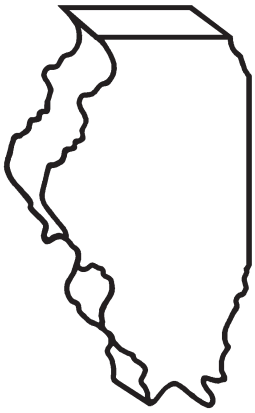

I – B Introduction to Commercial Assessment Practices

Course # 001-807

PTAX 1-B (R-05/21)

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1-B Introduction to Commercial Assessment Practices

Course Outline

Glossary

Ad valorem — according to value.

Ad valorem tax — tax levied according to value.

Allowable expenses — legitimate expenses that can be deducted from effective gross income to arrive at net income.

Capitalization — a mathematical process for conversion of the net return produced by a property into an indication of value.

Capitalization Rate — **R** in the IRV formula. Consists of the Equity, Effective Tax and Mortgage/Interest rates.

> **Recapture (or Equity) rate** - Annual rate at which invested capital is returned to the investor over a specified period. Refers to income provision made to compensate for the loss of invested capital.
>
> **Effective Tax rate** - determined by multiplying the level of assessment by the aggregate tax rate supported by that property. Used to calculate property taxes by applying the effective tax rate to full market value.
>
> **Mortgage/Interest rate** – interest rate used to convert future payments or receipts into present value.

CDU rating — Condition, Desirability, and Utility of an improvement used in the Remaining Economic Life table to reflect physical, functional and economic depreciation.

Comparable — recently sold property that is similar in many aspects to a property being appraised.

Component-in-place (CIP) — the method used to value buildings by analyzing and pricing each component part of the building. These values are detailed in IDOR's Publication 127.

Cubic feet (CU) — length x width x overall height. **L x W x OH**

Eave height — the height of a building from grade-level to the building's eaves.

Economic life — the expected period of time over which improvements to real property contribute to property value. The economic life of an improvement could be different than its actual **physical life**.

Effective age — the typical age of a structure equivalent to the one in question with respect to its utility and condition.

Effective perimeter (EP) — the linear measurement around a building.
L + W + L + W = EP

Gross income multiplier (GIM) — a unit of comparison used in the sales comparison approach to value. Sale price divided by gross income.

Load bearing — walls of a building that support the structure.

Market value — the most probable price which a property should bring in a competitive and open market, under all conditions requisite to a fair sale, the buyer and seller are acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus.

Net Operating Income (NOI) — effective gross income, less allowable expenses and reserves for replacement.

Overall cap rate (OAR) — a capitalization rate used in the income approach to value. Net income divided by the selling price.

Party wall — common wall shared by two buildings.

Potential gross income (PGI) — income that a property can produce if 100 percent occupied for 100 percent of the time, based on market standards.

Remaining Economic Life (REL) — an estimate of the number of years an improvement is expected to contribute to the value of a property.

Replacement Cost New (RCN) — the cost to replace an improvement with a new improvement of equal utility and desirability.

Reserves for replacement (RR) — replacement or repair cost of short-lived items pro-rated as an allowable expense to be deducted from effective gross income.

Wall height adjustment — adjustment used to factor for building wall height when using IDOR Appraisal Publications.

Formulas and Measurements

Income approach	$\frac{I}{R \bullet V}$	$\frac{\text{Income}}{\text{Rate x Value}}$
Net income (NOI)	EGI - Expenses	Effective gross income — Expenses
Gross income multiplier (GIM)	$\frac{SP}{GI}$	$\frac{\text{Sales Price}}{\text{Gross income}}$
Unit price	$\frac{SP}{\text{\# of Units}}$	$\frac{\text{Sales Price}}{\text{\# of Units}}$
Room price	$\frac{SP}{\text{\# of Rooms}}$	$\frac{\text{Sales Price}}{\text{\# of Rooms}}$
Adjusted sales price (Adj. SP)		Sales price (+ or -) adjustments

DATA BANK	
SF Ground Area	
Eff. Perimeter LF	
SF Wall Area	
L:W Ratio	
Story	**Schedule**

