Now that you've completed Part 16, you should be able to

- ☑ Analyze sales to select appropriate comparable sales.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 22, P. 397–411

Appraising Residential Properties, 4th ed., Chapter 18, P. 333–355

Additional Sources

Property Inspection: An Appraiser's Guide by John A. Simpson, MAI, 1997

Using the Individual Condominium Unit Appraisal Report Forms: Forms 1073 and 1075 by Mark R. Rattermann, MAI, SRA, 2006

Using Residential Appraisal Report Forms: URAR, Form 2055, and the Market Conditions Form, 2nd ed. by Mark R. Rattermann, MAI, SRA, 2009

Using the Small Residential Income Property Appraisal Report: Form 1025/72 by Mark R. Rattermann, MAI, SRA, 2006

Valuation by Comparison: Residential Analysis and Logic by Mark R. Rattermann, MAI, SRA, 2007

Note. For sources on commercial properties such as industrial, office, and apartment properties, go to www.appraisalinstitute.org. Click on "Publications" and "All Books."

Terms and Concepts to Remember

Become familiar with terms such as *multiple listing service (MLS)* and any other terms found on the MLS data sheets.

Resources

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.

Note. There is no review quiz for Part 16.

Part 17 Preview

Adjustments

In Part 17, you will learn about adjustments and how they are derived and used on a market data grid. At the end of the session, you'll use your newly acquired knowledge to work out the adjustments for the Oak Street (URAR) case study. You will need a fair amount of time to analyze and work on the paired data exercise.

Deriving and using market adjustments takes research and skill. It is critical for appraisers to distinguish between quantitative and qualitative analysis.

Before we conclude, we'll also preview the additional market adjustments you will need for the URAR market grid—these will be added to the ones you'll derive from the paired data analysis.

Learning Objectives

To prepare for Part 17, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Distinguish between quantitative and qualitative analytical techniques.
- ☐ Derive adjustments using paired sales analysis.

Learning Tips

Paired data analysis sometimes trips up experienced appraisers. The exercise at the end of this part might seem intimidating at first glance. Be assured that you won't face anything quite that complex on the exam. Your instructor will also guide you through the first series of adjustments before you try some adjustments on your own. If you have trouble, ask for help. Your instructor will review the derivation of all five adjustments from the paired sales analysis.

The adjustment process may not make sense until you've worked out several comparable sales in the URAR case study. Once you start to understand the process, you will find it an enjoyable experience!

Part 17.
Adjustments

Now that you have the comparable sales selected, you're almost ready to place them on the URAR market grid and begin the adjustment process. Before doing that, you will need to derive the adjustments from the market. You will also need to learn some background about the adjustment process and the various techniques involved.

I. Identification and Measurement of Adjustments

A. **Comparative analysis**. This is a general term used to identify the process in which quantitative and qualitative techniques are applied to comparable sales so you can derive a value indication in the sales comparison approach.

1. Quantitative adjustments derived in comparative analysis may be expressed in numerical amounts such as dollars or percentages and are applied to the sale prices of comparable properties.

2. After quantitative differences have been identified, qualitative analysis is used to determine which comparable sales are inferior, similar, or superior to the subject property for a specific element of comparison.

3. Comparative analysis may employ quantitative or qualitative techniques either separately or in combination.

4. Make a summary or overall comparison of the adjusted sale prices and reconcile the array of value indications into a single value indication.

B. **Quantitative adjustments** use a mathematical process. In these adjustment techniques, appraisers must be careful to ensure that mathematical processes and results reflect the reactions of market participants.

1. **Paired data analysis.** This technique is based on the premise that when two properties are equivalent in all respects but one, the value of a single difference can be measured to indicate the difference in price between the two properties.

Feature	Condo A	Condo B	Condo C	Condo D
Sale price	$325,000	$335,000	$300,000	$310,000
Floor level	15th floor	20th floor	15th floor	20th floor
View	Waterfront	Waterfront	City park	City park

a. Paired data analysis can be applied to measure adjustments based on sale prices or rents.

b. The technique may be impractical when only a narrow sampling of sufficiently similar properties is available. This is a common issue for commercial and industrial properties, which may have infrequent sales in the marketplace.

c. Paired data analysis is a variant of sensitivity analysis—a method used to isolate the effect of individual variables on value.

2. **Statistical analysis.** *Quantitative techniques used, for example, to estimate value and identify and measure adjustments to the sale prices of comparable properties; techniques include statistical inference and linear and multiple regression analyses*.

3. **Graphic analysis.** *Quantitative techniques used to identify and measure adjustments to the sale prices of comparable properties; a variant of statistical analysis in which an appraiser interprets graphically displayed data visually or through curve fit analysis. Graphs can also be used to support and exhibit value trends for comparison elements in qualitative analysis*.

4. **Cost-analysis/cost-related adjustments.** Cost indicators such as depreciated building costs are used as a basis for adjustments. Also, an appraiser might consider cost to cure or cost to remodel as the basis for adjustments. Cost-related adjustments are better suited in markets with limited sales activity.

5. **Capitalization of income differences.** Capitalization of differences in net operating income can be used to derive an adjustment when the income loss incurred by a comparable property reflects a specific deficiency in the property, such as inadequate parking facilities for a retail store.

C. **Qualitative analysis** recognizes the inefficiencies of real estate markets and the difficulty in expressing adjustments with mathematical precision.

1. **Trend analysis.** *A qualitative technique used to identify and measure trends in the sale prices of comparable properties*. This technique can be used when a large amount of market data is available.

2. **Relative comparison analysis.** Studies the relationships indicated by market data without recourse to quantification. Appraisers

a. Analyze comparable sales to determine whether the property's relevant characteristics are inferior, superior, or equal to those of the subject property.

b. Use this technique because it reflects the imperfect nature of real estate markets. It is similar to paired data analysis, but quantitative adjustments are not derived in this technique.

3. **Ranking analysis.** This is a variant of relative comparison analysis. First, sales are ranked in ascending or descending order of desirability. Next, each sale is analyzed to determine the relative position of the subject property in the array. This is a great way to *visualize* value patterns.

   Where would the subject property fit in the ranked data if the features of the 2-bedroom condo included a city park view on the 17th floor?

Ranked Sales	Floor Level	View	Bedrooms	Sale Price
Condo Sale 1	15	City park	2	$300,000
Condo Sale 2	15	City park	2	$300,000
Condo Sale 3	15	Waterfront	2	$325,000
Condo Sale 4	16	City park	2	$302,000
Condo Sale 5	16	Waterfront	2	$327,000
Condo Sale 6	17	City park	2	$304,000
Condo Sale 7	17	Waterfront	2	$329,000
Condo Sale 8	18	City park	2	$306,000
Condo Sale 9	19	City park	2	$308,000
Condo Sale 10	19	Waterfront	2	$333,000

4. **Personal interviews.** Interviews can reveal the opinions of knowledgeable individuals participating in the subject property's market and identify trends in sale prices. The appraiser has to be cautious when using data gathered through personal interviews. Such data should not be used as the sole criteria for estimating adjustments or reconciling value ranges if an alternative method that relies on direct evidence of market transactions can be applied.

II. Types of Adjustments

A. **Percentage adjustments.** These are often used to reflect changes in market conditions and differences in location. It is important to be consistent in stating the relationship between the subject property and the comparable sale so that it reflects the way it is perceived by the market.

B. **Dollar adjustments.** Adjustments for relevant physical characteristics are commonly made in terms of dollars. Percentage adjustments are frequently converted to a dollar amount.

C. **Sequence of adjustments.** The sequence in which adjustments are applied to the comparable sales is determined by the market data and the appraiser's analysis of that data.

1. Transactional adjustments are generally applied in the order presented below, whereas property adjustments are applied after the transactional adjustments, but in no particular order.

Transactional Adjustments	Property Adjustments
1. Real property rights conveyed	6. Location
2. Financing terms	7. Physical characteristics
3. Conditions of sale	8. Economic characteristics
4. Expenditures made immediately after purchase	9. Use/zoning
5. Market conditions	10. Non-realty components of value

2. **Example.** Assuming the percentage adjustments presented below are market derived, what would be the indicated value of a comparable sale?

Sale Price for Comparable	**$400,000**	
Element of Comparison	Adjustment	Comments
Financing terms (transactional)	– 5%	$400,000 x 0.95
Conditions of sale (transactional)	– 10%	x 0.90
Market conditions (transactional)	+10%	x 1.10
Adjusted Sale Price	**$376,200**	**Subtotal**
Location (property)	– 5%	– $18,810
Physical characteristics (property)	+10%	+ $37,620
Indicated value		$376,200 x 1.05

Transactional adjustments are the first to be performed, and they are carried out in sequence. Next, the property adjustments are performed, but all the percentage adjustments are based on the adjusted sale price ($376,200).

III. Adjustment Process

A. **Market data grid.** Data grids can be used for multiple purposes.

1. The first step is to organize the market data on the grid.

   a. The grid includes rows for relevant elements of comparison and columns for the properties to be analyzed and adjusted.

   b. The market grid may also include rows for the final adjusted price of each sale. This allows the appraiser to take the data through a reconciliation process to derive a final indication of value for the subject property.

B. Market data grid applications

1. **Sale to sale analysis.** If two vacant sites were similar except for the frontage on the water, the difference in sale price could be attributed to that item.

FEATURE	COMPARABLE A	COMPARABLE B	
VALUE ADJUSTMENTS	DESCRIPTION	DESCRIPTION	+(–) $ Adjustment
Sale Price	**$700,000**	**$600,000**	
Location	Bayside Manor	Bayside Manor	
Site	200 ft. water frontage	150 ft. water frontage	**$ 100,000**
View	Good	Good	

2. **Subject property and sale analysis**

FEATURE	SUBJECT			COMPARABLE # 1			
Sales Price	Refinance						$250,000
VALUE ADJUSTMENTS	DESCRIPTION			DESCRIPTION			+(–) $ Adjustment
Financing Terms and Concessions				Seller-paid points to lower the buyer's mortgage			– $8,000
Sale Date	September			June			
Location	Suburban / Average			Suburban / Average			
Leasehold/Fee Simple	Fee Simple Interest			Fee Simple Interest			
Site	2 acres			1 acre			+ 20,000
View	Average			Average			
Design (Style)	1-Story			1-Story			
Quality of Construction	Good			Good			
Actual Age	15 years			20 years			+ 10,000
Condition	Average			Average			
Above Grade Room Count	Total	Bedrms	Baths	Total	Bedrms	Baths	
	7	2	2.5	7	2	2.5	
Gross Living Area	1,860		Sq. Ft.	2,115		Sq. Ft.	– 10,200

3. Fundamentals on the use of a subject property and sale market grid

    a. The subject property is the base and the comparable sales are adjusted to the subject property with one exception: **financing terms are adjusted to the market.**

    b. Inferior items in the comparable sale receive a plus (+) adjustment, and superior items receive a minus (–) adjustment. Remember that an error in the mathematical sign is compounded in the sale's indicated value.

    c. Sales concessions are always a minus (–) adjustment.

        - The $8,000 adjustment for seller-paid points in the market grid on the previous page is deducted from the $250,000 selling price to adjust the sale to reflect what it would have sold for without any sales concessions. In other words, the property would have sold for $242,000 had the seller not paid down the interest rate of the buyer's mortgage. This initial cash-equivalent price of the comparable property should be further supported by market evidence.

        - Discount points paid by a seller to lower the monthly mortgage payments of the buyer's loan can inflate the selling price of a property. This is because the buyer is willing to pay more for the property if the mortgage payments are lowered. Buyer-paid points are a non-issue.

4. Relative comparison analysis (for qualitative adjustments) is another type of analysis that benefits from using a market data grid.

IV. Reconciliation of the Sales Comparison Approach

A. What the appraiser considers in reconciliation

The following reviews content discussed in Part 13 when we addressed sales comparison in land valuation, but there are some added insights!

The appraiser must summarize and review the data and analyses that resulted in each of the value indications. These value indications are then resolved into a range of value or a single value indication. Some items considered include

1. **Number of adjustments.** Generally, the fewer the number of adjustments, the better the comparison. Every adjustment means there is a significant difference between the subject property and the comparable sale. Every adjustment presents an opportunity for error.

2. **Gross adjustments.** The total dollar amount of adjustments made to each comparable sale. Generally, the lower the amount, the better the comparison.

3. **Net adjustments.** The dollar amount that results after the plus adjustments offset the minus adjustments. Generally, the lower the amount, the better, but this can be misleading. Roughly equal amounts of plus and minus adjustments can lead to a small net adjustment when the total dollar amount of gross adjustments is large.

4. **Gross adjustments as a percentage of sale price.** May be helpful when the dollar amounts of adjustments are quite similar.

5. **Amount of data.** Is it adequate for the type of property? Is it recent?

6. **Comparability to subject property.** Which is the best comparison? Which sales will be given greater consideration?

B. Reconciliation in the sales comparison approach. A conclusion of the final value indication from the approach includes the following considerations:

1. The conclusion result should be within the final range of value.

2. The conclusion may be one of the actual value indications of a particular comparable sale, or it can be another number within the range of value.

3. The appraiser should appropriately round the final value conclusion.

4. Reconciliation should involve a reasoned judgment process and not a simple average of the indicated values of the comparable sales.

C. The reconciliation process takes place throughout the entire valuation process. In Part 20, the process of final reconciliation is discussed in greater detail.

V. Oak Street Case Study (Part V)—Market Grid Adjustments



Instructions: Paired sales analysis is focused on the sales, so don't worry about the subject property in this analysis. The sales listed below are not the ones we selected in Part 16. While these are different properties, they are from the same market area and in the same general price range.

Begin your analysis by pairing two sales that are alike except for one item. The difference in the two sale prices can be attributed to the item. **Important Note.** The item labeled *Room Count* represents Total Rooms/Bedrooms/Baths. There is no market distinction between the number of bedrooms (or total rooms), so this item accounts for baths only.

Once you have identified the five adjustments, fill in the spaces provided below. We will use these adjustments in the URAR market grid in Part 18.

Paired Data Analysis

FEATURE	SALE A	SALE B	SALE C	SALE D	SALE E	SALE F
Sale price	$170,000	**$179,000**	174,000	**$171,500**	$166,000	**$177,500**
Lot size	80' x 160'	**80' x 160'**	80' x 160'	**80' x 160'**	80' x 160'	**80' x 160'**
Age/effective	48A/25E	**34A/15E**	38A/15E	**45A/20E**	41A/20E	**36A/20E**
Room count	8/4/2.5	**7/3/2**	7/3/2	**7/4/2.5**	8/4/2.5	**8/4/2.5**
GLA size	2,300 sq. ft.	**2,200 sq. ft.**	1,900 sq. ft.	**2,100 sq. ft.**	2,000 sq. ft.	**2,300 sq. ft.**
Garage	2-Car	**2-Car**	3-Car	**2-Car**	2-Car	**2-Car**
Fireplace	1	**1**	1	**1**	None	**1**

1. **Effective Age** adjustment per year _____

   Hint: Compare A and F and ignore actual age — Divide the initial adjustment by the difference in effective age

2. **GLA** size adjustment per square foot _____

   Hint: Compare D and F — Divide the initial adjustment by the difference in sq. ft.

3. **Half Bath** adjustment _____

4. **Garage** (2-car vs. 3-car) adjustment _____

5. **Fireplace** (single, masonry type) _____

Additional advice: In some instances, you will need to use adjustments derived from the initial pairing in order to solve subsequent adjustments. In other words, once you have the adjustment for effective age, you can adjust the other sales for any differences in effective age to isolate the next adjustment.

Oak Street Case Study—Additional Market Adjustments

The following market adjustments are specific to the subject property in the case study. For example, the subject property has central air conditioning. If a comparable sale lacks this feature, the comparable sale should be plus (+) adjusted $1,500 because the comparable sale is inferior in this particular item when compared to the subject property.

No.	FEATURE	ADJUSTMENT	COMMENTS
1	Financing concessions Seller-paid points	Adjust for any seller-paid mortgage discount points.	Points are based on the loan amount, not the sales price.
2	Cedar Parkway location	About 5% external obsoles.	Applies to the entire property.
3	Large lot (100′ x 160′)	$9,000	Superior site feature
4	Wooded creek view	$6,000	Superior view feature
5	Cul-de-sac lot	$3,000	Superior neighborhood feature
6	Quality of residence or renovation components	An adjustment based on reasoned judgment	Make this adjustment after all others. Interpret the MLS data carefully.
7	Central air conditioning	$1,500	The subject property has AC, so use for sale lacking this feature.
8	Direct vent gas fireplace	$1,500	The subject property does not have this particular feature.
9	Security system	$1,500 to $2,000	The subject property does not have this particular feature.
10	Screen porch on slab	$10 to $15 per sq. ft.	Quality and size are the determining factors.
11	3-season porch on slab	$15 to $25 per sq. ft.	Quality and size are the determining factors.
12	Wood deck	$5 to $8 per sq. ft.	Decks are short-lived items.

Exercising judgment: Some adjustments cannot be quantitatively derived and require the application of reasoned judgment. Such adjustments should be limited and kept within the context of the property being appraised. Call your instructor if you need help.

Small adjustments: Sometimes an adjustment is so minor that the market can't recognize it. For example, the difference between a 2,200 sq. ft. house and a 2,250 sq. ft. house probably can't be distinguished by market buyers. However, when it comes to GLA, it is a good idea to make the adjustment consistently for all the comparable sales using the derived unit of comparison—even if the adjustment for the comparable sale is less than $500.

