VALUATION SUMMARY

A "Normative" Model

Figure 4.1 The Valuation Process

Definition of the Problem

Identification of real estate	Identification of property rights to be valued	Use of appraisal	Definition of value	Date of value estimate	Description of scope of appraisal	Other limiting conditions

Preliminary Analysis and Data Selection and Collection

General (Region, city and neighborhood)	Specific (Subject and comparables)	Competitive Supply and Demand (The subject market)
Social Economic Governmental Environmental	Site and improvements Cost and depreciation Income/expense and capitalization rate History of ownership and use of property	Inventory of competitive properties Sales and listings Vacancies and offerings Absorption rates Demand studies

Highest and Best Use Analysis

Land as though vacant
Property as improved

Specified in terms of
use, time, and market participants

Land Value Estimate

Application of the Three Approaches

Cost — Sales comparison — Income capitalization

Reconciliation of Value Indications and Final Value Estimate

Report of Defined Value

various areas and be sure that the legal description is reasonable. Systems of land description include the metes and bounds system, the rectangular or government survey system, and the lot and block system (or plat map system). (These systems are described in Chapter 9.)

Identification of the Property Rights to Be Valued

The valuation of real property includes both the physical real estate and the rights that one or more individuals or legal entities may hold or contemplate holding in

TABLE OF CONTENTS

SALES COMPARISON APPROACH ILLUSTRATION

Assume the subject property is a brick ranch with 2,200 square feet of living area. It has 4 bedrooms and 2 baths, and is on a 23,000 square-foot lot. It is 15 years old, and has received average maintenance. It has central air conditioning and a 1-car garage. Three comparable sales have been selected on the basis of similar location, living area and lot size, age, and condition. All were conventionally financed. Assume previous analysis has produced the following adjustments for certain property attributes.

Square feet of living area:	$30 per square foot	
Bedrooms:	$3,200 per bedroom	
Bathrooms:	$1,400 per full bath, $600 per half bath	
Exterior (compared to brick):	Wood-frame	($4,500)
	Aluminum siding ($4,000)	
Air conditioning:	$2,500	
Garage(per car):	$2,000	
Design (compared to ranch):	Bi-level	($1,500)
Time since sale:	5% per year	
Age of house	($400) per year	

The following grid presents data on the three comparable sales.

Variable	Comparable 1	Comparable 2	Comparable 3
Sale price	$105,000	$115,000	$122,000
Financing	Conventional	Conventional	Conventional
Date of Sale	6 months ago	9 months ago	10 days ago
Condition	Similar	Similar	Similar
Location	Similar	Similar	Similar
Age	22 years	12 years	8 years
Design	Ranch	Ranch	Bi-level
Living area	2,100 sq. ft.	2,350 sq. ft.	2,400 sq. ft.
Bedrooms	4	4	4
Baths	2	2.5	2.5
Construction	Brick	Wood-frame	Brick
Air conditioning	No	Yes	Yes
Garage	1-car	1-car	2-car
Lot size	Similar	Similar	Similar

Complete the following sales adjustment grid.

Variable	Subject	Comparable 1	Comparable 2	Comparable 3
Sale price	-	$105,000	$115,000	$122,000
Time	Current	+2,625	+4,313	-
Age	15	+2,800	-1,200	-2,800
Design	Ranch	-	-	+1,500
Living area	2,200	+3,000	-4,500	-6,000
Bedrooms	4	-	-	-
Bathrooms	2			
Construction	Brick			
Air cond.	Yes			
Garage	1 car			
Total adjustments		________	________	________
Adjusted price				

SALES COMPARISON APPROACH ADJUSTMENT GRID

Variable	Subject	Comparable 1	Comparable 2	Comparable 3
Sale price	-	$105,000	$115,000	$122,000
Time	Current	+2,625	+4,313	-
Age	15	+2,800	-1,200	-2,800
Design	Ranch	-	-	+1,500
Living area	2,200	+3,000	-4,500	-6,000
Bedrooms	4	-	-	-
Bathrooms	2			
Construction	Brick			
Air cond.	Yes			
Garage	1 car			
Total adjustments				
Absolute				
%				
Net				
%				
Adjusted price				