Area of a Rectangle		**L x W**
Area of a Triangle		$\frac{\textbf{L x W}}{\textbf{2}}$
SFGA —	square feet of ground area	**L x W**
CF —	cubic feet	**SFGA x H**
SFWA —	square feet of wall area	**EP x H**

Abbreviations

A

A	Attic
AC	Air conditioning
AP	Appraiser or appraisal
Apt	Apartment
Asmt	Assessment
Att	Attached
Avg	Average

B

B	Basement
Blk	Block
BPA	Base price adjustment
BR	Building residual
Brk	Brick
Bsmt	Basement

C

CB	Concrete block
CCAO	Chief county assessment officer
CDU	Condition, desirability, utility
CF	Cubic feet
CIP	Component-in-place
Cntrl	Central
Col	Column
Comm	Commercial or common
Comp	Composition or comparable
Conc	Concrete
Cond	Condition
Condo	Condominium
Const	Construction
Corr	Corrugated
C/P	Carport
CY	Cubic yards

D

Depr	Depreciation
Dia	Diameter
DW	Drywall

E

EGI	Effective gross income
EIFS	Exterior Insulation Finished System
EMP	Enclosed masonry porch
Excl	Excellent

F

FA	Forced air
Fac	Factor
FF	Front foot
FP	Fireproof or fireplace
Frm	Frame
Ftg	Footing

G

Galv	Galvanized
Gar	Garage
GIM	Gross income multiplier

H

H	Height
Hgt	Height
HVAC	Heating, ventilating, and air conditioning

I

I	Income
Impr	Improvement
Ind	Industrial

K

KW	Kilowatts

L

L	Length
L/B	Load-bearing
L:B	Land-to-building ratio
L & B	Land and building
LF	Linear feet
LR	Land residual

M

MV	Market value

N

NH	Neighborhood

O

OC, O/C	On center
O/FP	Ordinary or Fireproof

P

P & B	Post and beam
Pchs	Porches
Plstr	Plaster
PRC	Property record card
Pre-eng	Pre-engineered
PVC	Polyvinylchloride

R

R	Rate
RCN	Replacement cost new
Rein	Reinforced
REL	Remaining economic life
Replc	Replacement
RFC	Reinforced concrete
Rnf	Reinforced

S

SA	Supervisor of assessments
SF	Square feet
SFFA	Square feet floor area
SFGA	Square feet ground area
SFSA	Square feet serviced area
SFWA	Square feet wall area
SS	Stainless steel
Stl	Steel
Sty	Story

U

Unfin	Unfinished
Unt	Unit

V

V	Value

W

WR	Wall Ratio

Where to Get Assistance

Web Links

Property Tax Division: tax.illinois.gov

Property Tax Education Unit: email: rev.proptaxed@illinois.gov

Property Tax Code (35 ILCS 200) ilga.gov

Illinois Property Tax Appeal Board: ptab.illinois.gov

Publications

Publication 126, Instructions for Commercial and Industrial Cost Schedules
tax.illinois.gov/Publications/Pubs/Pub-126.pdf

Publication 127, Component-in-Place Schedules
tax.illinois.gov/Publications/Pubs/Pub-127.pdf

PTAX-1004, The Illinois Property Tax System
tax.illinois.gov/Publications/LocalGovernment/PTAX1004.pdf

Unit 1- Appraisal Theory

This unit provides an overview of the three approaches to value, the bundle of property rights, and the three types of depreciation.

The purpose of this unit is to provide a basic understanding of the appraisal process.

Learning objectives

After completing the assigned readings, you should be able to

- identify the three approaches to value.
- explain the formula for the sales comparison approach.
- explain the formula for the cost approach.
- understand the three types of depreciation.
- explain the formula for the income approach, and understand which approach is best to use to value different types of property.