Rounding: Appraisers commonly round individual adjustments on the market grid to the nearest $100 (e.g., square foot adjustment). When making an adjustment based solely on reasoned judgment, residential appraisers often round to the nearest $500 or $1,000 increment.

Review Part 17

Learning Objectives

Now that you've completed Part 17, you should be able to

- ☑ Distinguish between quantitative and qualitative analytical techniques.
- ☑ Derive adjustments using paired sales analysis.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapter 22, P. 397–411

Appraising Residential Properties, 4th ed., Chapter 18, pp. 333–355

Additional Sources

Property Inspection: An Appraiser's Guide by John A. Simpson, MAI, 1997

Using the Individual Condominium Unit Appraisal Report Forms: Forms 1073 and 1075 by Mark R. Rattermann, MAI, SRA, 2006

Using Residential Appraisal Report Forms: URAR, Form 2055, and the Market Conditions Form, 2nd ed. by Mark R. Rattermann, MAI, SRA, 2009

Using the Small Residential Income Property Appraisal Report: Form 1025/72 by Mark R. Rattermann, MAI, SRA, 2006

Valuation by Comparison: Residential Analysis and Logic by Mark R. Rattermann, MAI, SRA, 2007

Note. For sources on commercial properties such as industrial, office, and apartment properties, go to www.appraisalinstitute.org. Click on "Publications" and "All Books."

Terms and Concepts to Remember

Paired data analysis	Quantitative adjustments	Sequence of adjustments
Qualitative analysis	Ranking analysis	

Note. There is no review quiz for Part 17.

Part 18 Preview

Oak Street Case Study—Market Grid Application

Part 18 is devoted to working on the Oak Street case study, with the exception of the practice test at the end. Don't feel rushed; you will have several more hours to work on this project in an extended morning session tomorrow.

In Parts 18 and 19, you will be entering the data on the URAR market grid for Comparable Sales 1–6 and adjusting them. We encourage you to begin the adjustment process as soon as you have one or two of the comparable sales entered into the market grid. That way, you will be ready when the instructor reviews the adjustments for a particular sale.

Learning Objectives

To prepare for Part 18, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Apply the adjustment process using a market data grid.
- ☐ Reconcile the indicated values derived in the sales comparison approach to a single point value opinion.

Learning Tips

Spend the rest of the time today working on the URAR form. Use the time tonight to study for the exam. Don't work on the Oak Street case study outside of the classroom.

Part 18.
Oak Street Case Study–
Market Grid Application

In a few moments you can begin inserting the sales into the market grid section of the URAR. Take your time and don't rush the adjustment process. Part 18 will extend into the next day. Once you have most of your adjustments recorded for the first three comparable sales, your instructor will review the comparable sales in class so you can cross-check your adjustments.

I. Oak Street Case Study (Part VI)—Instructions for Market Grid



Instructions: Work with one or two people who are seated near you to check your adjustments as you progress through the case study. The first task is to enter each selected sale into the market grid. You can decide on the entry method you like best. Some will enter all comparable data for Sales 1–3 before making adjustments. That's fine, but the approach we recommend is to completely fill in the data for a comparable sale, and then adjust it.

The following information offers guidance on particular items in case you're not sure what "Functional Utility" means or what kind of data should be entered for "Actual Age" or "Heating/Cooling" on the grid. Your instructor will provide supervisory guidance, but otherwise this is your time to work the adjustments out.

> **Advice on valuation indications and final reconciliation.** As it would be in real world appraising, you will have to use judgment in the adjustment process. Not all adjustments are known for the sales you are working on. Your adjustments and final reconciled value will very likely be different from those of other participants and even the instructor. Your adjustments must be supported or at least reasoned out based on the data you have. This market grid application will require you to make some adjustments that were not derived by paired sales or supplied as given data. If you make a personal adjustment decision of $1,000 or even $10,000, be sure that you can logically support the adjustment with data or logical deduction from data.

To assist you as you complete the URAR form, we've included general advice for what should go in the blanks on the market grid from various agencies such as Fannie Mae or HUD. As you complete the market grid, use the following Guide Notes as a reference tool.

II. Guide Notes for the Market Grid

A. Address

1. Enter the address used to locate the property.

2. For rural properties, list location by road name or nearest intersection.

B. Proximity to Subject Property

1. Describe distance from the subject property.

2. Use blocks, miles, or fractions of miles "as the crow flies."

3. If more than 1 mile, explain in the Comments section of the report.

C. Sales Price

1. Enter total paid by the buyer, including any extras.

2. Comparable sales should be within the general price range of the subject property.

D. Sale Price/Gross Living Area

1. Sale Price divided by GLA equals the "sale price/gross living area."

2. If using figures from another source, you need to verify.

E. Data Source(s) and Verification Source(s)

1. Appraisers must verify comparable market data used in the appraisal.

2. Enter the first source name from which the comparable sale information was originally obtained and then the second source used to verify.

   Note. For the case study, check the appraiser's field observations on each of the comparable sales. Generally, the data was verified with either the agent, seller, or public records. The initial (that is, the original) data source should be listed as MLS.

F. **Sales or Financing Concessions**

1. Show type of financing (CONV, FHA, VA, etc.).

2. Any adjustments must be negative, and the appraiser should discount seller-paid points and any seller concessions to reflect a market price that would have been paid for the comparable property in an all-cash sale (which is referred to as cash equivalency).

3. Show the difference between the sales price and what it would have sold for without concessions (this should be addressed in the Comments section).

G. **Date of Sale/Time**

1. Enter month and year of the contract closing.

2. Some appraisers report both contract date and closing date.

3. If the appraiser lists the contract date only, the report must indicate whether or not the contract has closed.

H. **Location**

1. Rate the subject property location as *Good, Average, Fair,* or *Poor.*

2. The comparable sale can be rated in the same manner, or as *Superior* or *Inferior.*

3. Adjust for *Superior* or *Inferior* location ratings and explain your reasoning in the Comments section.

I. **Leasehold/Fee Simple**

1. Specify the type of estate transferred.

2. *Leasehold* does not feature ownership of the land. *Fee* estates may be fee simple absolute, fee simple determinable, or other fee estates.

3. Enter *Fee Simple* if fee simple absolute.

4. Adjust for differences.

J. **Site and View**

1. Rate the *Site* and *View* of the subject property as *Good, Average, Fair,* or *Poor*. Be descriptive if needed (e.g., pond/good), or include comments in an addendum.

2. Rate the comparable sale as *Superior* or *Inferior* and adjust for differences.

K. **Design (Style)**

1. Look at overall attractiveness and market appeal.

2. Indicate the design and rate the appeal for the subject property and comparable sales as *Good, Average, Fair,* or *Poor.*

3. The comparable sales can be rated as *Superior* or *Inferior* and then adjusted for differences. Such adjustments should be explained in the Comments section.

L. **Quality of Construction**

1. Look at workmanship, materials, and the builder's reputation.

2. Rate the subject property as *Good, Average, Fair,* or *Poor.*

3. Rate the comparable sales as *Good, Average, Fair,* or *Poor,* or indicate whether *Superior/Inferior* to the subject property and adjust accordingly.

M. **Actual Age**

Indicate the actual age and/or effective age for the comparable sale and adjust accordingly. Effective age is the critical component for adjustment purposes. Even so, lenders may want the actual age reported even if the adjustment is based on effective age.

Note for Oak Street Case Study. The method we chose places the actual age and effective age on the same grid line (e.g., 25A/20E). For the most part, the "condition adjustment" is included in the adjustment for effective age. That method will work for the subject property and comparable sales in this case study, but an additional condition adjustment may be necessary under other circumstances.

N. **Condition**

1. Limit this adjustment to items not already included in the "Age" adjustment.

2. Examine curable physical deterioration.

3. Rate the subject property as *Good, Average, Fair,* or *Poor.*

4. Rate the comparable sales as *Good, Average, Fair,* or *Poor,* or indicate whether *Superior/Inferior* to the subject property and adjust accordingly.

Note for Oak Street Case Study. *As noted previously, we chose to use effective age as the primary basis of our condition adjustment since the subject property and comparable sales are similar in age and condition.*

O. **Above Grade Room Count/Gross Living Area**

1. Be consistent with the room count found on the front page of the form. The rooms must all be above grade.

2. Report the basement and any other partially below-grade areas separately and adjust accordingly.

3. Adjust for square footage differences in the comparable sales.

4. Use care when adjusting for square footage in combination with differences in room count and number of baths.

P. **Basement & Finished Rooms Below Grade**

1. List the type of basement and degree of finishing.

2. Adjust for full basement versus slab or crawl space, etc.

3. Adjust for finished area as well as number of rooms and baths.

Q. **Functional Utility**

1. Look for over-improvements or under-improvements.

2. Rate the subject property as *Good, Average, Fair,* or *Poor.*

3. Rate the comparable sale as *Good, Average, Fair,* or *Poor,* or indicate whether *Superior/Inferior* to the subject property and adjust accordingly.

R. **Heating/Cooling**

1. Indicate the type of furnace, fuel source, and if there is central air.

2. The subject property can also be rated as *Good, Average, Fair,* or *Poor.*

3. Indicate whether the comparable sale is *Superior/Inferior* to the subject property and adjust accordingly.

S. **Energy-Efficient Items**

1. Look at the type of insulation and R-rating, solar heating, Energy Star® light fixtures and/or appliances, geothermal, low-E or energy-efficient windows, a green rating by third-party raters,[7] etc.

2. Adjust according to market response.

T. **Garage/Carport**

1. Identify the type of car storage and the number of parking spaces.

2. Adjust according to market response.

U. **Porch/Patio/Deck**

1. Indicate the presence or absence of these items.

2. Be careful to determine whether items are personal property or real estate.

3. Adjust according to market response.

V. **Additional Features**

1. Indicate the presence of features such as fireplaces, outbuildings, swimming pools, or outdoor spas/whirlpools.

2. Look for features not covered elsewhere, such as remodeling or kitchen equipment.

3. When looking at comparable sales, remember that the condition on the date of sale may have been different than the present condition.

4. Adjust according to market response.

7. Green ratings may be provided by a variety of certifying organizations and include not only a rating but also a worksheet that identifies the features receiving points in the ratings system.

W. **Net Adj. (total)**

1. Check either + or – to indicate if the total net adjustments will increase or decrease the sales price.

2. Review if the ***net adjustment*** exceeds 15% or the ***gross adjustment*** exceeds 25%. An individual adjustment should not exceed 10%.

3. If you must keep comparable sales with excessive adjustments, explain why in the Comments section.

X. **Adjusted Sale Price of Comparable Sale**

1. Subtract or add the ***net*** adjustments to the sale price of each comparable sale.

2. The indicated value will typically be different for each comparable sale.

Y. **Summary of Sales Comparison Approach**

1. Explain the adjustments made, especially excessively high adjustments.

2. Identify the comparable sale(s) that were given the most weight.

3. Explain the reconciliation process.

4. Additional space for comments is available on Page 3 of the URAR form.

Review Part 18

Learning Objectives

Now that you've completed Part 18, you should be able to

- ☑ Apply the adjustment process using a market data grid.
- ☑ Reconcile the indicated values derived in the sales comparison approach to a single point value opinion.

Terms and Concepts to Remember

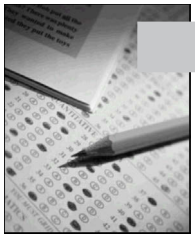
Gross adjustment

Net adjustment

Resources

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.

Advice for Tomorrow's Sessions. You may be tempted to work on the market grid at home tonight. We have set aside ample time to complete the grid in class and it would be unfair to others in the class if you came in with all of your adjustments completed. Spend your time reviewing all of the prior material in the course so that you are well prepared for the exam.



Practice Test Section 6

This multiple-choice test is for your benefit and provides a review of everything covered in section 6. This is a closed-book test. Choose the most correct answer.

1. The part of the valuation process that uses experienced judgment and results in a value opinion is called the

   A. adjustment analysis.
   B. interpolation.
   C. reconciliation.
   D. weighted average.

2. An appraiser used cost-related indicators to derive an adjustment, which is considered what type of adjustment technique?

   A. paired sales
   B. qualitative
   C. quantitative
   D. relative comparison

3. While appraising an apartment building, an appraiser found that the location of a comparable sale was superior by $25,000, but the smaller size was inferior by $50,000. What is the indicated value if the comparable sale sold for $600,000?

   A. $525,000
   B. $575,000
   C. $625,000
   D. $650,000

4. Using the following percentages in the appropriate sequence of adjustments, what is the indicated value of a comparable property that sold for $200,000?

−5% Property rights conveyed
+15% Location
+5% Economic
−5% Conditions of sale
−10% Financing

A. $194,940
B. $196,158
C. $200,000
D. $215,460

5. Comparable sales are adjusted to the subject property as the base, except financing, which is adjusted to what?

A. cash equivalency based on the market
B. consumer price index
C. nominal interest rates
D. the other comparable sales

6. The sale price of a comparable sale is $120,000. The lot size is 10,000 sq. ft., and the GLA is 1,600 sq. ft. What is the price per gross living area for this sale?

A. $10.34
B. $12.00
C. $14.28
D. $75.00

7. An appraiser has selected two sale properties that are alike except for one feature. Comparing the two sales to derive a market adjustment for the feature is called

A. paired data analysis.
B. ranking analysis.
C. statistical analysis.
D. trend analysis.

8. A comparable sale sold in which the seller paid points on the buyer's $200,000 mortgage. If the appraiser made an adjustment of $12,000 for the points, how many points did the seller pay to lower the buyer's mortgage payment?

- A. 2 points
- B. 3 points
- C. 4 points
- D. 6 points

9. An appraiser adjusted a comparable sale to the subject property because it sold 12 months ago. In this instance, the adjustment is for

- A. conditions of sale.
- B. financing terms.
- C. market conditions.
- D. property rights conveyed.

Section 7

7

Part 19. Oak Street Case Study—Sales Comparison (Market Grid Application, cont.)

Part 20. Reconciliation and Communication

Part 21. Exam Content Review

Part 19 Preview

Oak Street Case Study—Sales Comparison (Market Grid Application, cont.)



Part 19 will take a good share of the morning to complete. We will need that amount of time for you to complete the market grid on the URAR appraisal and allow time for your instructor to review the adjustments in class before we come to Part 20.

When you arrive in the morning, compare your market grid with your team. Starting on a new day will allow you to see things that you missed earlier. Think through all your adjustments, and go back and review the MLS pages to be sure you have not overlooked any key data.

When the majority of groups have completed the adjustments for Comparable Sales 1–3, your instructor will review them with the entire class to make sure you haven't missed key issues. After that you can begin working on the remaining comparable sales as we wrap up the case study.

Goals

We don't have any new learning objectives in Part 19, but we do have some goals we want to accomplish as we look forward to Part 20 later in the morning.

- Complete the adjustments on the market grid and derive an indicated value for each of the comparable sales in the case study.
- Coming up in Part 20, we will reconcile the indicated values from the market grid into a final single point value derived from the sales comparison approach.

Learning Tips

At this point, you will have some of your comparable sales inserted into the market grid of the URAR form. If you have all your data entered for Comparable Sales 1–3 but haven't made any adjustments yet, you're doing just fine. You will have time to work on your adjustments in this extended version of Part 19. If you've been making adjustments as you go along, then you should have one or two comparable sales entered on the grid (with their adjustments). You can decide which path to take. In either method, once you have a few sales completed with all their adjustments and an indicated value for the comparable sale, alert your instructor so he or she can check your progress and perhaps give you individual guidance as you work through the remaining comparable sales.

Part 19.
Oak Street Case Study–Sales Comparison (Market Grid Application, cont.)

We are on Step 6 of the valuation process, with two more steps to go. Part 19 is only one page in length (when you turn the page you will be in Part 20). We've set aside time in two parts to complete the case study. That's our focus for now. Your instructor will provide additional direction.

Application of the Approaches to Value		
Sales Comparison Approach	Income Capitalization Approach	Cost Approach

I. Oak Street Case Study (Part VII)—Sales Comparison

Instructions:

This part allows you to complete the adjustment process on the market grid of your URAR form and to check it against the adjustments that we thought were appropriate. As noted in the preview to part 14, the use of the URAR form in the Oak Street Case Study is to facilitate your understanding of the valuation process. Therefore, no attempt is made to comply with the **Uniform Appraisal Dataset (UAD)** protocol.

II. Review of Adjustments

Note. At the midway point, your instructor will review the adjustments for the first three comparable sales. The final review of all the remaining comparable sales will be covered at the end of this part, so plan your time accordingly. Remember that this is a double-length session, so you should have ample time to complete the adjustment process.

Part 20 Preview

Reconciliation and Communication

This is the last part before we start preparation for the exam. Your instructor will seek to emphasize the content that might show up on the exam since you will have a limited amount of time to review this material.

Reconciliation is important and so is communication. Once all the research and analyses are complete, the appraiser doesn't want to fall down in communicating the results. There is some terminology here that will be covered more extensively in the *15-Hour National USPAP Course*. We will mention some of these terms at a surface level, but we will not go too much further than that.

Learning Objectives

To prepare for Part 20, read the following learning objectives and refer back to them as you study this part of the handbook.

- ☐ Recognize the criteria for reconciliation to a final value opinion.
- ☐ Recognize the types of reports used to communicate an appraisal analysis.

Learning Tips

The content in Part 20 is important, so be careful that you don't treat it too lightly. The content is also straightforward and should not pose any problems for you.