T72 Cost Approach to Value

Step 1:	Estimate land as vacant		$30,000	V_L
Step 2:	Estimate new construction cost of similar building	$120,000		+
Step 3:	Less estimated depreciation	–12,000		
Step 4:	Indicated value of building		$108,000	V_B
Step 5:	Appraised property value by the cost approach		$138,000	= V_0

$$V_0 = V_L + V_B$$

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COST APPROACH

Value = Reproduction (or replacement) cost new - Accrued depreciation + Land

REPRODUCTION OR REPLACEMENT COST

- **Cost of the improvements as of the date of the appraisal, including direct costs, indirect costs, and developer profit.**

2 Types of Cost Estimates

- **Reproduction Cost (an exact duplicate or replica)**
- **Replacement Cost (utility equivalent)**

Cost Estimation

- **The Comparative Unit Method**
- **Unit-in-Place (Segregated) Method**
- **The Quantity-Survey Method**

Sources of Cost Data

- **Cost estimation manuals**
- **Local contractors, developers**

COST APPROACH

The 300,000 square foot warehouse building is located on a 3.5 acre site. Industrial land is valued at $60,000 per acre. The depreciated value of the site improvement (parking lot, driveway, landscaping, exterior lighting) is estimated to be $19,000. New warehouses in the area have been constructed for $35 per square foot. This amount has been confirmed with published cost manuals. The warehouse has a problem, the ceiling height of 16 feet is too low. The market typically demands ceiling heights of at least 18 feet. It is not economically possible to add "height" to the building; however, you estimate the loss in value of $700,000. The building is 12 years old. There is significant deterioration to the property. It is economically feasible to fix $600,000 of the "wear and tear." Approximately $1,200,000 is considered structural depreciation and it is not economically feasible to cure.

1. Calculate the replacement cost of the building.

2. Calculate total depreciation and identify each type of depreciation.

3. Calculate the value of the land.

4. Put is all together and come up with a value indication by the Cost Approach.

ESTIMATING ACCRUED DEPRECIATION

1. **The Breakdown Method of Estimating Accrued Deprec.**

(Described above)

2. **Estimating Depreciation in a Lump Sum: Age/Life Methods**

- **The Effective Age/Economic Life**

$$\text{Accrued Deprec.} = \frac{\text{Effective Age}}{\text{Economic Life}} \times \text{Cost new}$$

EFFECTIVE AGE/ECONOMIC LIFE TECHNIQUE

Reproduction cost new		**$245,000**
Total economic life	**55 years**	
Effective age	**20 years**	
% accrued depreciation	**20/55 = 36.4%**	
Accrued depreciation	**.364 x $245,000 =**	**- $ 89,180**
Depreciated value of improvements		**155,820**
Plus land value		**+ 39,000**
Estimated market value		**$194,820**

Cost Approach: Effective Age / Economic Life Example Problem

Given The following information, put together a Valuation by The Cost Approach

- Subject property is 50 000 square foot industrial building on 3.3 acres of land
- Value of land is $90 000 / Acre
- Reproduction Cost New is $40/ square foot ($)
- Age 40 years (actual, chronological Age)
- Effective Age 16 years
- Economic Life of similar buildings 55 years

Cost Approach: Effective Age / Economic Life Example Problem

Given The following information, put together a Valuation by The Cost Approach

- Subject property is 50 000 square foot industrial building on 3.3 acres of land
- Value of land is $90 000 / Acre
- Reproduction Cost New is $40/ square foot ($/ft²)
- Age 40 years (actual, chronological Age)
- Effective Age 16 years
- Economic Life of similar buildings 55 years

MONEY & MORE

Building a house by the numbers

Builders detail the costs of construction, from ground up

By Susan Harte
STAFF WRITER

Last year, more than 7,000 new houses went up in Gwinnett County, and Rick Porter built 135 of them, adding to hundreds of others the Tucker-born businessman has constructed in a family vocation that spans three generations.

That makes him something of an expert when it comes to figuring out and explaining the prices builders charge for new houses.

Take, for example, the house in the accompanying chart, located in the Orchard Grove subdivision in Gwinnett County. If Porter's company gets its asking price of $116,426, then its profit will be $6,709.

Little room to bargain

Is there room to haggle in this situation? The simple answer, Porter says, is no.

"With a unique, big-ticket item like a house, the price is cost-based. And, because Atlanta is such a competitive market and a small-builder town, there is very little room for markup."

Where does the money go? Porter explained his construction expenses, and the chart shows the high points.

Condensing thousands of individual costs, from sinks and switchplates to driveway labor and builder's insurance, the bottom-line profit on the house, which is typical of what Porter builds, is about 6 percent.