Terms and Concepts

Market value
Highest and best use
Principle of substitution
Sales comparison, or market approach
Cost approach
Replacement cost new (RCN)
Improvements
Depreciation
Income approach
Capitalization
Capitalization rate
IRV formula
Potential gross income (PGI)
Vacancy and collection losses
Effective gross income (EGI)
Net operating income (NOI)
Allowable expenses
Reserves for replacement

Appraisal Theory

Definition of Market Value

Market value is the most probable price which a property should bring in a competitive and open market, under all conditions requisite to a fair sale, the buyer and seller are acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

1. buyer and seller 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. payment is made in terms of cash in United States dollars or in terms of financial arrangements comparable thereto, and
5. the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

Uniform Standards of Professional Appraisal Practice, 2016-17 edition.

Bundle of Rights

Owning real estate carries with it a traditional “bundle of legal rights” transferred with the property from seller to buyer. These are the recognized rights of the holder of title to the property and include:

- **the right of possession** - the property is owned by whomever holds title.
- **the right of control** - within the laws, the owner controls the use of the property.
- **the right of exclusion** - others can be excluded from using or entering the property.
- **the right of enjoyment** - the owner can enjoy the use of the property in any legal manner.
- **the right of disposition** - the title holder can sell, rent or transfer ownership or use of the property at will.

Ownership of land is holding “title” to it. The evidence of that title is the deed. The seller executes a deed to transfer title to real property and the bundle of rights that go with it.

Principle of Highest and Best Use
The assessor must determine a property's highest and best use before determining the property's market value. Property has its highest value at its highest and best use.

Highest and best use is defined as:

The reasonably profitable and legal use of vacant land or an improved property which is physically possible, appropriately supported, financially feasible, and 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 profitability.

Principle of Substitution

The **principle of substitution** provides the basis of the **three approaches to value** and states that a buyer is not justified in paying more for a property than it would cost to acquire an equally desirable, substitute property. That is, the value of a property is established as the amount equally desirable and comparable properties are being bought and sold for in the market.

The Three Approaches to Value

The three approaches to valuing real property are:

1. **The sales comparison, or market approach** — compares properties that have recently sold to the property that is being appraised.

2. **The cost approach** — involves calculating the replacement cost of the building and subtracting depreciation.

3. **The income approach** — involves capitalizing the property's net earnings.

1. The Sales Comparison Approach

The action of the market, shown in prices paid for real property, is a highly reliable indicator of value. As a result, the value of property can be reliably estimated by observing and analyzing the selling prices of comparable properties.

The sales comparison approach is dependent on the availability of sales of comparable properties (sales comps) and the validity of the appraisers' judgments made regarding their similarities and differences.

The basis for the sales comparison, or market approach, is the principle of substitution. A buyer is not going to spend more on a property than what a similar or substitute property offering the same uses, utility, and function would sell for.

Elements of Comparison

Consideration must be given to all the tangible and intangible factors influencing value:

- location
- construction
- age
- physical features
- condition
- desirability, and usefulness or utility

In addition, utmost consideration must be given to the time and conditions of each sale. The time the sale occurred is important because the value of real estate changes over time with changing economic conditions and property conditions.

Selling prices of comparable properties set the upper and lower limits of the value range within which the subject property will fall.

Analysis of the value factors influencing each sale enables the appraiser to narrow the range to a value level that is most applicable to the subject property.

The appraiser adjusts the comparable sales to the subject property. If the comparable property that sold is superior (better) in some manner to the subject property, the sales price of the comparable property is adjusted downward (subtract) to the subject property. Likewise, if the comparable property is inferior in some manner to the subject property, the sales price of the comparable property is adjusted upward (increase) to the subject property.

Comparable Superior, Subtract (-)

Comparable Inferior, Increase (+)

Example of adjustments

The significance of this approach lies in its ability to produce estimates of value that directly reflect the opinions of buyers and sellers in the market.

For instance, an adjustment may be warranted if several comparable commercial sales are alike in every way except two are located near an interstate and the other sales are located a mile away from any major roadway. If the properties by the interstate sold for more than the non-interstate properties and the subject is by an interstate, then an upward adjustment **(Inferior = Increase)** would be required before the inferior sales can be used to estimate the value of the subject property located next to the interstate.

A downward adjustment **(Superior = Subtract)** may be necessary if a comparable sale is superior to the subject property because it has a railroad spur nearby and the subject property does not.