Note. When appraisers use the word *form*, they are referring to a residential (or commercial/general) report form. Appraisers should use the term *report form* instead of the word *form*. In the section on reporting, we do not address certain terms that you may have heard before, such as *Appraisal Report* or *Restricted Appraisal Report*. We are not going to touch on those terms in this course because they will be covered in detail in the *15-Hour National USPAP Course*.

Concentrate your study efforts on the reconciliation process and the various general forms of communication, such as oral reports, written reports, and the purpose of a workfile. Exam questions on this content will be general in nature, rather than focused on specific details and nuances of reporting.

Part 20.
Reconciliation and Communication

As an appraiser carries out the last steps of the valuation process, all the data and analysis are coming together and must be reconciled. After reconciliation, the appraiser's task is to communicate the results to the client in a manner appropriate for the intended use.

Application of the Approaches to Value		
Sales Comparison Approach	Income Capitalization Approach	Cost Approach

Reconciliation of Value Indications and Final Opinion of Value

Report of Defined Value

I. Reconciliation

A. Definition

> **Reconciliation.** *A phase of a valuation assignment in which two or more value indications are processed into a value opinion, which may be a range of value, a single point estimate, or a reference to a benchmark value.*

Note. Reconciliation takes place throughout the valuation process.

B. Reconciling value indications

1. In the valuation process, the appraiser will often apply more than one approach to value, and these approaches may have different indications of value.

2. It is also possible to have several value indications from a single approach (as in the case of the sales comparison approach in which each comparable sale provides a single indicator of value).

3. Resolving the differences among various value indications is called reconciliation.

4. The process of reconciliation provides an integral quality control assessment of the valuation process prior to the final opinion of value.

5. Reconciliation also assists the appraiser in identifying key factors that must be cited and explained in the appraisal report.

C. Sample questions to ask during reconciliation:

- Is there an adequate number of sales?
- Are the sales truly comparable?
- Is there market support for the adjustments that were made?
- Do the cost estimates account for all the costs?
- Is there market support for the capitalization method?
- Does the method of capitalizing income reflect market patterns?

D. In reconciliation, the appraiser **re-examines the entire appraisal** to check for inconsistencies.

1. Among the approaches applied (comparable sales used and adjustments calculated)

2. In the highest and best use conclusions upon which each approach is based

3. In the defined value derived in each approach

4. In the real property interests being appraised

E. Reconciliation criteria

Reconciliation criteria. *The criteria that enable an appraiser to form a meaningful, defensible conclusion about the final value opinion. Value indications are tested for the appropriateness of the approaches and adjustments applied, the accuracy of the data, and the quality and quantity of evidence analyzed.*

Reconciliation requires appraisal judgment and a careful, logical analysis of the data available and the approaches, methods, and techniques applied that lead to each value indication. The following criteria aid the appraiser in forming a meaningful and defensible final opinion of value.

1. Appropriateness (including applicability, relevancy)
2. Accuracy
3. Quantity and quality of evidence[8]

F. Final opinion of value

The final value opinion does **not represent the average** of the different value indications derived. No mechanical formula is used to select one indication over the others. As stated earlier, reconciliation to a final value opinion relies on the proper application of appraisal techniques and the appraiser's judgment and experience.

> **Final opinion of value.** *The opinion of value that is derived from the final reconciliation of value indications and stated in the appraisal report; may be expressed as a single point, as a range, or in relation to a benchmark.*

1. **Point estimate**
   a. A final value indication reported as a single dollar amount
   b. Typically regarded as the most probable number, not the only possible number, and often required for revenue and compensation purposes.
2. **Range of value.** The range, or confidence interval, in which the final market value opinion of a property may fall; usually the range in value is stated as a variable amount between a high and low value limit.
3. **Probability range.** The confidence level associated with a specific value opinion or set of value opinions.
4. **Rounding**
   a. Expressing an amount as an approximate number (for instance, exact only to a specific decimal place).
   b. An appraisal conclusion may be rounded to reflect the lack of precision associated with the value opinion.

8. For more information about reconciliation and requirements in the development and reporting steps in the valuation process, see Standards Rule 1-6, Standards Rule 2-2(a)(x)(5) and Comment, and Standards Rule 2-2(b)(xii)(4) from the Uniform Standards of Professional Appraisal Practice 2020-2021. Washington, DC: The Appraisal Foundation.

II. Oak Street Case Study (Part VIII)—Reconciliation



Instructions: Reconciliation is the final step to be applied to our Oak Street property. The process of reconciliation can be carried out in two steps.

1. Reconcile the comparable sales into a value indication for the sales comparison approach.
2. Reconcile the two approaches into a final value opinion. The appraisal included the cost approach and the sales comparison approach.

As you carry out the reconciliation process, use the data on the URAR form to help you organize your thoughts. Your instructor will guide you through the process to derive an opinion of value for the Oak Street property.

III. Communication

A. Overview of appraisal reporting

1. Definition

> **Report.** The final communication, written or oral, of an appraisal or review transmitted to the client. Finality is evidenced by the presence of the valuer's signature in a written report or a statement of finality in an oral report. All communications to the client prior to the final communication must be conspicuously designated as such. (SVP, Definitions section)
> **Report.** "Any communication, written or oral, of an appraisal or appraisal review that is transmitted to the client or a party authorized by the client upon completion of an assignment." (USPAP, DEFINITIONS)

2. An appraisal report leads the reader from the definition of the appraisal problem through analysis and relevant descriptive data to a specific conclusion.

3. The length, type, and content of appraisal reports may be affected by the

   a. Client

   b. Regulatory requirements

   c. Courts

   d. Type of property being appraised

   e. Nature of the problem

B. Report requirements

Under professional appraisal standards, the appraiser must report the results of a real property appraisal that not only meets the applicable ethical requirements but also illustrates the appraiser's competency based on the intended use. In general, each written or oral appraisal report must

1. "Clearly and accurately set forth the appraisal in a manner that will not be misleading"

2. "Contain sufficient information to enable the intended users of the appraisal to understand the report properly; and"

3. "Clearly and accurately disclose all assumptions, extraordinary assumptions, hypothetical conditions, and limiting conditions used in the assignment." (USPAP, STANDARDS RULE 2-1(a-c))

C. The appraiser must address the following items in the report:

1. Identity of the client and other intended users (by name or type)

2. Intended use of the appraisal

3. Identity of the real estate involved in the appraisal

4. Real property interest to be appraised

5. Purpose of the appraisal, specifically the type and definition of value and its source

6. **Effective date** of the appraisal and the **date of the report**

7. Scope of work used to develop the appraisal

8. Information analyzed, the appraisal procedures followed, and the reasoning that supports the analyses, opinions, and conclusions. Exclusion of the three traditional approaches must be explained.

9. Use of the real estate existing as of the date of value and the use of the real estate reflected in the appraisal; and, when the purpose of the assignment is market value, the support and rationale for the appraiser's opinion of the highest and best use of the real estate

10. Clearly and conspicuously disclose all special/extraordinary assumptions and hypothetical conditions and disclose that their use might have affected the assignment results

11. A signed certification that complies with national ethical standards

IV. Reporting Formats

A. Oral reports

1. An appraiser may make an oral report when the circumstances or the needs of the client do not permit or warrant a written report.

2. Expert testimony, in depositions or in court, is considered an oral report.

3. Oral reports must comply with professional standards.

4. After communicating an oral appraisal or appraisal review report, the appraiser must maintain a workfile in support of the oral communication sufficient for the appraiser to produce an Appraisal Report or Appraisal Review Report.

B. Form reports

1. Form reports meet the needs of many financial institutions, insurance companies, and government agencies. They are required for the sale of most existing mortgages on the secondary market.

2. For high-volume services, a form report is more convenient and efficient. Clients and reviewers know where to find each item on the form report.

3. Form reports used must meet the reporting requirements of all applicable professional standards, including USPAP and the SVP.

4. Some form reports may not conform to reporting standards, and thus additional material must be included. Certain form reports may not contain a certification statement that complies with applicable professional standards, including USPAP and the SVP, and supplementary material must be added.

5. If the highest and best use of the property does not conform to the use for which the form report is appropriate, the form report cannot be used. If the highest and best use of a property is not for one-unit residential, the appraiser should not use a one-unit residential form report.

6. A form appraisal report is unacceptable if the appraiser fails to

   a. Consider if the stated purpose of the report conflicts with the intended use of the appraisal assignment

   b. Consider if the preprinted value definition and the assumptions, conditions, and certification inherent in the report conflict with the intended use of the appraisal assignment

   c. Question the client about any appraisal guidelines or requirements (e.g., underwriting criteria) or valuation process being requested that conflicts

with proper appraisal practice (e.g., ignoring any concessions applicable to the subject's sale price or comparables' sales prices)

7. Commonly used form reports include the following:

   a. **Uniform Residential Appraisal Report (URAR):** Freddie Mac Form 70 and Fannie Mae Form 1004, last revised in 2005, and used by all major government agencies involved in lending activities.

      - When appraising a unit in a new project, at least one comparable sale should be from outside the project.

      - One additional form report may be required if the property is a rental unit: Single-Family Comparable Rent Schedule (Freddie Mac Form 1000 and Fannie Mae Form 1007) as an attachment to the appraisal form report.

   b. **Exterior-Only Inspection Residential Appraisal Report:** Fannie Mae Form 2055, last revised in 2005. The report form is designed to report an appraisal of a one-unit property or a one-unit property with an accessory unit; including a unit in a planned unit development (PUD), based on an exterior-only inspection of the subject property from at least the street.

   c. **Individual Condominium Unit Appraisal Report:** Freddie Mac Form 465 and Fannie Mae Form 1073, last revised in 2005. This form report is relatively similar to the URAR but modified to include such items as project improvements, budget analysis, and information about the subject unit and competing projects.

      - When appraising a unit in a new project, at least one comparable sale should be from outside the project.

      - Two additional form reports may be required: Addendum A and Addendum B for analyzing the project improvements and project budget.

   d. **Manufactured Home Appraisal Report:** Freddie Mac Form 70B and Fannie Mae Form 1004C, last revised in 2005. This form report is used for the appraisal of one-unit manufactured homes (including manufactured homes in a PUD, condo, or co-op program, and those in specialized loan programs) based on an interior and exterior property inspection.

   e. **Small Residential Income Property Appraisal Report:** Freddie Mac Form 72 and Fannie Mae Form 1025, last revised in 2005. This form report is used for the appraisal of two- to four-unit residential income properties. It has a different focus than the URAR form and includes analyses of comparable listings, comparable rentals, subject property's rent schedule, and estimated market rent; and a sales comparison approach using a

market grid plus units of comparison such as price per unit, price per room, and price per square foot.

f. **ERC Summary Appraisal Report** published by the Employee Relocation Council, a nonprofit membership corporation founded in 1964. This form report was last revised in 2003 and is used by relocation companies and corporations that transfer employees with home guarantee programs.

g. **Uniform Commercial/Industrial Appraisal Report** (UCIAR) is a form report that has two formats—small properties and existing properties. The form report was last revised in 1996.

h. **Appraisal Institute's Residential Green and Energy Efficient Addendum** (820.04) is a report form designed to describe high-performance (green) residential properties. Typical residential report forms do not address the building features and technologies found in the construction of high-performance houses. The addendum can be found in the appendix of this handbook.

C. Narrative reports

Note. *At the end of Part 20 (just before the review), we've provided a sample outline for a narrative report.*

1. **Presentation.** The report is like a representative agent of the appraiser and will reflect on the appraiser's competence and reputation. Suggestions when completing a report in narrative format are

   a. Use good quality materials in regard to paper, cover, and binding.

   b. Professionally type and print the report. Prepare graphics and charts carefully.

   c. Ideally, illustrations should be on pages facing the material being discussed.

   d. Design the contents for maximum communication. Label sections clearly and identify them in the table of contents.

   e. Keep contents concise and on point.

   f. Write the report clearly, avoiding technical jargon and slang.

2. **Format.** The organization of data may vary, but the following general outline includes all of the necessary ingredients. Generally, the report's presentation should follow the order of the valuation process.

V. Report Documentation and Workfile

A. Professional appraisal standards require that an appraiser prepare a workfile for each appraisal or appraisal review assignment. The workfile must contain the following items:

1. The name of the client and identity (by name or by type) of any other intended users of an appraisal report.

2. The name of the client (by name or by type) and identity (by name—type is not an option) of any other intended users of a restricted appraisal report.

3. A written report that represents a true copy of the report provided to the client and documented on any type of media.

4. Oral reports must include summaries of oral testimony or reporting, or a transcript of testimony, including the appraiser's signed and dated certification.

5. All data, information, and documentation that are necessary to support the appraiser's opinions and conclusions as of the effective date.

B. Workfile retention. The appraiser must retain the workfile for a period of at least five years after preparation or at least two years after final disposition of any judicial proceeding in which the appraiser provided testimony related to the assignment, whichever period expires last.

C. In accordance with professional appraisal standards, an appraiser must have custody of his or her workfile or make appropriate arrangements to retain, access, and retrieve contents from the party who has custody of the workfile.

VI. Certification

A. Each written real property appraisal report must contain a signed certification.

B. A signed certification is an integral part of the appraisal report.

1. An appraiser who signs any part of the appraisal report, including the letter of transmittal, must also sign the certification.

2. The appraiser who signs a certification accepts full responsibility for all elements of the certification, for the assignment results, and for the contents of the appraisal report.

3. When a signing appraiser has relied on work done by appraisers and others who do not sign the certification, the signing appraiser must have a reasonable basis for believing such work is competent.

C. The appraiser's certification does not have to match the following certification language verbatim, but it must address each element in the Standards certification. The two pages following the certification example are additional Appraisal Institute statements of certification that are required and vary by affiliation.

Certification Example

"I certify that, to the best of my knowledge and belief:

- the statements of fact contained in this report are true and correct.
- the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions and are my personal, impartial, and unbiased professional analyses, opinions, and conclusions.
- I have no (or the specified) present or prospective interest in the property that is the subject of this report and no (or the specified) personal interest with respect to the parties involved.
- I have performed no (or the specified) services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding the agreement to perform this assignment.
- I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.
- my engagement in this assignment was not contingent upon developing or reporting predetermined results.
- my compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
- my analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the *Uniform Standards of Professional Appraisal Practice.*
- I have (or have not) made a personal inspection of the property that is the subject of this report. (If more than one person signs this certification, the certification must clearly specify which individuals did and which individuals did not make a personal inspection of the appraised property.)
- no one provided significant real property appraisal assistance to the person signing this certification. (If there are exceptions, the name of each individual providing significant real property appraisal assistance must be stated.)"

The above certification is from Standards Rule 2-3(a) of the current edition of the *Uniform Standards of Professional Appraisal Practice* published by The Appraisal Foundation.

The Appraisal Institute Certification Standard requires Designated members, Candidates for Designation, and Practicing Affiliates to include certain certification statements in addition to those shown on the preceding page. Individuals are required to use the exact wording for all of the certification standards as shown below and on the next page.

- The reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Code of Professional Ethics and Standards of Professional Practice of the Appraisal Institute.

- The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives. ***(This exact statement must be used.)***

Each written report of a Designated member must contain a certification that includes one of the following statements (The exact statement must be used):

Either

- As of the date of this report, I ***(or Designated member(s) name(s))*** have/has completed the continuing education program for Designated members of the Appraisal Institute.

Or

- As of the date of this report, I ***(or Designated member(s) name(s))*** have not/has not completed the continuing education program for Designated members of the Appraisal Institute.

Each written report of a Candidate must contain a certification that includes one of the following statements (The exact statement must be used):

Either

As of the date of this report, I ***(or name(s))*** have/has completed the Standards and Ethics Education Requirements for Candidates of the Appraisal Institute.

Or

As of the date of this report, I ***(or name(s))*** have not/has not completed the Standards and Ethics Education Requirements for Candidates of the Appraisal Institute.

Except as provided below, each written report of a Practicing Affiliate must contain a certification that includes one of the following statements (The exact statement must be used):

Either

As of the date of this report, I ***(or name(s))*** have/has completed the Standards and Ethics Education Requirements for Practicing Affiliates of the Appraisal Institute.

Or

As of the date of this report, I ***(or name(s))*** have not/has not completed the Standards and Ethics Education Requirements for Practicing Affiliates of the Appraisal Institute.

On or after July 1, 2015, once a Practicing Affiliate who is not an Appraisal Institute Designated member has completed at least one five (5) year continuing education cycle in which he or she was required to fulfill the Points and Standards and Ethics Education Requirements, such Practicing Affiliate must include in the certifications of his or her written reports one of the following statements, whichever is appropriate:

Either

As of the date of this report, I ***(or name(s))*** have/has completed the continuing education program for Practicing Affiliates of the Appraisal Institute.

Or

As of the date of this report, I ***(or name(s))*** have not/has not completed the continuing education program for Practicing Affiliates of the Appraisal Institute.

_____ _____

Signature Date

Bolded text represents options or directions and should not be part of your final certification.

The certification for a written report does not need to be dated. The certification for an oral report must be dated.

Sample Narrative Format

I. Introduction

A. Title page. Lists address, date, name, and address of appraiser.

B. Letter of transmittal. Formally presents the appraisal report to the person for whom it was prepared. Brief and drafted in proper business style.

C. Table of contents.

D. Certification. Designated members, Candidates for Designation, and Practicing Affiliates of the Appraisal Institute must include a statement concerning continuing education.