That 6 percent average profit, by the way, is standard for many industries, including capital goods, specialized chemicals and health care.

Software and diversified chemicals have a higher profit margin, averaging 9 percent. Lower are consumer durables, where profit margins average 3 percent.

Although the tangle of finance, cost and price may confound the average buyer, it is second nature to Porter.

"My earliest memories are of being around as houses were built," recalls the 43-year-old Georgia Tech graduate, whose family helped him start his own company in 1975.

Since then, Porter has led an industry effort to inform consumers about the financial realities of building houses. Chief among those factors are:

■ Land cost determines house price. In metro Atlanta, land can account for 16 percent to 30 percent of the total. As the land price increases, the type and quality of amenities in the house typically go up as well. Also, in a highly desirable location, Porter says, builders can put less house on a more expensive lot.

■ Competition among builders for land can drive up prices. Conversely, a shortage of buyers can compel builders to lower their asking prices.

■ Each of the dozens of subcontractors working on a house makes a profit. If the demand for carpentry subcontractors is high, for example, then contractors may have to pay more to get them to the job.

Should a subcontractor, the weather or some other circumstance cause a delay, it could take longer than the usual 120 days to build the average three-bedroom house.

Plenty of paperwork

What happens during the construction process, says Kay Cantrell, president of the Greater Atlanta Home Builders Association, is as misunderstood by the public as it is aggravating to builders.

Once a contract ordering a house is signed, builders spend three to four weeks enmeshed in procedures — procuring plans, approvals and financing.

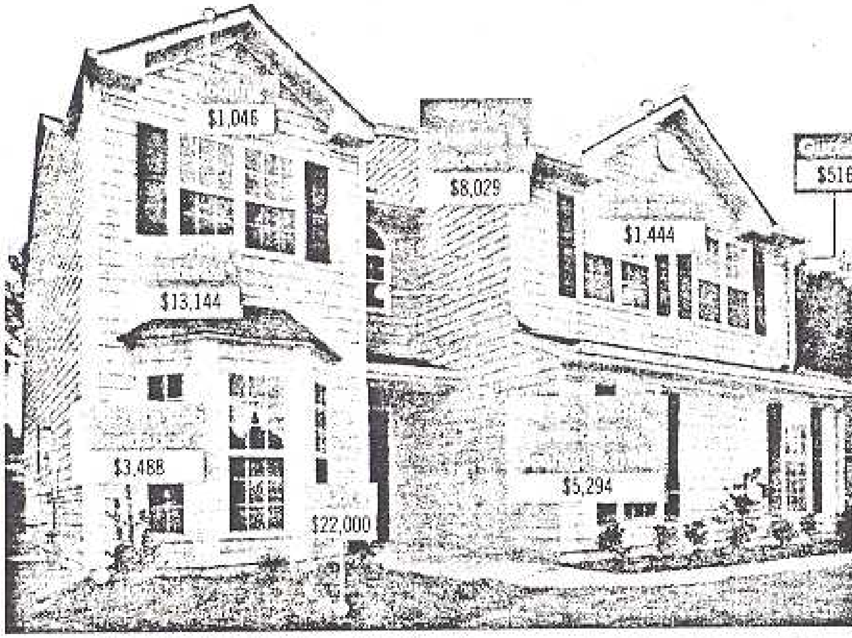
■ Banks will loan builders about 75 percent of appraised value of the house and lot, based on comparable properties nearby. In new subdivisions, where there are few comparables, banks often lend less money.

Once the builder gets all the go-aheads, he spends his own money to prepare the lot and foundation.

The biggest aggravation, for buyer as well as builder, is not the waiting, Porter says. It is accommodating building codes that are minutely detailed and ever changing.

ITEMIZING THE COST OF BUILDING A HOUSE

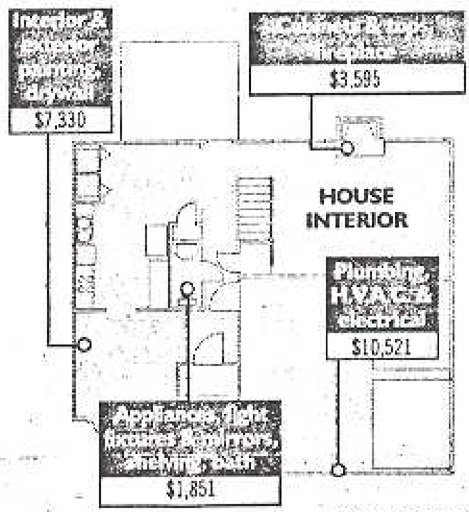
In the metro Atlanta market, land is the most costly component of a home. Following that come framing; plumbing, heating, ventilation and air conditioning systems; and siding, windows and doors. Some of the less visible costs include paperwork, the builder's loans and commissions for real estate agents.