2. The Cost Approach

The value of a property can be estimated under the cost approach by estimating the value of the land, adding the replacement cost new (RCN) of the improvements, and subtracting the depreciation from the improvements. The cost approach is most accurate when an improvement is new, and the value of the land is known.

The formula for the cost approach is:

Market Value = Land Value + (RCN - Depreciation)

MV = LV + (RCN-DEP)

Land Value

The **land value** is usually estimated by using the sales comparison, or market approach, to value. This approach is applied by comparing the subject site with sales of comparable sites that are vacant.

Replacement Cost New (RCN)

The **replacement cost new** is the current cost of constructing improvements having utility equal to the utility of the subject improvements.

It may or may not be the cost of reproducing a replica of the subject improvement. The distinction between the two is that replacement cost refers to a substitute property of equal utility and **reproduction cost** refers to an exact replica property.

In a particular situation, the two concepts may be interchangeable, but not necessarily so. Both **RCN** and **reproduction cost** have their application in the cost approach to value. The costs from Publication 126, Instructions for Commercial and Industrial Schedules are replacement costs.

The RCN includes the total cost of construction incurred by the builder.

There are several acceptable methods for establishing the replacement cost new of a structure. However, only the two more popular methods are discussed: the component-in-place method and the square foot method. Both methods can be used to develop a cost manual for a specific geographic area.

The **Component-in-Place (CIP)** method is used by builders and contractors because it is very accurate. This method combines the direct and indirect costs of labor, material, and overhead for each unit in place for a portion or area of the structure. All these units are then added together to arrive at the total cost for the structure. Publication 127 is the reference guide for the CIP method. This method is used when a commercial or industrial property's square footage is larger than the values described in Publication 126 or to make individual component cost adjustments to typical features provided in Publication 126.

The **Square Foot** method is another widely used method for calculating the RCN. This method is based on the floor area of the structure.

Once a method is utilized by an assessor/appraiser in developing the cost of the improvements, the next step is to determine if the property suffers from any loss of value — depreciation.

Depreciation

The Cost Approach utilizes **depreciation**. The difference between RCN and the present value is **depreciation**, the **loss of value** from all causes. The third and final step in completing the cost approach is to estimate the amount of depreciation.

Three types of depreciation exist:

1. Physical Depreciation
2. Functional Obsolescence
3. Economic or External Obsolescence

Within the three types of depreciation are two depreciation conditions: deterioration and obsolescence. Deterioration occurs as the property declines in quality or condition. Obsolescence is an impairment of desirability and usefulness caused by new technology, changes in design, or external factors that make a property less desirable and valuable for a continued use.

Depreciation can be either **curable** or **incurable**. Depreciation is curable when the cost to cure will add to the market value of the structure. It is incurable when the cost to cure is greater than the increase in the market value of the structure.

Physical Depreciation

Physical depreciation is defined as the loss in value due to deterioration, *e.g.*, wear and tear, time, and the action of the elements. Physical depreciation begins while a building is under construction and continues until the life of the structure has ended.

The physical life of a building is dependent on the degree of maintenance it receives, the type and quality of materials used in its construction, and the soundness of the methods of its builder. Therefore, a building that is not maintained properly or is not built to last will experience more (greater) physical depreciation.

Examples of the two types of physical depreciation:

1. **Curable** — short-lived components, such as windows, doors, floor coverings, and roofs.
2. **Incurable** — long-lived components, such as foundations, studs, and rafters.

Functional Obsolescence

Functional obsolescence refers to obsolescence resulting from conditions within the property, for instance the commercial building designed for only one specific use, or inadequate design or arrangement that lessen its usefulness or utility. For instance, a bowling alley with slanted floors does not lend itself to many other uses.

Examples of the two types of functional obsolescence:

1. **Curable** — lack of air conditioning, lack of proper electrical wiring, low hanging pipes, and absence of proper ventilation.
2. **Incurable** — extremely poor floor plan, very low or high ceilings, inadequate column spacing in a warehouse, multi-story construction in older industrial buildings, and undesirable shape or location of a commercial structure on the site.