E. Summary of important facts and conclusions—aids the reader of the report.

II. Premises of the Appraisal

A. Identification of type of appraisal and report format.

B. Assumptions and limiting conditions.

1. Used to protect the appraiser and to inform and protect the client.
2. Typical and ordinary assumptions and limiting conditions are grouped together in a section of the report.
3. Special/extraordinary assumptions, hypothetical conditions, and limiting conditions must appear in the report in conjunction with the opinion or conclusion they affect.

C. Intended use of the appraisal and identification of the client and intended users.

D. Type of value (purpose) and its definition. A specific definition is needed to eliminate any confusion in the mind of the client or any other reader of the report.

E. The effective date of the appraisal and the date of the report.

F. Statement declaring whether the value opinion is expressed in terms of cash, terms equivalent to cash, or other precisely revealed terms.

G. Property rights appraised. Particularly important when dealing with anything other than fee simple interest

H. Scope of the appraisal. The type and extent of research and analyses in an assignment. This will vary according to the nature of the property being appraised.

III. Presentation of Data

A. Identification of the property. Succinctly defined so that it cannot be confused with any other parcel of real estate. Examples of proper identification could be deed description; street address; plat map; section, township, range; or block and lot.

B. Area, city, neighborhood, and location data—should only be pertinent data.

1. Discuss both positive and negative features.
2. The amount of the data required depends on the appraisal assignment and the client.
3. Analyze the trends, don't simply report them.
4. Avoid stereotyping and making biased assumptions relating to race, age, ethnicity, religion, gender, or national origin.

C. Site data. The appraiser should offer a conclusion as to the utility or adaptability of the land for existing or proposed improvements.

D. Description of the improvements. Only relevant property characteristics that influence the value are presented in the report.

Sample Narrative Format, cont.

E. Zoning. When significant, zoning and private restrictions should be discussed in detail. The actual text of the zoning ordinance may be incorporated into the report or the addenda. If appropriate, the appraiser may explore the possibility of a zoning change.

F. Taxes and assessment data. Current assessed values and ad valorem tax rates should be reported and a calculation of the annual tax amount included.

G. History. The most recent sale of the property should be discussed, as well as any other sales in the last three years. The appraiser also may analyze other historical data such as construction costs, financial data, and history of occupancy.

H. Marketability study. In appraising income-producing properties, a marketability study may be performed to see how the subject property compares to the overall market.

IV. Analysis of Data and Conclusions

A. Highest and best use of the land as though vacant. The appraiser determines this based on the land being available to be developed to its highest and best use.

B. Highest and best use of the property as improved. The appraiser considers whether or not the removal and replacement of the existing improvements are economically warranted on the date of the appraisal.

C. Land value. The factors that affect land value should be presented in a clear and precise manner.

D. Approaches to value. All approaches should be considered. The appraiser then develops the approaches applicable to the assignment and derives indications of value.

E. Reconciliation of value indications. This should lead the reader logically to the final opinion of value.

F. Estimate of marketing period.

G. Qualifications of the appraiser. Typically a separate sheet is prepared and inserted. Usually includes professional experience, educational background, business and professional affiliations, and clients served.

V. Addenda. A presentation of additional data or exhibits that would interrupt the flow of the narrative portions of the report. Examples might include

- Detailed legal description, if not included in the presentation of data
- Plot plan
- Plans and elevations of buildings
- Photographs
- Maps
- Charts and graphs
- Abstracts of leases
- Historical income and expense data
- Building specifications
- Detailed estimates of reproduction or replacement costs of buildings
- Sales and listing data
- Tax and assessment data
- Marketability analysis data

Review Part 20

Learning Objectives

Now that you've completed Part 20, you should be able to

- ☑ Recognize the criteria for reconciliation to a final value opinion.
- ☑ Recognize the types of reports used to communicate an appraisal analysis.

Recommended Reading

The Appraisal of Real Estate, 15th ed., Chapters 32 and 33, P. 599–626

Appraising Residential Properties, 4th ed., Chapters 20 and 21, P. 369–388

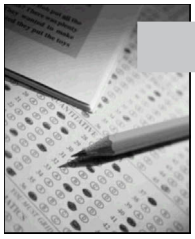
The Appraisal Writing Handbook by Alan Blankenship, 1998

Terms and Concepts to Remember

Appraiser's certification	Oral reports	Reconciliation
Final opinion of value	Point estimate	Reconciliation criteria
Form reports	Range of value	Workfile
Narrative reports		

Resources

The Appraisal Institute offers the ***Valuation of Sustainable Buildings Professional Development Program,*** which consists of the following courses*: Introduction to Green Buildings: Principles & Concepts; Case Studies in Appraising Green Residential Buildings; Practical Applications in Appraising Green Commercial Properties;* and *Residential and Commercial Valuation of Solar.* For more information, go to www.appraisalinstitute.org/education/your-career/professional-development-programs.



Practice Test Section 7

This multiple-choice test is for your benefit and provides a spot check of everything covered in the course. This is a closed-book test. Choose the most correct answer.

1. Appropriateness, accuracy, and quantity of evidence are terms associated with the
   - A. adjustment process.
   - B. appraisal review of another appraiser's work.
   - C. reconciliation criteria.
   - D. scope of work decision.

2. If the subject property and the comparable sales all have fee simple title, no adjustment is required for
   - A. conditions of sale.
   - B. market conditions.
   - C. property rights conveyed.
   - D. use.

3. An appraiser has appeared in court and testified to a value opinion on a specific property. The testimony of the appraiser is considered to be
   - A. a consulting report.
   - B. an appraisal review report.
   - C. an oral appraisal report.
   - D. testimony and nothing more.

4. Every written appraisal must contain
   - A. a detailed legal description.
   - B. a signed certification.
   - C. the highest and best use of the property as improved.
   - D. the land value.

5. Labor and materials fall into the category of

- A. direct cost.
- B. indirect cost.
- C. replacement cost.
- D. reproduction cost.

6. A 10-unit apartment building has a PGI of $78,000 and a 3% vacancy rate. The operating expenses and replacement allowance are $25,000. If the capitalization rate is 9%, what is the value by direct capitalization?

- A. $562,889
- B. $588,889
- C. $614,888
- D. $975,000

7. An appraisal is required for determining just compensation in an eminent domain hearing. What type of final opinion of value should the appraiser provide in this assignment?

- A. point estimate
- B. probability range
- C. range of value
- D. trend estimate

8. Site value is $76,000, and the remaining economic life of the improvements is 60 years with an effective age of 20 years. If replacement cost is $550,000, what is the indicated value of the property by the cost approach?

- A. $259,332
- B. $442,667
- C. $488,500
- D. $516,000

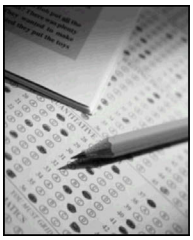
9. Price per cubic foot, price per front foot, and price per apartment are used as

- A. elements of comparison.
- B. measures of dispersion.
- C. units of comparison.
- D. ways to measure land.

10. A 20-story hotel with 300 rooms, which is serviced by two elevators, is an example of

- A. capitalization exceeding demand.
- B. functional obsolescence.
- C. reversion.
- D. the breakdown method.

Part 21.
Exam Content Review



This session is designed to help you prepare for our *Basic Appraisal Procedures* exam. Your instructor will provide a brief course overview and highlight key areas for you to study. After that, you are on your own for a self-study period before the examinations are distributed.

I. Preparing for the Exam

A. Basic information

1. The exam is comprised of 60 multiple-choice questions.
2. Participants are allowed two hours to complete the exam.
3. The exam is closed book, and all materials must be removed from the table area. All laptops, cellular phones, tablets, iPads, wearable technology (smart watch, Apple Watch, Google Glass, etc.) and other devices that can store data or connect to the Internet are ***NOT*** permitted during the exam. In addition, all watches, wallets, bags, and purses must be removed and stored out of reach prior to taking the exam.
4. A financial calculator may be required for some exam questions. We recommend the HP 12C calculator.
5. Participants may leave the classroom to use restroom facilities, but they must leave their exam materials facedown on the table while out of the room.

B. Guidance on studying for the final exam

1. The objectives contain the content that will be tested.
2. Focus on the terms and concepts listed on the review page of each part.

C. Guidance on taking the final exam

1. Read each question completely.
2. Choose the most correct answer. Some answers may be correct to a limit, but there is an answer that is correct and specific to the question.
3. Do not read into questions beyond what is stated in the question.
4. Review your questions and double-check your math.

II. Content Covered in Course

The following outline provides the approximate percentage that is covered in the exam. This will help you know where to concentrate your studies.

Part 1. The Valuation Process (5%)

Part 2. From Analysis to Solutions (3%)

Part 3. Introduction to Income Capitalization (5%)

Part 4. Income Capitalization Formulas (9%)

Part 5. Income and Expense Analysis (12%)

Part 6. Application—Problem Solving (Use for application review)

Part 7. Construction and Design Basics (3%)

Part 8. Introduction to the Cost Approach (11%)

Part 9. Components in Cost Analysis (3%)

Part 10. Case Study—Cost Analysis (2%)

Part 11. Commercial Costs and Depreciation Basics (5%)

Part 12. Applied Depreciation (10%)

Part 13. Land or Site Valuation (6%)

Part 14. Property Description (4%)

Part 15. Sales Comparison Approach (11%)

Part 16. Comparable Property Selection (Use for application review)

Part 17. Adjustments (8%)

Part 18. Oak Street Case Study—Market Grid Applications (Use for application review)

Part 19. Oak Street Cast Study—Sales Comparison (Use for application review)

Part 20. Reconciliation and Communication (3%)

Appendix

Appendix

Definition of *effective date*

Example of Yield Capitalization—Commercial

Further Insight on Mortgage Capitalization Rate

Self-Study Project—Reconstructing an Operating Statement

Mechanical Systems

Electrical System

Plumbing System

Residential Green and Energy-Efficient Addendum

Commercial Green and Energy-Efficient Addendum

Part 1.
The Valuation Process

Here is a definition from *Basic Appraisal Principles* to refresh your memory.



Effective date. The date on which the appraisal or review opinion applies (SVP, Definitions section).

Part 3.
Introduction to Income Capitalization

Example of Yield Capitalization—Commercial

The following shows the HP 12C calculations for the "Yield Capitalization—Commercial" example found at the beginning of Part 3.

Calculations

Step	Explanation	HP 12C	Display
0	Sets display for 2 decimal points	f 2	0.00
1	Clear memory	f REG	0.00
2	Number of periods	5 n	5.00
3	Discount rate	10 i	10.00
4	Enters NOI	150000 CHS PMT	–150,000.00
5	Present value of the income stream	PV	568,818.02
	Calculation of reversion		
6	Clear memory	f REG	0.00
7	Enters future value of the property	2100000 CHS FV	–2,100,000.00
8	Number of periods	5 n	5.00
9	Discount rate	10 i	10.00
10	Present value of reversion	PV	1,303,934.78

The indicated value of the property is the sum of the two calculations: $568,618.02 + $1,303,034.78 = $1,872,552.80, or rounded to $1,873,000.

Shortcut method: The calculation of the income stream and reversion can be combined using the HP 12C.

Calculations

Step	Explanation	HP 12C	Display
0	Sets display for 2 decimal points	f 2	0.00
1	Clear memory	f REG	0.00
2	Number of periods	5 n	5.00
3	Discount rate	10 i	10.00
4	Enters NOI	150000 CHS PMT	–150,000.00
5	Present value of the income stream	PV	568,818.02
6	Enters future value of the property	2100000 CHS FV	–2,100,000.00
7	PV of income stream + reversion	PV	1,872,552.79

Note: Step 5 (shaded) in the calculation can be eliminated, and the result will be the same because the HP 12C is designed for these types of calculations. The difference of one cent in the result is a matter of the calculator's more precise rounding when all the mathematical functions are carried out within the calculator.

Further Insight on Mortgage Capitalization Rate

We mentioned in Part 3 that investors sometimes use R_M to figure out how much they can afford to pay for an investment property by anticipating the annual debt service.

- Instead of calculating the monthly payments of a mortgage for a one-year period, an investor might request the annual constant *(R_M)* from the lender and simply use that against various loan amounts.

- **Example.** An investor calls his lender and says, "What is my annual constant for a 7% loan with a 20-year amortization?" The lender responds by telling him the mortgage constant is 9.3% and the bank is willing to lend 75% of value.

Armed with this information, the investor considers a property with $75,000 in *NOI*. He runs the numbers and says, "If I pay $750,000 for this property, I can borrow $562,500, and then my annual debt service is $52,312.50*." That will leave the investor an equity dividend of $22,687.50 with an R_E of 12.1% ($22,687.50/$187,500 equity). The investor can go through a number of scenarios: If he pays $800,000, then his debt service is $55,800 and his dividend *(R_E)* drops to 9.6%.

Let's go over the numbers used in this example:

- $75,000 is the estimated Net Operating Income (*NOI*) for the property
- $562,500 is the 75% mortgage based on a $750,000 purchase price
  $750,000 × 0.075 = $562,500
- $187,500 is the buyer's down payment
  $750,000 purchase price – $562,500 mortgage = $187,500
- $52,312.50 is the annual debt service
  $562,500 mortgage × 0.093 mortgage constant = $52,312.50
- $22,687.50 is the buyer's equity dividend
  $75,000 *NOI* – $52,312.50 annual debt service = $22,687.50
- 12.1% is the buyer's equity rate *(R_E)*
  $22,687.50/$187,500 down payment = 0.121, or 12.1%
- $55,800 is the annual debt service based on a $800,000 sale price
  $600,000 mortgage × 0.093 mortgage constant = $55,800
- $19,200 is the buyer's equity dividend based on a $800,000 sale price
  $75,000 *NOI* – $55,800 annual debt service = $19,200
- 9.6% is the buyer's equity rate *(R_E)* based on a $800,000 sale price
  $19,200/$200,000 down payment = 0.096, or 9.6%

Appraisers also use R_M and R_E in residual techniques to capitalize income into value. Again, these techniques are beyond the scope of this course, but let's see how the mortgage constant is derived in the above example.

Calculations—Set your calculator to display 2 decimal points to begin. Also remember that the mortgage in this example is based on monthly payments.

Step	Explanation	HP 12C	Display
1	Clear memory	f REG	0.00
2	Number of periods	20 g n	240.00
3	Interest rate	7 g i	0.58
4	Present value of mortgage	562500 CHS PV	–562,500.00
5	Calculates monthly payment	PMT	4,361.06
6	Annualize payment	12 X	52,332.68
7	Divide by mortgage amount	562500 ÷	0.09
8	Expand display to 4 decimal places	f 4	0.0930

**The display in the calculator indicates 0.0930, which is rounded from 0.093035872. This is the reason the debt service is $52,312.50 in the example and $52,332.68 in the actual calculation.*

Why is a mortgage capitalization rate different from the mortgage interest rate?

The following is an example showing how a mortgage capitalization rate (R_M) is different from a mortgage interest rate that you might see advertised by a financial institution.

Example. A property owner is considering a mortgage of $350,000 for a term of 25 years at 11% interest. The stated mortgage interest rate is 11%, but the mortgage capitalization rate (R_M) is 11.76%. The difference is that R_M includes part of the principal's return in its rate—it is the ratio of the annual debt service to the principal amount of the loan.

To derive R_M, you would first calculate the monthly payment ($3,430.395769). Your HP 12C calculator will display this as $3,430.40 (for 2 decimal places).

Then you would annualize the payment:
$3,430.395769 × 12 months = $41,164.75

The final step is to divide that by the mortgage amount:
$41,164.74/$350,000 = 0.1176, or 11.76%

Calculations—*Set your calculator to display 2 decimal points to begin.*

Step	Explanation	HP 12C	Display
1	Clear memory	f REG	0.00
2	Number of periods	25 g n	300.00
3	Interest rate	11 g i	0.92
4	Present value of mortgage	350000 CHS PV	–350,000.00
5	Calculates monthly payment	PMT	3,430.40
6	Annualize payment	12 X	41,164.75
7	Divide by mortgage amount	350000 ÷	0.12
8	Expand display to 4 decimal places	f 4	0.1176

Part 5.
Income and Expense Analysis

Self-Study Project—Reconstructing an Operating Statement

While performing an appraisal on a 20-year old apartment property, you have obtained the owning corporation's income and expense statement for the past year, showing actual dollars received and spent.

Rent Received			$420,000
	Operating and capital expenses		
1.	Interest on mortgage @ 8.5%	$205,000	
2.	Insurance	13,000	
3.	Real estate taxes	60,000	
4.	Janitor's salary	25,000	
5.	Water	10,000	
6.	Electricity	16,000	
7.	Fuel (oil)	15,400	
8.	New roof (15-year life)	30,000	
9.	Redecoration (10 units)	25,000	
10.	Miscellaneous repairs, interior	7,000	
11.	Supplies and sundries	2,000	
12.	Management (4%)	16,800	
13.	President's salary	17,000	
14.	Corporation franchise tax	1,000	
15.	Exterior repairs	5,000	
16.	Tax depreciation (3% per year)	19,600	
17.	New building addition	100,000	
18.	Six new refrigerators	3,600	
19.	Four new ranges	2,000	
20.	Total operating and capital expenses	$573,400	–573,400
Net			($153,400)

Data on the rentable units

The building contains 50 rentable units. You have researched the market and identified the following ***market rents*** for the subject property:

- 10 efficiency units @ $600
- 30 one-bedroom units @ $750
- 10 two-bedroom units @ $900

Market evidence also indicated ***5% for vacancy*** and collection loss.