OTHER COSTS AND TOTALS

Commissions	$5,821
Overhead	$5,473
Financing	$4,815
Trim:	
Materials	$2,300
Labor	$836
Permits	$2,166
Floor covering	$2,068
Grading, land preparation	$2,025
Construction supervision	$2,000
Marketing	$1,200
Community maintenance	$1,160
Plans, surveys	$720
Insurance	$525
Utilities, taxes	$350
Total	**$109,717**
Builder profit	**$6,709**
Total cost	**$116,426**

* Includes labor



STEPHEN CAMPER / Staff

> *"With a unique, big-ticket item like a house, the price is cost-based. And, because Atlanta is such a competitive market and a small-builder town, there is very little room for markup."*
>
> RICK PORTER
> Gwinnett County builder

INCOME PROPERTY VALUATION TECHNIQUES

implicit

Gross Rent Multiplier /Gross Income Multiplier

Uses sales and rent data for comparable properties to estimate value of the property.

Ratio Model

Direct Capitalization

Uses the property's financial data to determine a single cash flow [NOI] and develops a rate to estimate value of the property.

---

explicit

Yield Capitalization/ Discounted cash flow

Uses the property's financial data to determine a cash flow [NOI] statement for the future and develops a rate to estimate value of the property. [Discounted Cash Flow Analysis is the valuation tool.]

T75 Projected Annual Operating Statement (Also called a Pro Forma Statement)

Potential

	Scheduled Gross Annual Income	$84,000	
	Vacancy Allowance and Collection Losses 5%	4,200	
	Effective Gross Income		$79,800
	Operating Expenses		
F	Property taxes	9,600	
	Hazard and liability insurance	1,240	
	Property management 6.3%	5,040	
V	Janitorial services	1,500	
	Gardener	1,200	
	Utilities	3,940	
	Trash pickup	600	
	Repairs and maintenance	5,000	
	Other	1,330	
	Reserves for replacement		
R	Furniture & furnishings	1,200	
	Stoves & refrigerators	600	
	Furnace &/or air-conditioning	700	
	Plumbing & electrical	800	
	Roof	750	
	Exterior painting	900	
	Total Operating Expenses		$34,400
	Net Operating Income		$45,400

Operating Expense Ratio: $34,400 ÷ $79,800 = 43.1%

Gross Income Multiplier → yearly
→ Monthly

T71 Calculating Gross ~~Rent~~ Income Multipliers

Building	Sales Price		Gross Annual Rents		Gross ~~Rent~~ Income Multiplier
No. 1	$245,000	÷	$ 34,900	=	7.02
No. 2	$160,000	÷	$ 22,988	=	6.96
No. 3	$204,000	÷	$ 29,352	=	6.95
No. 4	$196,000	÷	$ 27,762	=	7.06
As a Group:	$805,000	÷	$115,002	=	7.00
Subject	?		$30 000	=	7.00

(E)GIM = SP / EGI

SP = EGIM × EGI

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INCOME APPROACH EXAMPLE: MARKET EXTRACTION

A. Subject Property: Income Statement

The subject property (the property we are appraising) is a 300,000 square foot warehouse building. The property is leased for $2.75 per square foot, net net. Occupancy rates in the area are strong at 98%. The operating expense ratio (OER) for the subject property is 10%.

Build an operating income statement for this property for appraisal purposes.

B. Capitalization Rates: Market Extraction

1. A warehouse located less than three miles from the subject property sold for $11,000,000 one year ago. The net operating income at the date of sale was $1,000,000. What is the capitalization rate?

2. A warehouse located two miles from the subject property sold, three months ago, for $925,000 with a net operating income of $91,250. What is the capitalization rate?

3. A warehouse next to the subject property sold six months ago for $11,000,000. You could not get the net operating income from the owner but you know that this 400,000 square foot building is being lease for $3.00 per square foot, triple net. At the time of this sale, market occupancy rates were at 96%. You also estimate that the OER for this property is 10%. Calculate the capitalization rate from this sale.

C. Subject Property: Capitalization of Income

Capitalize the net operating developed in part A by a capitalization rate the you think is appropriate for the subject property.