Economic Obsolescence

Economic obsolescence refers to obsolescence caused by influences outside the property, such as physical, economic, social, and governmental changes that have an adverse effect upon the stability and quality of the neighborhood in general.

Both **functional and economic obsolescence** are defined as the loss of value due to forces, other than physical, that act upon a structure in such a way as to limit its economic life. Economic obsolescence affects the desirability of the property.

Examples of economic obsolescence (usually incurable):

1. **Location** — change in traffic pattern and noise and air pollution, detrimental property in immediate area.
2. **Economic** — high interest rates and business closings.
3. **Government** — zoning changes, poor services, and high tax rate.

Since the cost approach relies heavily on the estimate of depreciation, it is most applicable when there is little depreciation. If the improvement is new (or significantly remodeled) and well-maintained, the cost approach will give a better estimate of value than when the improvement is old and/or not adequately maintained.

When there is substantial depreciation due to other factors – such as features that no longer meet the tastes of the present buyers (few electric outlets, no air conditioning), zoning changes, or a downturn in the economy – the cost approach will not perform at its best.

3. The Income Approach

Income-producing property, such as hotels, nursing homes, and offices are often valued based on the net income these properties produce for their owners.

The income approach has its widest application in the appraisal of income-producing property. Commercial property is universally bought and sold on its ability to generate and maintain a stream of income for its owner.

The value of such property is a measure of the amount, quality, and durability of the future net income the property can be expected to return to its investor.

The justified price paid for income-producing property is no more than the amount of investment required to produce a comparably desirable return. In addition, since the market can be analyzed to determine the net return anticipated by investors, it follows that the value of income-producing property can be derived from the income the property can produce.

Capitalization is the process for converting the net income produced by property into an indication of its value.

The **Capitalization Rate (R)** is accomplished by dividing the net income of the property **(I)** by the value of the property **(V)**.

Market Value (V) is the actual sales price of the property.

Income (I) is usually the **Net Operating Income** or income remaining after expenses.

The IRV Formula

The IRV formula can be used to determine any one of the three factors of the formula if the other two factors are known.

$$\frac{I}{R \times V}$$ **Market value (V) = net income (I) ÷ capitalization rate (R)**

To find the income of a property, cover up the "I" in the formula so that leaves "R" • "V".

Multiply the appropriate capitalization rate "R" by the value "V."

If the net income of a property and the value are known, **to find the cap rate**, cover up the "R" in the formula so that leaves "I" divided by "V".

Divide the net income "I" by the value "V" to get the capitalization rate "R."

To determine the value of the property, cover up the "V" in the formula so that leaves the income "I", and the rate "R."

Divide the net income "I" by the capitalization rate "R" to arrive at the value "V."

It can readily be seen that any one of the factors of the equation can be determined if the other two factors are known.

Unit 1- Summary

The **three approaches to value** are:

1. The sales comparison approach,
2. The cost approach, and
3. The income approach.

Depreciation is the loss of value from all causes. There are three types of depreciation.

1. Physical
2. Functional
3. Economic

Depreciation can be curable or incurable.

The **Sales Comparison, or market approach**, is a method of determining value by comparing similar properties to the subject and adjusting them to reflect similarities and dissimilarities. Its use is dependent upon the availability of sales of comparable properties and the validity of judgments made regarding similarities and dissimilarities between the comparable property and the subject property.

The value of a property can be estimated under the **Cost Approach** by estimating the value of the land, adding the RCN of the improvements, and subtracting all three forms of depreciation from the improvements.

MV= Land Value + (RCN-DEP)

The **Income Approach** appraises the value of income-producing property by measuring the amount, quality, and durability of the future net income the property can be expected to return to an investor.

$$\frac{I}{R \times V}$$

Comp Superior, Subtract (-)

Comp Inferior, Increase (+)

Capitalization is the process for converting the net income produced by property into an indication of its value.

CIP- Component-in-place. This system is used when property SF is too large for Publication 126 values and for individual component adjustments. It is introduced in Publication 127.