See Part 5 (Developing Income and Expense Estimates) for typical expense categories.

Reconstruct the operating statement below to estimate *NOI*. *Note the following:*

- Ranges and refrigerators have useful lives of 12 years.
- Each apartment unit required redecoration on an average of every 3 years.
- The above expenditures for appliances and redecoration are reasonable and are based on market research of similar properties.

INCOME				
Scheduled rent				
1.	10 efficiency units @ $600/mo. × 12 months		*$72,000*	
2.	30 one-bedroom units @ $750/mo. × 12 months			
3.	10 two-bedroom units @ $900/mo. × 12 months			
Total potential gross income *(PGI)*				
Less vacancy and collection loss				
Effective gross income (*EGI*)				
OPERATING AND CAPITAL EXPENSES				
Fixed expenses				
1.	Real estate taxes	*$60,000*		
2.	Insurance			
Total fixed expenses				
Variable expenses				
1.	Management *(Hint: Use EGI)*			
2.	Fuel	*15,400*		
3.	Electricity	*16,000*		
4.	Water	*10,000*		
5.	Janitor's salary			
6.	Redecoration			
7.	Miscellaneous repairs, interior			
8.	Exterior repairs	*5,000*		
9.	Supplies, sundries	*2,000*		
Total variable expenses				
Allowance for replacement				
1.	Refrigerators			
2.	Ranges			
3.	Roof	*2,000*		
Total replacement allowance				
Total operating expenses				
NET OPERATING INCOME (I_o)				

Self-Study Project—Use this page for calculations.

Self-Study Project—Suggested Solution

INCOME			
Scheduled rent			
1. 10 efficiency units @ $600/mo. × 12 months		*$72,000*	
2. 30 one-bedroom units @ $750/mo. × 12 months		*270,000*	
3. 10 two-bedroom units @ $900/mo. × 12 months		*108,000*	
Total potential gross income (*PGI*)		*450,000*	
Less vacancy and collection loss *(5%)*		*- 22,500*	
Effective gross income (*EGI*)		*427,500*	*$427,500*
OPERATING AND CAPITAL EXPENSES			
Fixed expenses			
1. Real estate taxes	*$60,000*		
2. Insurance	*13,000*		
Total fixed expenses	*73,000*	*73,000*	
Variable expenses			
1. Management *(Hint: Use EGI)*	*17,100*	*(0.04 × $427,500)*	
2. Fuel	*15,400*		
3. Electricity	*16,000*		
4. Water	*10,000*		
5. Janitor's salary	*25,000*		
6. Redecoration *($2,500 x 50 / 3)*	*41,667*		
7. Miscellaneous repairs, interior	*7,000*		
8. Exterior repairs	*5,000*		
9. Supplies, sundries	*2,000*		
Total variable expenses	*139,167*	*139,167*	
Allowance for replacement			
1. Refrigerators *($600 x 50 / 12)*	*2,500*		
2. Ranges *($500 x 50 / 12)*	*2,083*		
3. Roof *($30,000 / 15)*	*2,000*		
Total replacement allowance	*6,583*	*6,583*	
Total operating expenses		*218,750*	*218,750*
NET OPERATING INCOME (I_o)			*$208,750*

Part 7.
Construction and Design Basics

DIGGING DEEPER

Article by Craig Harrington, SRA

Mechanical Systems—Appraisal Observations

When you look at a mechanical system, do you recognize what you see? Different parts of the country have assorted mechanical systems, and identifying the type of mechanical system that is typical in your area is important to your appraisal observation process. While developing this article I asked Stan Harbuck from the School of Building Inspection, **"What is a swamp cooler?"** That's because in Utah, where Mr. Harbuck is from, everyone knows what a swamp cooler is. In fact, in all the hot dry regions of the United States, **evaporative coolers** are the most efficient way to cool a home. But they will not work in Florida or any area where humid air is common during the summer months. Since I'm from Minnesota, I likely would not recognize a swamp cooler very easily because it is not typical in my area. Let's take another example—would you recognize steam heat if you saw it? Some years ago I was working on a condominium unit within a high-rise project. I was given a recent appraisal of a similar condo unit in the same building to review. The appraisal report was quite good except for one item that was misread—the heating system. During my tour I looked into the closet area where the furnace was located and noticed the system was powered by steam. It looked like any forced air furnace except that instead of a natural gas pipe entering the furnace, the connection was a thickly wrapped insulated pipe. I looked at the appraisal and it was mistakenly marked as a natural gas forced air system. When something is uncommon for your area, it is easy to misreport it, or you may just wonder what it is you're looking at. All appraisers (and that includes me) need help in this area.

Heating and Cooling—Identify What You See

Heating: The first task of the appraiser is to identify what you see, and this requires training or at least some personal study. There are books, courses, and DVD/video training systems that illustrate the various types of mechanical systems appraisers see in properties. As an appraiser it is important to use the correct terms in your observation process. Did you know that a **furnace** produces heated air and a **boiler** produces hot water or steam? How many times have I called a hot water boiler a furnace? Yes, it might be a small thing, but it shows that I need to know more about mechanical systems. Below are some of the more common types of furnaces you might encounter:

1. **Warm-air systems** (distributed by supply ducts)
    a. Gravity warm-air (an older system often referred to as a mechanical "octopus")
    b. Forced warm-air
        - Conventional furnaces (60 to 65 percent operating efficiency)
        - Condensing furnaces (80 percent and higher operating efficiency)
        - Pulse-combustion furnaces
        - Sealed-combustion furnaces
        - Heat pump (an auxiliary heating system; typically a heat pump is considered supplemental to the system furnace)

DIGGING DEEPER

Mechanical Systems, cont.

2. **Hot-water systems** (using pipes, radiators, or panels)
    a. Gravity hot water
    b. Forced hot water (includes a circulating pump)
        - Condensing boilers
        - Pulse boiler
        - Domestic water heater (boiler serves a dual use)
3. **Steam heating systems** (found more often in older homes)
4. **Specialized systems**

Part of recognizing the heating system is to observe the fuel source. The typical choices are natural gas, LP gas, fuel oil, electricity, solar panels, and wood burning fuel.

The next task of the appraiser is to observe the condition of the system. Most appraisers don't feel comfortable opening the firebox or removing a service panel to look inside. Therefore, view the exterior of the furnace or boiler carefully. Observe any signs of corrosion, cracks, or mineral deposits in estimating the remaining useful life of the component. If your observations result in a specific concern about the condition of the system, recommend that an expert examine the unit.

The final task is to observe the operation of the heating system. In a forced-air system watch the furnace during startup. Stand, if at all possible, in a position to see the burners ignite. Note any smoke, unusual noises, or odors. After the furnace has been operating and the fan has started, check some of the heat supply registers to see if they are receiving airflow. In a hot water system the appraiser can observe similar issues around the exterior of the boiler. Check if radiators are warm (during winter months) and appear to be working normally. Multiple thermostats do not always indicate the presence of multiple zones. It's a good idea to test the zones when they are present. If the zoning system includes multiple furnaces, then operate each one separately.

Observation of the heating system as described above (particularly during operation) may not be common practice for most appraisers, but it is fairly typical in FHA appraisal assignments performed under HUD guidelines.

Cooling: In a warm-air system the evaporative coil is mounted in the furnace plenum and the compressor-condensing unit is located outside the home. Some cooling systems combine the two into a single integral unit (usually located in an attic). The outside compressor should be level and away from shrubs with nothing to restrict airflow around the unit. There are two lines that connect the compressor to the evaporative coils in the furnace. The small copper line (the size of a pencil in diameter) is the high-pressure liquid refrigerant. The larger pipe that is usually insulated (black foam) is the suction line carrying low-pressure refrigerant gas from the coils to the compressor.

During start-up operation the outside compressor is the component to watch. Operation should be smooth at start-up as the fan begins to operate. If the unit starts up with squealing noises or rattles during the start-up phase, its remaining useful life might be limited.

This information just scratches the surface on the topic of heating and cooling systems, but it is a start in the right direction.

D I G G I N G D E E P E R

Electrical System—Appraisal Observations

Never forget that you are not an expert on electrical systems. The appraiser's approach in this part of the observation process is rather simplistic—but an important one. An appraiser should seek to recognize observable valuation conditions that could potentially be hazardous to the occupants. Your task as an observer is to recommend professional expertise if you view electrical components that appear hazardous. In some cases, the electrical system might simply be inadequate for the size and use of the property. Such situations affect value and that is the appraiser's focus.

Exterior

The electrical service is provided to the dwelling either through overhead wires or underground cables. As you walk around the exterior check for overhead wires (service drop) that connect to a masthead (entrance cap) on the house. These wires are at least 10 feet above the ground and should be away from trees and anything that could rub against them. As these wires connect to the service entrance cap they should loop down just enough to provide a drip point to keep rainwater from following the wires into the masthead. The entrance cap connects (via galvanized conduit) to the electrical meter. Count the wires coming into the service entrance. Two wires indicate a 110-volt service (inadequate) and three wires indicate a 110/220-volt service. This will be important to remember when looking at the service panel that connects to the electrical meter. An underground cable connection is typically a three-wire operation.

While still outside, look for any outlets on the exterior of the house. They should be contained in watertight receptacle covers. If there is a detached garage, look for any overhead wires that connect to the garage. Count the wires and verify that they are a safe distance (10 feet) above the ground. Operate outside lights and check for any unsecured fixtures hanging by its wires.

If the property has outside outlets or switches that are exposed to weather elements, check that they have watertight covers. For example, a pump connected to a septic distribution box might have a shut-off switch attached to a post in the ground. The cover for that switch must be proper for the use, and it must be a watertight sealed unit. Address any damage in your appraisal.

Interior

Typically the electrical service panel is located inside the house. It should have a door that opens, allowing you to view the fuses or circuit breakers. Do not open (or unscrew) the main cover of the entrance panel. If the owner has been working on the electrical service and has removed the panel cover, do not touch the panel or components near the panel.

Looking at fuses or circuit breakers on the service entrance panel definitely limits the appraiser's observation process. Nonetheless, what can be observed is important. This observation allows the appraiser to visually determine whether it is a fuse or circuit breaker type of system. The next step is for the appraiser to attempt to identify the electrical capacity of the service. This observation might indicate whether the service is adequate for the size and use of the dwelling. Remember, the appraiser's identification of the electrical capacity is a guess based on what is observed. You can argue whether it's an intelligent guess, but that doesn't really matter. Only a professional who removes (unscrews) the entire panel cover can truly determine the capacity of the service—and even then it can be tough to identify!

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Identifying Electrical Capacity

Whether the panel has fuses or circuit breakers, a 60-amp service (or smaller) on a two-wire system is inadequate. A 60-amp service with a three-wire system is acceptable provided it is in good and safe condition and is not overburdened for the particular residence. The appraiser should be careful to note any unusual conditions such as a loose cover panel to the electrical box, knockouts without a circuit breaker installed, spent fuses piled up near the fuse box and any evidence of water leakage (or corrosion) on the panel itself.

At a minimum the electrical service should have two 20-amp circuits for appliances and at least one 15-amp circuit for each 500 square feet of floor area.

Circuit breakers: Most circuit breakers will have a main (or master) switch at the top of the panel. Check whether the main switch has the amperage engraved on it. You will probably need a flashlight to see it. If the switch is marked "100" or "200" then that is the amperage reported in your appraisal. In one case a main switch indicated a 200-amp service, but when the electrician removed the entire cover and looked at the wiring, it was really just a 100-amp service. There's nothing you (as an appraiser) can do about that. Of course, if you see two wires on the exterior service drop—and then observe that the dwelling has a 100-amp panel—that should alert you to a discrepancy. Recommend that a professional check the system if in doubt.

If the amperage is not engraved on the main switch then inform the client in your report that the service is a circuit breaker system and the amperage is unknown. Do not add up the number of amps for each circuit in order to obtain the total.

Fuses: A fuse panel is acceptable to lending clients as long as the capacity is adequate for the dwelling. Remember that all two-wire systems are inadequate. A three-wire 30-amp fuse box will typically have two 15-amp fuses and is considered inadequate. All 30-amp systems should be upgraded to 100 amps. A 60-amp box will typically have four 15-amp fuses. Fuses are also commonly found in 100-amp services (usually by adding in two 20-amp fuses). As in circuit breakers, the main switch is the amperage for the dwelling. Do not add the substations branching off the main panel to identify electrical capacity. A 60-amp box with a 30-amp substation is still a 60-amp electrical service.

General Observations

Walk through the residence and look for missing outlet and light switch covers. Are extension cords being used in lieu of wall outlets? Wires hanging out of a junction box, either taped or with plastic caps on the wires, pose a hazard. If there is knob and tube wiring in portions of the house, it is probably acceptable, providing usage is limited to lighting or other low-power use. If the outlet receptacles in the house are two-prong, again, that is acceptable unless it presents obvious hazards. Newer or updated dwellings will have ground fault circuit interrupter (GFCI) receptacles in required locations, but the market might not penalize a dwelling that lacks GFCI receptacles.

Ask the owner questions about the electrical system. Here are some suggestions:

- Has the electrical service been upgraded recently?
- Is there any particular activity that will trip a circuit breaker (or blow a fuse)?
- Any experience with electrical shorts or sparks comings from switches, outlets, or appliances?
- Does use of any particular appliance cause lights to fluctuate or dim occasionally?

You can add to the above list of questions any issues particular to your geographic area.

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Plumbing System—Appraisal Observations

Plumbing is a little less intimidating than mechanical or electrical systems. Like the electrical system, most of the plumbing is not readily observable because it is behind walls or under the floor. The plumbing system consists of three major divisions:

- **Supply system**—provides the potable water from the street connection or well to all the fixtures and appliances located in the home.
- **Septic system**—provides a safe and adequate drainage system.
- **Mechanical system**—is comprised of the plumbing fixtures and appliances.

The first task of the appraiser is to confirm whether the supply system is receiving water from a public utility or a private well. It's easy to get fooled and I have reviewed many appraisals that mistook a water meter as a sure sign of a public water connection. Many municipalities require a water meter on a private well in order to track flowage for a variety of reasons. Some properties are connected to both public water and a private well. In that case the well water must be used only for lawn watering. When you're uncertain about the public water connection, check with the municipality's public works department.

Water Heater: The water supply entrance into the dwelling is sometimes near the water heater and the exposed supply pipes can be observed. As the main supply pipe enters the home, lines will be tapped off it to supply water to outdoor spigots and perhaps a water softener. Next stop is the water heater, our first plumbing fixture. The first item to observe on a water heater is the temperature-pressure relief valve. The T-P valve is designed to relieve both high temperature and high pressure. The T-P valve should be connected to a drop pipe that extends down the side of the water heater to within six inches of the floor. This distance will vary, and I have seen many drainpipes (in compliance) extend only to within 18 inches of the floor.

As you look over the water heater, observe the fuel source and general condition. Water heaters have a normal useful life of 7 to 15 years. Most homeowners try to squeak out more years from their water heaters. Note the size (in gallons) and whether the capacity appears adequate for the dwelling. The cold water supply entering the heater should have a shut-off valve, and the draft hood and venting on a gas-fired unit should not be out of position or damaged.

Appraisal Observation of the Supply Lines

While you're looking at the water heater, observe the exposed pipes. Copper and galvanized pipes are the most common, although you will also see plastic and cast iron pipes. Occasionally you will find lead pipes in homes built before 1930. Lead pipes have a dull gray metal color and can be scratched easily with a key or pocketknife. When you strike a lead pipe with a metal object, it provides a dull sound—very much in contrast to the ringing sound of a copper pipe.

Plastic supply pipes should be viewed with suspicion when used for hot water, although certain types are acceptable for this use. PVC plastic piping, however, is not, and must be used only for cold water. If you observe plastic supply pipes, it might be best to recommend that a qualified professional examine the system. It often turns out that the homeowner installed the plastic supply lines, and a faulty plumbing system can affect the value of the dwelling.

D I G G I N G D E E P E R

Plumbing System, cont.

All water is corrosive and takes its toll on plumbing pipes. Let's talk about **electrolysis** for a moment. Have you ever noticed that plumbers are very careful to keep copper from touching galvanized metal? The fasteners that hold the copper pipes next to floor joists are always copper or plastic, never metal. The reason is that copper in contact with galvanized metal can bring about electrolysis and the copper pipe will corrode. This is also true in galvanized pipes that build up mineral deposits inside the pipes. Electrolysis produces a chemical change through an electric current that is generated by the reaction between an iron pipe and the minerals in the water. If you observe a lot of instances of copper plumbing in contact with galvanized metal, it's a good indication that whoever installed it might be an amateur—you should recommend that a professional look over the plumbing system.

Appraisal Observation of the Sewer Lines

The drainage system runs by gravity and its pipes must be larger in size than the supply pipes. Since gravity makes it work, the most direct route to the public or private sewage disposal system is the best. The usual pitch of a drainpipe is 1/4 inch for 1 foot of length. If you see a drainage pipe that is too horizontal or too steep, consider calling in a professional to look at it. The proper installation of the drainage is very important—it keeps sewer gas from coming back into the house. The drainage system must also be vented to allow sewer gas to dissipate above the roofline. Plumbing traps provide a liquid seal to prevent sewer gas from entering the interior of the house, while still allowing the flow of wastewater and sewage.

Sump Pumps: Sumps collect water gathered from a storm drainage system (drain tile). A pump in the sump basket is triggered when it reaches a certain water level. The pump then pushes the water through a pipe to somewhere outside the home. This sump water should not be pumped into the sewer drain. Sump water does not require treatment as in the case of sewerage.