Direct Capitalization Using an Overall Rate

$$V_0 = \frac{\text{Income}}{\text{Rate}}$$

$$\frac{\text{Income}}{\text{Overall rate}} = \text{Value} \qquad \frac{\$45{,}400}{0.10756} = \$422{,}090$$

$$\rightarrow R_0 = \frac{\text{Income}}{\text{Value}} = \frac{\text{Net Income}}{\text{Value}}$$

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what is the value of the site? What is the value of the structure? What is the highest and best use of this property?

12. List the steps involved in each of the three approaches to value.

13. Why is reconciliation a necessary step in the appraisal process?

14. List the six elements of comparison in the sales comparison approach.

15. Consider a vacant lakefront lot measuring 90 by 120 feet in a residential subdivision. Three similar vacant lots have sold recently. Comparable number one measures 85 by 120 feet and is also located on the lake. It sold for $35,000 one week ago. Comparable number two is also on the lake, and it measures 85 by 120. It sold one year ago for $30,000. Comparable number three sold six months ago for $31,000. It is a hillside lot that offers an exceptional view. The lot measures 80 by 120 feet. Complete the market data grid provided below to estimate the value of the subject property.

Sales Comparison Market Data Grid

		Comparables		
	Subject	*# 1*	*# 2*	*# 3*
Sales price	—	$35,000	$30,000	$31,000
Size in square feet	10,800	10,200	10,200	9,600
Price per square foot	—			
Date of sale	Current	– 1 week	– 1 year	– 6 months
Adjustment for changing market conditions	—			
Adjusted price per square foot	—			
Location	Lake	Lake	Lake	Hillside
Adjustment for location	—			
Adjusted price per square foot	—			
Indicated value of subject property:				

16. Define the following terms: accrued depreciation, physical deterioration, functional obsolescence, economic obsolescence.

17. Consider the example discussed in Table 10.2. If the actual market value of the land was $190,000 and the cost to reproduce the structures was $610,000, what market value would be indicated by the cost approach?

18. Define the following concepts: gross income multiplier and capitalization rate.

Chapter 10 Solutions to problems 11, 15, 17, 19, + 20

11. $40,000, $0 The highest and best use is a commercial property. The value as a commercial site minus the demolition costs is greater than the value of the current residential use.

15.

	Comp 1	Comp 2	Comp 3
$/sq ft square foot → price per square foot	3.43	2.94	3.23
Adjustment for market conditions	0	+ .49	+ .0245
Adjusted price per square foot	3.43	3.43	3.48
Adjustment for location	0	0	−0.05
Adjusted price per square foot	3.43	3.43	3.43

Value of subject property $3.43/ft × 10,800 ft = $37,044
Rounded $37,000

Adjustment for market condition:
Comps 1 and 2 are similar in all respects with the exception of the Date of Sale (market conditions). In ~~this~~ problem, we are assuming that if we have two sales and there is only ONE difference between those two sales, then we can attribute any price difference between the two sales ~~t~~ to ~~that~~ the ONE difference (market condition in this example). $3.43 - 2.94 = .49$ Adj for Comp 2
$\frac{1}{2} \times .49 = .245$ Adj for Comp 3

Location Adjustment:
It is assumed that Comp 3 has a 5 ...

$3.48 - 3.43 = -.05$

We think Comp 3 sold a little higher than the Subject property would ~~bec~~ because of the Superior View (Superior → decrease Comp).

17. Cost New 610 000

− Depreciation − 26 500

+ land (site) value + 190 000

Value by Cost Approach 773,500

19. GIM = SP / GI and SP or Value = GIM × GI

	Comp 1	Comp 2
Sales Price	\$450 000	322 500
Income	\$100 800	72 240
GIM	4.46 $\left(\frac{450\,000}{100\,800}\right)$	4.46

Note: looks like the appropriate GIM is 4.46

Value of subject: 11 000 ft × \$8.40/ft = \$92,400 ⇒ $GI_{subject}$

\$92 400 × 4.46 = \$412,104

20. Capitalization Rate = Net Operating Income / Sale Price ~~Sales Price / Net operating Income~~

SP or Value = Net Operating Income / Capitalization Rate

Comp 1: Cap Rate = \$65 600 / \$450 000 = .1458

Comp 2: Cap Rate = 47 000 / \$322 500 = .1458

Subject Value = \$52,400 / .1458 = \$359 396