Unit 1- Review questions

Match these terms to the correct definition. There may be more than one answer to the terms.

1. _____ Sales comparison
2. _____ Cost approach
3. _____ Income approach
4. _____ Depreciation
5. _____ Capitalization

A. $\frac{I}{R \bullet V}$

B. The loss of value due to all causes.

C. MV = Land value + (RCN - depreciation).

D. Approach that is most applicable when the improvement is new and is at its highest and best use.

E. Conversion of the net return produced by a property into an indication of value.

F. Adjust recent comparable sales to the subject.

Unit 2- Land Valuation

Learning Objectives

After completing the assigned readings, you should be able to

- calculate area for a square, rectangle, or triangle.
- calculate area for more complex shapes.
- understand various units of value and when to use them.

Terms and Concepts

Front Foot
Frontage
Rectangle
Square
Right Triangle
SF
Parcel
Acre
65/35 rule

Land Valuation

A number of principles are involved in land valuation. ***Land is valued as if vacant and at its highest and best use***, meaning the use that will bring the greatest net return to the property over a reasonable period of time.

Highest and best use must be:

- **legal**—use must be legal and in compliance with zoning laws.
- **probable and physically possible**—use is reasonable and not speculative.
- **economically feasible**—use is in demand and with the potential of being profitable.

Land and Site

Land is raw land without amenities, such as streets, curbs, gutters, sidewalks, utilities, etc.

Site is defined as a parcel that has been made ready for its intended purpose.

Units of Value

1. **Square Foot Value**—The size is one of the most important factors in determining value and is also used to value irregular shaped lots.

2. **Front Foot Value**—The amount of frontage is often the most significant factor in determining value, particularly with commercial property.

3. **Site Value**—Location is a significant factor in determining value.

4. **Acreage**—The dollar per acre value is often the most important factor in determining rural residential land values.

The assessor must analyze the market to determine the most appropriate unit of value to be used. Unit value is determined by dividing the selling price of vacant land by the number of units, whether that "unit" is Front Foot, Square Foot, Site, or Acreage.

Example:

The selling price for a lot is $24,000. The lot is 80' x 150'. (For lot dimensions, the first number is always the width of the lot. The second number refers to the length of the lot.)

80' x 150' = 12,000 Square Feet

Front Foot Calculation: $24,000 ÷ 80' = $300 per Front Foot

Square Foot Calculation: $24,000 ÷ 12,000 Sq. Ft. = $2 per Square Foot

Site Value Calculation: $24,000 ÷ 1 (Lot) = $24,000 per unit (Lot)

The assessor must place a separate assessment on the land (or site) and the improvements. Common land values that are used in this process are $ per square foot values and $ per acre values. Before either dollar values can be determined, the total square footage of an area or the total acreage must be calculated.

Square Foot

To determine the total square footage of an area, multiple the length of the area by the width of the area. **L x W = Total Square Footage**

One must keep in mind that if a triangular shaped lot is being valued using square feet as the unit of comparison, the size of the lot is determined by:

$$\frac{\text{Base X height}}{2}$$

The **Square Foot** (SF) unit of comparison is commonly used **when size is the dominant factor in determining value.**

Acreage

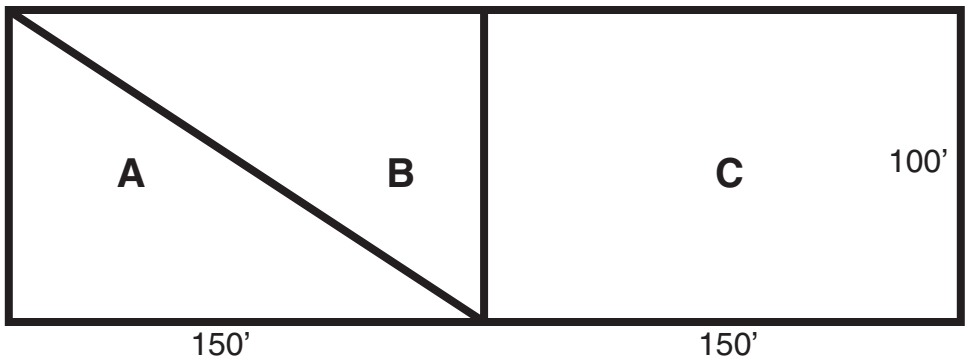
To convert total square footage into total acres, divide the total square footage of the area by 43,560 (the total square footage of 1 acre). Acreage is commonly used with rural and large commercial and industrial sites.