Septic Tanks: Most septic tanks malfunction or fail within 15 to 20 years of installation due to the lack of regular maintenance. Ask the homeowner smart questions, particularly about maintenance and how often the tank is pumped out and serviced.

Appraisal Observation of the Mechanical Systems

We've already discussed the water heater. The other fixtures include water softeners, toilets, tubs, showers, and sinks. Appliances might include items such as dishwashers. All such fixtures and appliances should be observed for general condition and evidence of leakage. Check inside the fiberglass shower stall or tub area for cracks. Is the grout missing around tiles, or do the walls feel spongy? Occasionally improper materials are used in shower stalls and tub surrounds. For example, a product known as "green sheetrock" was used in tub and shower stalls. This drywall material is intended for a specific use and location, and the tub area is not one of them. In such applications, over time, it will turn into the consistency of pudding. Materials such as WonderBoard or DuraRock are much better suited for these applications. That's why I gently push on the wall in the shower area with my hand to see if it feels solid. The rest of the observation process is straightforward—operate the faucets and watch the drainage, flush the toilets, and check for loose and unstable fixtures.

AI Reports®
Form 820.06*

Client File #:		Appraisal File #:	

Residential Green and Energy Efficient Addendum

Client:

Subject Property:

City:	State:	Zip:

Additional resources to aid in the valuation of green properties and the completion of this form can be found at http://www.appraisalinstitute.org/education/green_energy_addendum.aspx

The appraiser hereby certifies that the information provided within this addendum:

- has been considered in the appraiser's development of the appraisal of the subject property only for the client and intended user(s) identified in the appraisal report and only for the intended use stated in the report.
- is not provided by the appraiser for any other purpose and should not be relied upon by parties other than those identified by the appraiser as the client or intended user(s) in the report.
- is the result of the appraiser's routine inspection of and inquiries about the subject property's green and energy efficient features. Extraordinary assumption: Data provided herein is assumed to be accurate and if found to be in error could alter the appraiser's opinions or conclusions.
- is not made as a representation or as a warranty as to the efficiency, quality, function, operability, reliability or cost savings of the reported items or of the subject property in general, and this addendum should not be relied upon for such assessments.

Green Building: The practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's lifecycle from siting to design, construction, operation, maintenance, renovation, and deconstruction. This practice expands and complements the classic building design concerns of economy, utility, durability, and comfort (US EPA). High Performance building and green building are often used interchangeably.

Six Elements of Green Building: A green building has attributes that fall into the six elements of green building known as (1) site, (2) water, (3) energy, (4) materials, (5) indoor environmental quality, and (6) maintenance and operation. The energy and water elements are the most measurable elements of green or high performance housing. Appraisers need savings amounts to develop an income approach to support energy efficient contributory value.

THIRD-PARTY VERIFICATIONS (See types defined in glossary).

The following verified items are considered within the appraisal analysis of the subject property:

Green Certification

Certifications attest that the home meets certain minimum thresholds.

Environmental Protection Agency (EPA): ☐ Indoor airPLUS ☐ WaterSense ☐ ENERGY STAR
Energy Department (DOE): ☐ Zero Energy Ready Home (ZERH)
Home Innovation Research Labs NGBS Home Remodel:
Home Innovation Research Labs NGBS New Home: ☐ Bronze ☐ Silver ☐ Gold ☐ Emerald
Living Building Challenge (LBC): ☐ Living Building Certified ☐ Petal Certification
Passivhaus Standard: ☐ PHI Low Energy ☐ EnerPhit ☐ Passive House
Passive House Institute US: ☐ PHIUS+ 2015
USGBC LEED: ☐ Certified ☐ Silver ☐ Gold ☐ Platinum
Other:

Date Verified: __/__/____	Green Certification Version: ____ Organization URL: _____	**ABOVE VALID ONLY IF CHECKED:** ☐ Verification reviewed on site ☐ Verification attached to this report

Energy Label

Labels disclose the state the home's energy assets.

RESNET's HERS Rating (0 to 150): _____ ☐ Sampling Rating ☐ Projected Rating ☐ Confirmed Rating	Estimated energy savings for this home: $____/year ____¢kWh rate dated__/__/__ *Energy Savings includes electricity, heating & Cooling.* *Score below 100 indicates energy costs are expected to be lower than average local code home per square foot. HERS Index Report estimates energy cost based on number of bedrooms plus one. Only a "confirmed rating" is a diagnostic test.*
DOE's Home Energy Score Score (1 to 10): _____ ☐ Official Score ☐ Unofficial Score	Estimated energy savings for this home: $____/year ___¢kWh rate dated __/__/__ *Energy Savings includes electricity, heating & Cooling.* *Score above five indicates energy costs are expected to be lower than average local home. Home Energy Score estimates energy cost based on state average energy rates and the home's energy features.*
Other Energy Score: Range (____ to ____): _____	Estimated energy savings: $____/year __¢ kWh rate dated __/__/__ Describe energy label system:

Date Verified: __/__/____	Score or Rating Version: ____ Organization URL: ☐ www.resnet.us/ ☐ www.homeenergyscore.gov ☐ Other:_____	**ABOVE VALID ONLY IF CHECKED:** ☐ Verification reviewed on site ☐ Verification attached to this report

Verified Energy Improvements

Only include improvements with verified documentation.

Explain energy-related improvements:
Cost of improvements: $_____

Date Verified: __/__/____	Certificate of Efficiency Improvements Version: _____ Organization URL: ☐ Other: _____ ☐ energystar.gov/homeperformance	**ABOVE VALID ONLY IF CHECKED:** ☐ Verification reviewed on site ☐ Verification attached to this report

Completed by:_____ Title:_____ Date:_____

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Client:		Client File #:	
Subject Property:		Appraisal File #:	

EFFICIENCY FEATURES (Water, Energy, and Environmental. See types defined in glossary).

The following items are considered within the appraisal analysis of the subject property:

Insulation

☐ Fiberglass Blown-In ☐ Foam Insulation ☐ Cellulose ☐ Fiberglass Batt Insulation

☐ R-Value ____Wall ____Ceiling ☐ Other (Describe): _____

Building Envelope

Envelope Tightness: _____ Unit: ☐ __CFM25 ☐__ CFM50 ☐__ ACH50 ☐__ ACH natural

Instructions: Insert the rating as a number that could be 0.5 to 7ACH50 or higher. The lower the number, the more air tight the envelope. Building Codes for area show maximum Envelope Tightness allowed based on the climate zone. Not all areas have adopted a building code. http://bcap-energy.org/

Windows

☐ ENERGY STAR® ☐ Low E ☐ High Impact ☐ Storm ☐ Double Pane ☐ Triple Pane ☐ Tinted ☐ Solar Shades

Day Lighting

☐ # Of Skylights: ____ ☐ # Of Solar Tubes: ____ ☐ Other (Describe): _____ (% Of lighting LEDs): _____

ENERGY STAR® Appliances

ENERGY STAR®: ☐ Dishwasher ☐ Refrigerator ☐ Washer/Dryer ☐ Other: _____

Energy Source: ☐ Propane ☐ Electric ☐ Natural Gas ☐ Other: _____

Note: ENERGY STAR® appliances do not result in an ENERGY STAR® Home.

Water Heater

☐ ENERGY STAR® Size: _____ gallons ☐ Tankless ☐ Solar (next page) ☐ Heat Pump ☐ Coil

HVAC & Related Equipment Describe in comments area.

☐ High Efficiency HVAC
SEER: _____
Efficiency Rating: _____%
AFUE* _____%
*Annual Fuel-Utilization Efficiency

☐ Heat Pump
Efficiency Rating:
COP: _____
HSPF: _____
SEER: _____
EER: _____

Thermostat/Controllers?	☐ Yes	☐ No
Programmable Thermostat?	☐ Yes	☐ No
Auxiliary heat source?	☐ Yes	☐ No
Radiant Floor Heat?	☐ Yes	☐ No
Geothermal?	☐ Yes	☐ No
Electric Vehicle Ready? (car charger)	☐ Yes	☐ No

Indoor Environmental Quality

☐ Energy (ERV) or Heat Recovery Ventilator (HRV)
☐ Other Measured Whole-House Ventilation Device (See glossary)
☐ Humidity Monitoring Device installed
☐ Non Toxic Pest Control
☐ Radon System: ☐ Active ☐ Passive

Water Efficiency

☐ Reclaimed Water System (Describe): _____
☐ Greywater reuse system
☐ Water Saving Fixtures
☐ Rain Barrels Used in Irrigation
Cistern size: _____ gallons
Location of cistern: _____

Utility Costs

Annual Utility Cost: $ _____/year, based on: __/__/____ to __/__/____ (full year).
Includes (check all that apply): ☐ Electric ☐ Heating ☐ Water ☐ Other: _____
Of Occupants: _____

Comments Include source for information provided in this section.

If a property is built green but not formally certified, it still deserves proper description and analysis to value the features. The market analysis is of the structure's physical, economic, and locational attributes and not an analysis of its label alone. Provide additional information that illustrates how this property exceeds local building code. This document is intended for new construction or existing homes that have been retrofit to include higher energy or green features.

The objective of this Addendum is to standardize the communication of the high performing features of residential properties. Identifying the features not found on the appraisal form provides a basis for comparable selection and analysis of the features. Builders, contractors, homeowners, and third party verifiers are encouraged to complete this Addendum and present to appraisers, agents, lenders, and homeowners. Complete the pages that apply to the property appraised and provide to appraiser prior to the completion of an appraisal. Provide the Addendum to the lender at the time of loan application to assist them in understanding the property type so an appraiser with sufficient knowledge of this property type will be engaged to provide an appraisal to meet secondary mortgage market guidelines.

Completed by:_____ Title:_____ Date:_____

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Client:		Client File #:	
Subject Property:		Appraisal File #:	

Solar Panels

The following items are considered within the appraisal analysis of the subject property:

Solar Photovoltaic (Electric) System

	Array #___	Array #__ (if applicable)
Type of Ownership	☐ Leased ☐ Owned ☐* Solar Loan with UCC Filing ☐ Power Purchase Agreement (PPA) If solar loan has UCC Filing, it is considered personal property and should not be included in market value.	☐ Leased ☐ Owned ☐ Solar Loan ☐ UCC Filing ☐ Power Purchase Agreement (PPA)
Panel Specifications	System Size: _____ kW (1kW = 1000 Watts) Year Installed: _____ ll: _____ Energy Production: _____ kWh Source of Energy Source of Energy Production Estimate: _____ Manufacturer: _____ Warranty on Panels: _____ years	System Size: _____ kW (1kW = 1000 Watts) Year Installed: _____ Energy Production: _____ kWh Source of Energy Production Estimate: _____ Manufacturer: _____ Warranty on Panels: _____ years
Array Placement Affects energy production. *Orientation	☐ Fixed Mount ☐ Tracking Mount Tilt / Slope: _____ *Azimuth: _____	Tilt / Slope: _____ Azimuth: _____
Inverter Specifications	Number of Inverters per Array: _____ Year Installed:_____ Wattage: _____watts Manufacturer: _____ Warranty Term: _____years	Number of Inverters per Array: _____ Year Installed: _____ Wattage: _____watts Manufacturer: _____ Warranty Term: _____years
Energy Storing Batteries	Battery Type: □ Lithium-ion □ Lithium-ion Polymer □ Lead Acid □ Lead Calcium □ AGM □ GEL Manufacturer: _____ Storage Capacity: _____kWh Warranty Term: _____ years Year Installed: _____	

Name of Utility Company:		Charge / kWh from Utility	$ _____ / kWh

Solar Thermal Water Heating System

Type of System	Active: ☐Direct ☐ Indirect Passive: ☐ Integral collector ☐ Thermo-syphon	**Storage Tank Size**	Gallons: _____
Collector Type	☐ Flat-Plat ☐ Integral ☐ Evacuated-Tube Solar	**System Age**	Year Installed: _____
Back-Up System	☐ Conventional Water Heater ☐ Tankless On Demand ☐ Tankless Heat Pump	**Warranty Term**	
Solar Energy Factor (SEF)	*Rating ranges 1 to 11. Higher number is more efficient.	**Manufacturer**	

Proposed Solar Installation

A free online tool and manual for valuing the energy production of the Solar PV System is available at www.pvvalue.com.

Download the PV Value™ Manual for explanation of the solar terms on this form and inputs used in the PV Value Tool.

Roof Shape: ☐ Pitched ☐ Flat ☐ Rounded ☐ Multiple
Rafters: ☐ Typical ☐ Engineered Wood Trim ☐ Rough Sawn ☐ Structured Insulated Panel Roof ☐ Metal ☐ TJI Rafters
Decking: ☐ No decking ☐ Plywood ☐ Tongue & Groove ☐ OSB ☐ Skip sheathing/Purlin ☐ Structured Insulated Panel
Slope/Roof Pitch: _____ _____ _____ (example: S1_6/12_)
Roof Material: ☐ Comp Shingle ☐ Rolled Asphalt ☐ Concrete Tile ☐ Clay Tile ☐ Slate ☐ Corrugated Metal ☐ Standing Seam Metal ☐ Polycarbonate/fiberglass ☐ Foam ☐ Tar and Gravel ☐ Wood Shake
Number of layers of roof material: _____ (Attach photograph of roof material and attic space)
Electrical Service: ☐ Overhead ☐ Underground
Main Electrical Panel: ☐ Main Breaker Panel ☐ MB & Sub Panel ☐ Fuse Box Amperage: _____

Remaining spaces in main service panel (MSP), subpanel (if in garage), and utility meter (if located separate from MSP): ___ (Attach photograph of inside of electrical panel and door closed and a picture of three feet back to show space around the main service panel (and subpanel)).

Red flag – ☐ Gas line within 3' of electrical panel ☐ More than 3 layers of roof covering ☐ Wood Shake Shingles ☐ Composition Shingle over Wood Shake ☐ Tile Roof Without Decking ☐ Composition Shingle less than 2:12 pitch ☐ Roof section over 12:12 pitch ☐ Unpermitted structure/addition ☐ Metal Trusses ☐ No permanent foundation ☐ Carport may not be structurally sound ☐ SIP Roofing may not be structurally sound ☐ Open/No walls (Patio)

Completed by:_____Title:_____ Date:_____

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Client:		**Client File #:**	
Subject Property:		**Appraisal File #:**	

Location - Site

The following items are considered within the appraisal analysis of the subject property:

Walk Score	Score:	Source: ☐ http://www.walkscore.com ☐ Other: _____	
Public Transportation	☐ Bus Distance: _____ Blocks	☐ Train: Distance: _____ Blocks	☐ Subway Distance: _____ Blocks
Site	Orientation (front faces): ☐ East / West ☐ North / South	Landscaping: ☐ Water Efficient ☐ Natural ☐ Pond/Lake on site ☐ Rain Garden	
Comments			

Incentives – Amount of Incentive and Terms

The following items are considered within the appraised value of the subject property and **based on effective date of value**.

Federal	
State	
Local	
Comments	Incentives offset cost and should be reported and described in the cost approach section of the report. Clearly identify the incentives that offset the gross cost of construction to meet appraisal standards. Incentives are typically not a sales concession in sales comparison approach since they do not transfer with the property and are not paid by the seller. Incentives are typically for a specified period and only those available as of the date of value should be addressed in the appraisal process. Incentives may be available to offset repairs or deferred maintenance items as well. Incentives, rebates, and tax credits for most U.S. properties can be found at www.dsireusa.org

The objective of this Addendum is to standardize the communication of the high performing features of residential properties. Identifying the features not found on the appraisal form provides a basis for comparable selection and analysis of the features.

- Builders, contractors, homeowners, and third party verifiers are encouraged to complete this Addendum and present to appraisers, agents, lenders, and homeowners. Appraisers typically do not have sufficient information to complete this addendum without builder, contractor, or third party verifier documentation.
- Attach this completed document to the MLS listing to provide sufficient detail on sales and listings to assist buyers, appraisers, and real estate agents in understanding the high performance features of the property.
- Complete the pages that apply to the property appraised and provide to appraiser prior to the completion of an appraisal.
- Provide the Addendum to the lender at the time of loan application to assist them in understanding the property type so an appraiser with sufficient knowledge of this property type will be engaged to provide an appraisal to meet secondary mortgage market guidelines.

Completed by:_____Title:_____ Date:_____

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Client:		Client File #:	
Subject Property:		Appraisal File #:	

Residential Green and Energy Efficient Addendum
Additional Resources

Appraised Value and Energy Efficiency: Getting it Right. This document provides links to resources in understanding the secondary mortgage market guidelines on appraisals of energy efficient and green features. It addresses the following:

- What can builders do?
- For Buyers: Assuring a competent appraiser for your home
- For Lenders: A sample letter that should be completed and provided to the lender at the time of mortgage application alerts the lender to the special features that requires an appraiser with knowledge of the property type.

https://www.appraisalinstitute.org/assets/1/29/AI-BCAP_Flyer.pdf

Residential Green Valuation Tools. A textbook resource for completing the AI Residential Green and Energy Efficient Addendum is available. It can be purchased at the following website: http://www.appraisalinstitute.org/residential-green-valuation-tools/

Glossary

ASHRAE 700 / ICC National Green Building Standard (NGBS): An ANSI-approved residential green building standard developed by the National Association of Home Builders (NAHB) and the International Code Council (ICC). It is applicable to single and multifamily projects, renovations and additions and residential land development. To comply, all buildings must incorporate sustainable lot development techniques and address energy, water & material resource efficiency and indoor environmental quality. Also, all owners must be educated about building operation and maintenance. https://www.nahb.org/en/research/nahb-priorities/green-building-remodeling-and-development/icc-700-national-green-building-standard.aspx

Building Envelope: The building envelope is everything that separates the building's interior from the exterior. This includes the foundation, exterior walls, roof, doors and windows. The envelope rating should be compared to the local building code requirements for this rating to identify a structure that exceeds the building code.