Note: Measuring circles is outside the scope of this class.

Exercise 2-1 Square-Foot Land Values

	Site Shape	Measurements	Square Footage	Approx. Acreage
1.	Rectangle	400’ x 800’	320,000	7.35
2.	Rectangle	320’ x 480’	_____	_____
3.	Triangle	320’ x 480’	76,800	1.76
4.	Triangle	150’ x 180’	_____	_____
5.	Square	150’ x 150’	_____	_____
6.	Triangle	600’ x 900’	_____	_____

7. Refer to the diagram below



Jefferson Street

Compute the values for the three parcels
If the square foot value is $1.00/SF

A _____
B _____
C _____

Front Foot Land Values

A **Front Foot** (FF) is a strip of land one foot wide, running from the front of the lot to the rear. When using the front foot method, all front feet that run the entire depth of the lot have the same value.

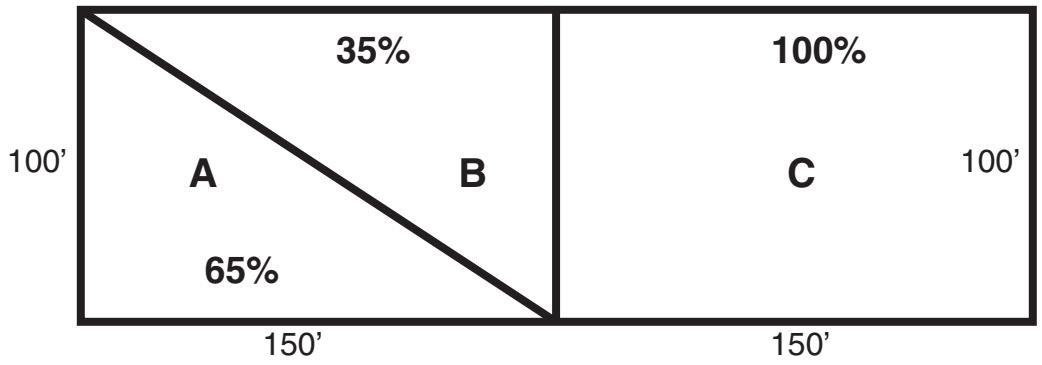
The Front Foot method is used when the amount of **Frontage** is the most important characteristic of the parcel.

Irregular lot adjustments are made when the front foot is the unit of comparison. These adjustments assume that the utility of the lot may be affected by its shape.

The most common rule for shape adjustment is the “65-35 Rule.” It is based on the premise that a right-angle triangular shaped lot, with its base on the street, has 65 percent of the value of a rectangular lot of the same frontage. It also assumes that a right-angle triangular shaped lot with its apex, or point, on a street, has 35 percent of the value of a rectangular lot that has the frontage.

Exercise 2-2 Front Foot Values

65/35 Rule (Applies to Front Foot Only)



Compute the values for the three parcels above if the front foot value is $100/FF.