Energy Recovery Ventilation System (ERV) or Heat Recovery Ventilators (HRV): These systems provide fresh air without wasting all the energy already used to heat the indoor air. By recovering sensible (heat) or latent (moisture) energy from the stale indoor air, they offer fresh air ventilation with reduced energy loss.

ENERGY STAR Certified New Homes: EPA's ENERGY STAR certified homes are independently verified to be at least 15 percent more efficient that code-built homes, and include additional energy efficiency measures that can deliver savings of up to 30 percent compared to standard new homes. More than just a collection of ENERGY STAR products, an ENERGY STAR certified home includes a comprehensive package of energy efficiency systems and features that work together to deliver better performance, including a High-Efficiency Heating & Cooling System, a Complete Thermal Enclosure System; a Water Protection System; and Efficient Lighting & Appliances. www.energystar.gov/newhomes

ENERGY STAR Products: Behind each blue label is a product, building, or home that is independently certified to use less energy and cause fewer of the emissions that contribute to climate change. Today, ENERGY STAR is the most widely recognized symbol for energy efficiency in the world. In order to earn the label, ENERGY STAR products must be third-party certified based on testing in EPA-recognized laboratories. In addition to up-front testing, a percentage of all ENERGY STAR products are subject to "off–the–shelf" verification testing each year. The goal of this testing is to ensure that changes or variations in the manufacturing process do not undermine a product's qualification with ENERGY STAR requirements. https://www.energystar.gov/about/origins_mission

Geothermal: A geothermal heat pump uses the constant below ground temperature of soil or water to heat and cool your home. http://energy.gov/energysaver/articles/geothermal-heat-pumps

HERS Index: The Home Energy Rating System (HERS) Index is an industry standard by which a home's energy efficiency is measured. It's also the nationally recognized system for inspecting and calculating a home's energy performance. A qualified third party certifier assesses the house based on its physical characteristics. The energy estimates from this assessment may vary depending on the lifestyle of the occupants, increasing utility expenses, and changes in the maintenance or characteristics of the energy features. There are three rating types: sampling rating, projected rating, and confirmed rating. A **Sampling Rating** is an application of the Home Energy Rating process whereby fewer than 100% of a builder's new homes are randomly inspected and tested to evaluate compliance with a set of threshold specifications. A **Projected Rating:** A Rating Type that encompasses one individual dwelling or dwelling unit and is conducted in accordance with Section 5.1.4.3.1 through 5.1.4.3.5 of the ANSI/RESNET/ICC Standard 301. A **Confirmed Rating** is a rating type that encompasses one individual dwelling or dwelling unit and is conducted in accordance with Sections 5.1.4.1.1 through 5.1.4.1.3. More information: http://www.resnet.us/hers-index. The ANSI standard utilized in the HERS Index is posted at http://codes.iccsafe.org/app/book/content/PDF/ICC%20Standards/ICC_301-2014/ICC_RESNET_301.pdf.

Home Energy Score (HES): The Home Energy Score, developed and managed by the U.S. Department of Energy (DOE), is a national system that allows homes to receive an energy rating, like the MPG rating available for cars. The Home Energy Score uses a 10-point scale to reflect how much energy a home is expected to use under standard operating conditions. The Home Energy Score uses a standard calculation method and considers the home's structure and envelope (walls, windows, foundation) and its heating, cooling, and hot water systems. Only Assessors who pass DOE's Simulation Training can provide the Home Energy Score. www.HomeEnergyScore.gov

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Indoor airPLUS: EPA's Indoor airPLUS is a voluntary EPA label for new homes that integrate a set of construction practices and technologies to reduce indoor air pollutants and improve the indoor air quality in a new home beyond minimum code requirements. It is only available to homes that first meet ENERGY STAR® Certified Home requirements. Http://www.epa.gov/indoorairplus

LEED: Leadership in Energy and Environmental Design is a green certification program created by the U.S. Green Building Council (USGBC). As an internationally recognized mark of excellence, LEED provides building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988

Living Building Challenge: Created by the Living Future Institute, the Living Building Challenge is the world's most rigorous proven performance standard for buildings. People can use the regenerative design framework to create spaces that, like a flower, give more than they take. Living Building Challenge certification requires actual rather than modeled performance. Therefore, projects must be operational for at least twelve consecutive months prior to evaluation. https://living-future.org/lbc/basics/

Low E: "Low emissivity" indicates a coating is added to the glass surface. The coating allows visible light to pass through the glass while stopping radiant heat energy from entering the building by passing through the glass. Approximately 40% of the sun's harmful ultra violet rays are blocked and insulation enhanced. https://energy.gov/energysaver/energy-efficient-windows

NGBS Small Project Remodel: Run by the Home Innovation Research Labs, this program certifies whole house and small project remodels as energy efficient. Unlike the Whole–House Remodel, the Small Project certification is prescriptive. Chapter 12 of the National Green Building Standard includes a list of mandatory practices, related to materials use, sustainable products, energy efficiency, and indoor environmental quality. A Home Innovation Accredited NGBS Green Verifier gives a final inspection to verify Small Project certification. During inspection, the Verifier will ensure the applicable practices have been met. http://www.homeinnovation.com/services/certification/green_homes/remodeling_certification/remodel_home_certification_process

NGBS Whole Home Remodel: Run by the Home Innovation Research Labs, this program certifies whole house and small project remodels as energy efficient. Certification of a whole-building remodel requires demonstrating that there has been a minimum of a 15% reduction in energy consumption and at least a 20% reduction in water consumption over the pre-remodel condition. There are some mandatory practices that must be met. A minimum number of points must be obtained from practices related to Lot Design, Resource Efficiency, Indoor Environmental Quality, and Homeowner Education. http://www.homeinnovation.com/services/certification/green_homes/remodeling_certification/remodel_home_certification_process

Passivhaus Standard: German standard for low energy homes that began in the 1980s. Passivhaus is a rigorous, voluntary standard for energy efficiency in a building, reducing its ecological footprint. It results in ultra-low energy buildings that require little energy for space heating or cooling. The Passive House Institute (PHI) is an independent research institute that has played an especially crucial role in the development of the Passive House concept - the only internationally recognized, performance-based energy standard in construction. http://passiv.de/en/

Passive House Institute US (PHIUS): Buildings designed and built to the PHIUS+ 2015 Passive Building Standard consume 86% less energy for heating and 46% less energy for cooling (depending on climate zone and building type) when compared to a code-compliant building. PHIUS+ 2015 is the first and only passive building standard based upon climate-specific comfort and performance criteria aimed at presenting a cost-optimized solution to achieving the most durable, resilient, and energy-efficient building possible for a specific location. http://www.phius.org/home-page

Passive Solar: Passive solar is technology for using sunlight to light and heat buildings with no circulating fluid or energy conversion system. http://rredc.nrel.gov/solar/glossary. A complete passive solar building design has the following five elements: (1) aperture (collector) (2) absorber (3) thermal mass (4) distribution (5) control. http://www.nrel.gov/docs/fy01osti/27954.pdf

Rain Garden: A rain garden is a depressed area in the landscape that collects rain water from a roof, driveway or street and allows it to soak into the ground. Planted with grasses and flowering perennials, rain gardens can be a cost effective and beautiful way to reduce runoff from your property. Rain gardens can also help filter out pollutants in runoff and provide food and shelter for butterflies, songbirds and other wildlife. More complex rain gardens with drainage systems and amended soils are referred to as bio-retention. https://www.epa.gov/soakuptherain/rain-gardens

SEER: Seasonal energy efficiency ratio - The higher the SEER rating, the more energy efficient the equipment is. A higher SEER can result in lower energy costs. https://energystar.zendesk.com/hc/en-us/articles/212111387-What-is-SEER-EER-HSPF-

Smart House: A smart house is a home that has highly advanced, automated systems to control and monitor any function of a house – lighting, temperature control, multi-media, security, window and door operations, air quality, or any other task of necessity or comfort performed by a home's resident. http://architecture.about.com/od/buildyourhous1/g/smarthouse.htm

Water Heaters: Types are described here: http://energy.gov/energysaver/articles/solar-water-heaters.

WaterSense: EPA released its Final Version 1.1 WaterSense New Home Specification. This specification will be effective January 1, 2013 and establishes the criteria for new homes labeled under the WaterSense program and is applicable to newly constructed single-family and multi-family homes. http://www.epa.gov/watersense/new_homes/homes_final.html

Whole Building Ventilation System: A whole building ventilation system assists in a controlled movement of air in tight envelope construction. Whole building ventilation equipment is often a part of the forced air heating or cooling systems. There are various methods of providing whole home ventilation including a heat recovery ventilator (HRV) or an energy recovery ventilator (ERV). Four primary types of systems here: https://energy.gov/energysaver/whole-house-ventilation

Zero Energy Ready Home (ZERH): To qualify as a DOE Zero Energy Ready Home, a home shall meet certain minimum requirements, be verified and field-tested in accordance with HERS Standards by an approved verifier, and meet all applicable codes. Builders may meet the requirements of either the Performance Path or the Prescriptive path to qualify a home. http://energy.gov/eere/buildings/zero-energy-ready-home

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AI Reports®

Form 821*

Client File #:		Appraisal File #:	

Commercial Green and Energy Efficient Addendum

Client:			
Subject Property:			
City:		State:	Zip:

Additional resources to aid in the valuation of green properties and the completion of this form can be found at
http://www.appraisalinstitute.org/education/green_energy_addendum.aspx

The appraiser hereby acknowledges that the information provided within this addendum:

- has been considered in the appraiser's development of the appraisal of the subject property only for the client and intended user(s) identified in the appraisal report and only for the intended use stated in the report.
- is not provided by the appraiser for any other purpose and should not be relied upon by parties other than those identified by the appraiser as the client or intended user(s) in the report.
- is the result of the appraiser's routine inspection of and inquiries about the subject property's green and energy efficient features. Extraordinary assumption: Data provided herein is assumed to be accurate and if found to be in error could alter the appraiser's opinions or conclusions.
- is not made as a representation or as a warranty as to the efficiency, quality, function, operability, reliability or cost savings of the reported items or of the subject property in general, and this addendum should not be relied upon for such assessments.
- is not to be construed as a replacement for an appraisal report but is an Addendum to an appraisal report. This Addendum is not designed to assign value to each of the components identified. The Addendum is provided as a part of the description of the properties' special characteristics that have been included in the analysis and value conclusions in the appraisal report. It also serves the client in securing adequate information on the property type to assist in hiring the appraiser with knowledge and experience in this special property type.

Green Building: The practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's lifecycle from siting to design, construction, operation, maintenance, renovation, and deconstruction. This practice expands and complements the classic building design concerns of economy, utility, durability, and comfort.[1] High Performance building and green building are often used interchangeably; however, they do have different definitions.

High Performance Building: A building that integrates and optimizes all major high-performance building attributes, including energy efficiency, durability, life-cycle performance, and occupant productivity.[2]

Six Elements of Green Building: A green building has attributes that fall into the six elements of green building known as (1) site, (2) water, (3) energy, (4) materials, (5) indoor air quality, and (6) maintenance and operation. A Green Building will be energy efficient but an energy efficient building is not synonymous with Green Building.

Property Type

Category of Property: (explain) _____

This Addendum is for property types that include multifamily, all types of commercial, and industrial use properties. The Addendum can be used for proposed or existing structures including retrofits.

Who may complete this Addendum?

The Addendum may be completed by any of the following:

- LEED AP serving on project's charrette
- Green Rater that rated the project
- Developer/builder involved in developing the project
- Investor with sufficient information and documents to support the data
- Appraiser

The appraiser must have sufficient knowledge and experience of the property type to review an Addendum completed by others and comment on any inconsistencies or omissions noted. The person completing the Addendum should complete the "Completed by" Section of this Addendum.

The objective of this Addendum is to standardize the communication of the green and/or high performing features of commercial properties. Identifying the features provides a basis for comparable selection and analysis of the features.

The Addendum will assist the client in extracting the documents necessary to expedite the appraisal process by having a better understanding of the special property features. This will assist the client in securing the appraiser with knowledge and experience in the property type.

The Addendum can be attached to the listing of the property, which will allow the appraiser more detail on sales and listings of similar properties.

The Addendum may be used in its entirety or only the pages that apply.

Intended Users of this Addendum: Lender as part of their scope of work, appraisers as a supplement to the appraisal report, investors as a summary of special green/energy features, and/or real estate agents as a supplement to a listing.

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[1] U.S. Environmental Protection Agency at www.epa.gov/greenbuildings/pubs/about.htm

[2] Energy Policy Act of 2005 (Public Law 109-058) at http://www.nibs.org/?page=hpbc

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Client:		Client File #:	
Subject Property:		Appraisal File #:	

Documentation to Appraiser

The client should supply the qualified real estate appraiser with the following documents and information for analysis. This information should be supplied in advance of the appraisal bidding process to allow the appraiser full disclosure of the potential scope of work. Check the items that will be made available to the appraiser.

1. **LEED checklist** (if appropriate). Alternatively, if certified by another organization the checklist used by the certifier should be provided to the appraiser. (The checklist is the worksheet used by the green certified to award points for the green rating. The green score may be presented as a preliminary score on proposed construction and subject to a final inspection upon completion of construction. The appraiser should be presented with the final rating prior to the final inspection.) The checklist will address the six elements of green building identified earlier in this Addendum.

   Comment: This document assists the appraiser in understanding the shade of green and areas that received most points. For instance, a commissioned building will have a checklist used by the rater. The checklist is extremely useful in documenting the details on the subject property. The checklist will address in detail the materials element that appraisers may not be qualified to identify.

   A property may be green but not have a green third party certification. The green features must be documented and presented to the appraiser. The valuation is of the construction and not the certification; therefore, if the property possesses green features it should be appraised for the features it possesses.

2. **Contact information for details of green,** (LEED consultant, architect(s), builder, charrette member, and engineer)
   Comment: This will help inform the appraiser about the components and makeup of the building. An appraiser should expect to receive all pertinent information from all parties of a transaction.

3. **Energy modeling results (or Third Party Energy Ratings for Residential)**
   Comment: The energy modeling results can be critical in analyzing cost implications due to various green energy strategies or components. The appraiser should verify that the projections used are realistic and that they fit the manner in which the facility will be used. The greatest risk with energy modeling is that the projections employed do not fit actual building use and will result in an under- or overestimate of utility costs. The energy modeling should provide an estimated energy savings. (A cost benefit analysis and/or engineering modeling report may explain the choice and benefit of the systems used.)

4. **Plans and specifications**
   Comment: Even in an existing building, these documents should be made available if possible. Specifications should include product descriptions from manufacturers. This helps inform the appraiser what is actually found at the property. If the property is proposed or new construction, the builder should provide the cost breakdown of the property.

5. **Intended goals of construction or retrofit**
   Comment: If the subject is an existing building that has been upgraded or retrofitted, it is necessary to have basically the same discussions regarding intended goals, projections, etc. Once the validity of the energy modeling projections is established, the appraiser can make projections about projected energy savings.

6. **Commissioning Report (for high performance building systems and/or solar photovoltaic systems)**
   Comment: Commissioning is a third-party verification process used to evaluate whether the systems are designed, installed, functionally tested, and capable of being operated and maintained to perform in conformity with the owner's project requirements. This process is viewed by a number of institutional investors as a prime mechanism of risk mitigation. This factor should be considered when comparing the subject with its competitive set. The nature and extent of the commissioning process should be considered in the risk analysis.

7. **Tenant leases**
   Comment: Among other things, this is important to analyze who benefits from energy efficient improvements – the owner or tenant. It is also helpful to determining whether the leases within the building are similar to and competitive with those signed at the comparable properties. In the area of green strategies, innovations in tenant improvements (TIs) and space design may impact longer-term costs and result in potential savings. There could be reduced downtime between leases and construction and material costs, as well as reduced risk levels associated with space delivery and construction—depending upon the strategies, design, and components used.

8. **Incentives** (such as property tax rebates, utility rebates or incentives: public sector, private sector or utility)
   Comment: Where incentives are substantially monetary in nature or result in monetary, direct, and exclusive benefits to the project or owner, there is a good chance that the market value of the real property may be affected. The appraiser should be prepared to understand and address the contributory value of incentives. The impact of rebates and incentives should be considered in all three approaches to value, as appropriate. The availability and duration of the incentive should be examined and appropriately incorporated into the relevant approaches. Rebates and incentives should not be confused with income tax effects, such as accelerated depreciation, federal Investment Tax Credits (ITC), or Renewable Energy Credits (RECs) which are generally not considered part of the real property for a market value appraisal. Tax effects may have a material influence on the financial feasibility of a project but care should be exercised to separate income tax effects that accrue to the ownership entity from rebates and incentives that accrue to the real property.

9. **Financing Benefits/Burdens**
   Comment: This is important to determining the extent that a discrete loan that stays with the upgrade package may be below or above market and attractive or unattractive to assume. The appraiser should also balance the non-financial attributes of the green project to determine how many, if any, property rights are burdened. Financing products such as PACE (Property Assessed Clean Energy) may reflect a priority lien to the first mortgage, similar to a bond assessment, and typically survive ownership transfers of the property. Appraisers and their clients should consider how to address and report the impact of such financing when developing the Scope of Work.

10. **Operating Expenses.**
    Comment: Operating expenses – both historical and pro-forma – are important to understanding the ongoing operating expense impacts of a green or high performance property. In addition to the typical two or three years of operating expenses, appraisers and their clients may require more detailed reporting of individual expenses.

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Client:		Client File #:	
Subject Property:		Appraisal File #:	

Certification or Verification of Green or Energy Efficient Features

Certification Program and Ratings Attach the rating worksheet that provides the ratings for each element to provide a better understanding of the features. The worksheet will assist in comparing the subject to sales rated by different organizations.	**USGBC LEED®**	**Certifying Organization:** ☐ USGBC (LEED®) _____*Define rating system http://www.usgbc.org/leed/certification ☐ Core & Shell Only ☐ Interior Design _____ ☐ LEED for Existing Buildings: Operations & Maintenance ☐ Other:_____ Year Certified: _____ ☐ Report Attached or ☐ Certification viewed on site **Rating:** ☐ LEED Certified: ☐ LEED Silver ☐ LEED Gold ☐ LEED Platinum ☐ Describe Score If not listed:_____
	Green Globes®	**Certifying Organization:** ☐ Green Globes® _____* *Define rating system http://www.greenglobes.com Year Certified: _____ ☐ Report Attached or ☐ Certification viewed on site **Rating:** _____
	Energy Star®	□ **Energy Star®** http://www.energystar.gov/buildings/about-us Year Certified: _____ ☐ Report Attached or ☐ Certification viewed on site **Rating:** _____
	Home Innovation Research Labs (NGBS)	□ **Home Innovation Research Labs (NGBS)*** http://www.homeinnovation.com/green ***Define rating system** NGBS New Construction:_____ NGBS Rennovation of Existing Buildings:_____ Year Certified: _____ ☐ Report Attached or ☐ Certification viewed on site **Version:** ☐ NGBS 2008 ☐ NGBS 2012 ☐ NGBS 2015 ☐ NGBS _____(year) **Rating:** ☐ NGBS Bronze ☐ NGBS Silver ☐ NGBS Gold ☐ NGBS Emerald
	Other Green Certifying Organization	□ **Name Certifying Organization:**_____ Green Certifying Organization URL (website) _____ Year Certified: _____ ☐ Report Attached or ☐ Certification viewed on site **Rating:** _____
Additions	Explain any additions or changes made to the structure since it was certified:	
	Do changes require recertification to verify rating is still applicable? ☐ Yes ☐ No	
Recycle Programs	☐ Tenant Recycle Program ☐ Green Operations & Management ☐ Composting Program on Site ☐ Other _____	

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Comments The worksheets will provide a review of all categories and address the six elements of green building identified on the previous page of this Addendum. The worksheet will more specifically identify the green materials included in the property.	If a property is built green but not formally certified, it still deserves proper description and analysis to value the features. The market analysis is of the structure's physical, economic, and locational attributes and not an analysis of its label alone. If no formal certification was obtained but the structure has green attributes, please describe in this area.

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Client:		Client File #:	
Subject Property:		Appraisal File #:	

Site Element

The following items are considered within the appraised value of the subject property:

Walk Score	Score:_____	http://www.walkscore.com	
Public Transportation	☐ Bus – Distance:_____ Blocks Transit Score _____ http://www.walkscore.com	☐ Train – Distance: _____ Blocks	☐ Subway – Distance: _____ Blocks
Site	Orientation - front faces: ☐ East/West ☐ North/South	Landscaping: ☐ Water Efficient ☐ Native ☐ ☐ Built on brownfield ☐ Wetlands – acres:_____	
On Site Water Retention	☐ Dry Pond (size) _____ Acres ☐ Wet Pond (size) _____ Acres ☐ Rain Garden ☐ Vegetated Roof	☐ Drip Irrigation ☐ Smart Irrigation Controllers ☐ Irrigation supplied by wet pond or onsite water source	
Parking	☐ On site _____spaces ___ /1,000 SF ☐ Surface material _____ (pervious concrete, grass, gravel, shell) ☐ Permeable pavement	☐ Parking spaces reduced based on public transportation proximity ☐ Public parking garage or lot _____ blocks from property	

Comments

Water Element

☐ Reclaimed Water System (Explain):_____ ☐ Greywater reuse system ☐ WaterSense® fixtures	☐ Waterless urinals ☐ Low flow or sensor water fixtures ☐ Cistern - Size: _____ Gallons for irrigation ☐ Rain Barrels Provide Irrigation ☐ Other: _____

Comments: Identify other features that may be included in the element of water that have not been identified under the Site or Water Efficiency Sections.

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Client:		Client File #:	
Subject Property:		Appraisal File #:	

Energy Element

The following items are considered within the appraised value of the subject property:

Insulation	☐ Fiberglass Blown-In ☐ Foam Insulation ☐ Cellulose ☐ Fiberglass Batt Insulation ☐ Other (Describe):_____ R-Value: ☐ Walls _____ ☐ Ceiling _____ ☐ Floor_____					
Roof	Construction type: _____ ☐ Vegetated Roof ☐ Reflective Roof ☐ Other:_____					
Windows	☐ ENERGY STAR®	☐ Low E ☐ U-Value ___	☐ High Impact	☐ Storm	☐ Double Pane ☐ Triple Pane	☐ Glazed	☐ Solar Shades
Day Lighting	☐ Skylights #:_____ ☐ Solar Tubes #:_____	☐ Other (Explain) _____ ☐ Daylighting _____ ☐ Daylighting –optimized fenestration design ☐ Daylight-responsive electric lighting controls ☐ Daylight-optimized interior design (such as furniture design, space planning and room surface finishes)					☐ ENERGY STAR Light Fixtures ☐ LED Lighting ☐ T-8 Florescent Lighting

Mechanicals **HVAC (Describe in Comments Area)**	ENERGY STAR® Appliances: ☐ Dishwasher ☐ Refrigerator ☐ Office Equipment ☐ Other_____	Water Heater: ☐ Solar ☐ Heat Pump ☐ Tankless ☐ Coil Size: _____ Gal.	Other features: chillers, boilers, industrial type mechanicals _____ _____	
	☐ High Efficiency HVAC SEER:_____ Efficiency Rating:_____% AFUE* _____% *Annual Fuel-Utilization Efficiency	☐ Heat Pump Efficiency Rating: _____ COP:_____ HSPF:_____ SEER:_____ EER: _____	☐ Thermostat/Controllers ☐ Other:_____ _____	☐ Passive Solar Design (Defined in Glossary)
	☐ Programmable Thermostat		☐ Radiant Floor Heat	☐ Geothermal
Utility Costs	Average Annual Energy Cost: $ _____ per kWh $____based on:_____(Utility Bills/I&E Statements)			
	Hours of Operation: _____ ☐ # Employees: _____ After Hours or weekend hours of use: _____ ☐ Daytime cleaning (reduces energy costs)			☐ Dashboards # _____
Energy Audit	☐ Energy Audit attached Has an energy audit/rating been performed on the subject property? ☐ Yes ☐ No ☐ Unknown If yes, comment on work completed as result of audit.			
Comments (Include source for information provided in this section) Attach documents or reference source	Information was provided by:			

Indoor Air Quality Element

☐ Energy Recovery Ventilator Unit or Whole Building Ventilation System ☐ Other:_____	☐ Non Toxic Pest Control ☐ Co2 sensors
Comments: Describe additional features implemented that would affect the indoor air quality. Indoor air quality can be affected by building material choices as well as items listed herein. (See Rating Worksheet for items identified in this category)	

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Maintenance & Operations Element

☐ Operations & Maintenance Manual ☐ Demountable Walls ☐ Other _____

☐ Staff Training Program ☐ Daytime cleaning (reduces energy costs) ☐ Management has Green Training

Commissioning	☐ Post Occupancy Commissioning ☐ Date of PO Commissioning _____ **Note:** Certifications for certain standards, such as USGBC's LEED EB O&M, are valid for a limited time. In order to maintain that particular certification, the building must be reassessed every five years to determine whether it meets the then-current certification standards. It is essential to verify that a building's certification is valid.

Comments:
Note: The information provided on the operations and maintenance reflects details provided by others. Appraisers typically do not have sufficient detail to judge the operations and maintenance of the whole building as a system. Buildings that have been commissioned on a regular basis should have commissioning reports that provide operations and maintenance details by a qualified professional.

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Subject Property:		Appraisal File #:	

Commercial/Industrial Solar Worksheet

Property Address or ID:		Date of value:			Appraiser:		
Zip Code:							
The worksheet inputs accommodate the PV Value® tool.		http://pvvalue.com					
Solar Electric (PV)		**PV Array #1**	**PV Array #2**	**PV Array #3**	**PV Array #4**	**PV Array #5**	**PV Array #6**
Leased or owned *							
Years remaining on lease							
Initial net cost if owned		Provide total cost for all arrays					
Current net cost		Provide total cost for all arrays					
RECs (Renewable Energy Credits)	$ per megawatt hr.:						
Real property tax for solar PV system		Solar PV is exempt from real property taxes in some states					
System size in watts (DC watts @STC)							
Array type							
Array tilt							
Array Azimuth							
Azimuth tool can be found at the following link:		http://tools.solmetric.com/Tools/roofazimuthtool					
Age of panels							
Energy production kWh per array or total in first cell	Total production for all arrays kWh						
Source for production							
Location (roof, ground, etc.)							
Type of mount							
Warranty term on PV							
PV panel brand name							
Is PV company still in business?							
Number of inverters							
Age of inverter(s)							
Warranty term on inverter	Years total:			Years remaining:			
Is inverter company still in business?		Company name:					
Utility company name		kWh $/charged by utility company:				$0.00	
Evidence of shading							
Evidence of deterioration							
Is there a battery backup system?							
Does the system include lightning protection on both sides of the inverter?							

Documents Reviewed	Reviewed?	In Workfile?
Load analysis		
Shade analysis		
Commissioning form		
Solar installer financial payback analysis		
Warranty terms for inverter		
Warranty terms for solar PV including parts and labor		
Solar PV output monitoring, alert, response, and repair process timing		
If leased, obtain copy of lease and provide terms in comment section below		

Comments:

Roof considerations: Was the roof warranty voided by the PV installation? If the PV installer does not work with the roofing company to ensure that the roof warranty is not voided, additional risk may apply.

Remaining roof life considerations: If the remaining roof life is less than the remaining panel warranty, then an adjustment may need to be made to account for removal and re-installation of the rooftop system.

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Subject Property:		Appraisal File #:	

Incentives – Amount of Incentive and Terms

The following items are considered within the appraised value of the subject property:

Federal	
State	
Local	Note: Tax abatements are available in some areas and make a significant contribution to lower expenses.
Source (For example www.dsireusa.org)	
Comments Incentives offset cost and should be reported in the cost approach section of the report. Incentives	

Completed by:_____ Title:_____ Date:_____

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Subject Property:		Appraisal File #:	

Commercial Addendum Glossary

Building Envelope: The building envelope is everything that separates the building's interior from the exterior. This includes the foundation, exterior walls, roof, doors and windows.

Energy Recovery Ventilation System: Often called Heat Recovery Ventilators (HRV). These systems replenish the indoor air without wasting all the energy already used to heat the indoor air. In some climates, these systems are also used to handle water vapor in the incoming air.

Earth Advantage Commercial: Earth Advantage Commercial is a green building certification program for small commercial buildings. http://www.earthadvantage.org/commercial/ **Note:** This program does not require energy modeling.

ENERGY STAR®: Energy Star, sponsored by the EPA, rates buildings based on their energy use relative to buildings of similar vintage, design, construction, use and occupancy. Through ENERGY STAR, the nation's most energy efficient buildings can earn ENERGY STAR certification http://www.energystar.gov/buildings/about-us **Note:** The program claims of 35% lower energy costs is not a basis for adjustment in an appraisal. The appraiser must evaluate the efficiency and develop appropriate adjustments using acceptable appraisal methodology.

- **Portfolio Manager:** EPA's online energy management and tracking tool calculates 1 – 100 ENERGY STAR scores for eligible commercial and institutional buildings, such as K-12 schools, office buildings, and many others. Portfolio Manager also allows you to track improvements over time, compare similar buildings within a portfolio, generate reports, and quantify greenhouse gas emissions.
- **Target Finder:** This tool is similar to Portfolio Manager, except it's used to estimate performance. By entering the estimated energy use of a commercial building design or renovation project, you can project its future 1 – 100 ENERGY STAR score.
- **Energy Performance Indicators (EPIs):** Available for 11 different types of industrial or manufacturing plants, EPIs enable energy managers and corporate executives to evaluate the energy efficiency of their plants relative to others in their industry.

National Green Building Standard (NGBS): NGBS is an ANSI-approved green building rating system and part of the International Code Council's (ICC) International Codes (I-Codes). The NGBS provides practices for the design, construction, operation, and certification of new and existing residential buildings, including single family homes and multifamily buildings. Home Innovation Research Labs is the national Adopting Entity and certification agency for the NGBS. www.homeinnovation.com/green

Green Globes®: Green Globes is an online green building rating and certification tool that is primarily used in Canada and the USA. http://www.greenglobes.com

- New Construction/Significant Renovations
- Commercial Interiors (i.e. Office Fit-ups)
- Existing Buildings (offices, multi-residential, retail, health care, light industrial)

Geothermal: A geothermal heat pump uses the constant below ground temperature of soil or water to heat and cool the building. http://energy.gov/energysaver/articles/geothermal-heat-pumps

LEED®: Leadership in Energy and Environmental Design is a green building rating system sponsored by the United States Green Building Council (USGBC). LEED provides building owners and operators with a framework measurable green building design, construction, operations and maintenance solutions. http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988

- LEED for Building Design and Construction (LEED BD+C) rating systems
- LEED for Interior Design and Construction (LEED ID+C) rating systems
- LEED For Existing Buildings: Operations and Maintenance (LEED EB: O+M) rating systems

Life Cycle Assessment (LCA): LCA is a technique to assess the environmental aspects and potential impacts associated with a product, process, or service, by:

- Compiling an inventory of relevant energy and material inputs and environmental releases
- Evaluating the potential environmental impacts associated with identified inputs and releases
- Interpreting the results to help you make a more informed decision

Source: http://www.epa.gov/nrmrl/std/lca/lca.html

Passive Solar: Passive solar is technology for using sunlight to light and heat buildings with no circulating fluid or energy conversion system. http://rredc.nrel.gov/solar/glossary A complete passive solar building design has the following five elements: (1) aperture (collector) (2) absorber (3) thermal mass (4) distribution (5) control. http://www.nrel.gov/docs/fy01osti/27954.pdf

SEER: Seasonal energy efficiency ratio - The higher the SEER rating, the more energy efficient the equipment is. A higher SEER can result in lower energy costs. http://www.energystar.gov/index.cfm?c=tax_credits.tx_definitions&dts=ssps.mcs.seer.eer .

Water Sense: EPA released its Final Version 1.1 WaterSense New Home Specification. This specification will be effective January 1, 2013 and establishes the criteria for new homes labeled under the WaterSense program and is applicable to newly constructed single-family and multi-family homes. http://www.epa.gov/watersense/new_homes/homes_final.html

Water Heaters: Solar, Heat Pump, Tankless On Demand or Tankless Coil water heaters are described at the following location: http://energy.gov/energysaver/articles/solar-water-heaters.

WaterSense has developed WaterSense at Work, a compilation of water-efficiency best management practices, to help commercial and institutional facilities understand and better manage their water use, help facilities establish an effective water management program and identify projects and practices that can reduce facility water use. http://www.epa.gov/watersense/commercial/bmps.html

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Subject Property:		Appraisal File #:	

Whole Building Ventilation System: A whole building ventilation system assists in a controlled movement of air in tight envelope construction and may include air-purifying systems. Whole building ventilation equipment is often a part of the forced air heating or cooling systems.

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Client:		Client File #:	
Subject Property:		Appraisal File #:	

GREEN PROPERTY VALUATION RESOURCES

Appraisal Institute Introduction to Valuing Commercial Green Buildings
http://www.appraisalinstitute.org/library/bok/IntroGreen.pdf

Appraisal Institute Green Building Education
http://www.appraisalinstitute.org/education/green/default.aspx

Case Studies in Appraising Green Commercial Buildings including functional obsolescence
http://www.appraisalinstitute.org/education/course_descrb/PDFs_for_Web/Course_828/toc-case-studies-green-comm-bldgs.pdf

Capital Markets Briefing Paper green building business case released at the NYSE
http://webstore.ansi.org/FindStandards.aspx?Action=displaydept&DeptID=3144#.UGjO2Y7XfQc

Green Building and Property Value – provides a review of the commercial green building property value identifying the components of green that may materially affect value. This document was developed by the Appraisal Institute and Institute For Market Transformation (IMT)
http://www.imt.org/resources/detail/green-building-and-property-value

Retail Green Lease Primer – This two-page document helps guide retailers and retail owners to improving the efficiency of their facilities. It can be helpful to appraisers in understanding green leases. http://www.imt.org/resources/detail/retail-green-lease-primer

Building Energy Performance Assessment News - This website offers many resources on green mortgage underwriting for commercial and residential properties. Http://www.bepanews.com

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