A _____

B _____

C _____

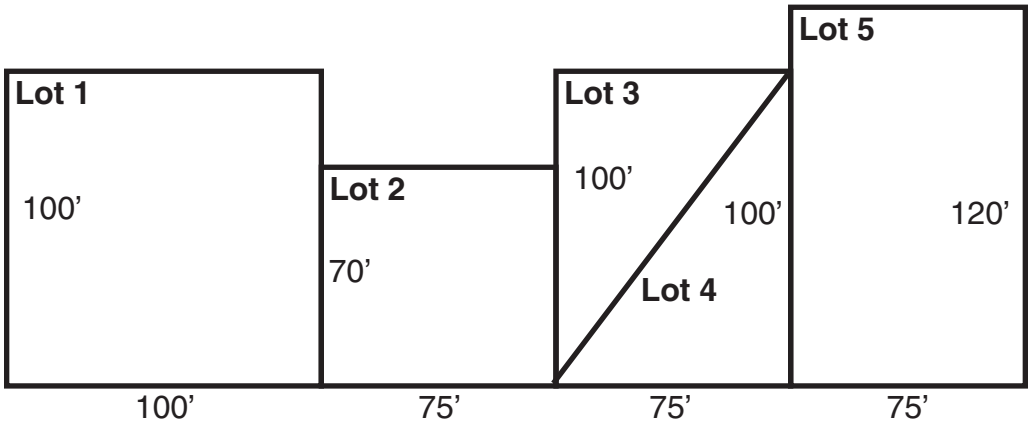
Exercise 2-3 Commercial Lots

For this exercise, the front foot unit of comparison derived from the market is $100 per front foot. The square foot value derived from the market is $1/SF.

Value the lots using the formulas below.

Front Foot: **Lot value = number of FF x $ per FF x factor for shape**

Square Foot: **Lot value = number of SF x $ per SF**



Lot 1 FF value = _____ Lot 2 FF value = _____

SF value = _____ SF value = _____

Lot 3 FF value = _____ Lot 4 FF value = _____

SF value = _____ SF value = _____

Lot 5 FF value = _____

SF value = _____

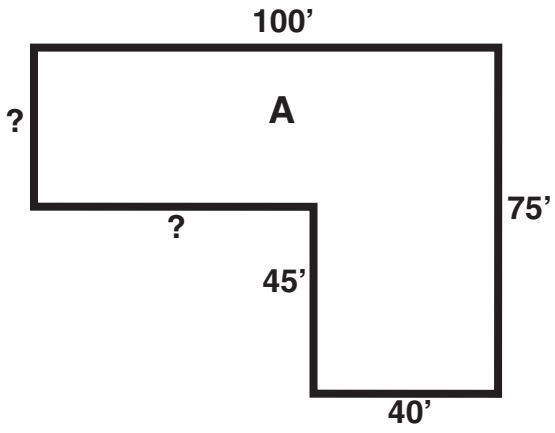
Measuring Irregular Parcels

Measuring a rectangular shaped parcel or improvement is quite straightforward. However, most parcels are not exactly rectangular. The key to measuring these irregular parcels lies in observing the parcel in terms of shapes (rectangles and triangles) that one does know how to measure. Then, these pieces are added together to make a total SF area for the irregular shape.

Example 1

By breaking down parcels into shapes that can be measured easily, one can measure squares and rectangular shapes that define a property.

For instance, look at the shape **A**.



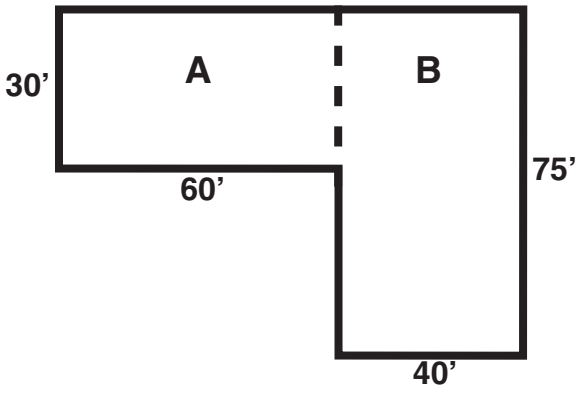
At first glance, it may not be apparent that there are at least three ways to approach measuring this parcel.

The first step is to determine the dimensions.

Notice that every measurement is not included on the diagram on the Property Record Card. It is assumed that the assessor can “fill in the blanks” if all the dimensions are not shown.

Recall that the opposite sides of a rectangle have the same measurement. For instance, if the length of the northernmost line is 100’, and the length of the southernmost line is 40’, it can be deduced that the length of the remaining east-west line is 60’ (100’-40’ = 60’)

This shape could be measured in a few different ways. One might select the way that is visualized most easily or the method which uses the fewest number of calculations.

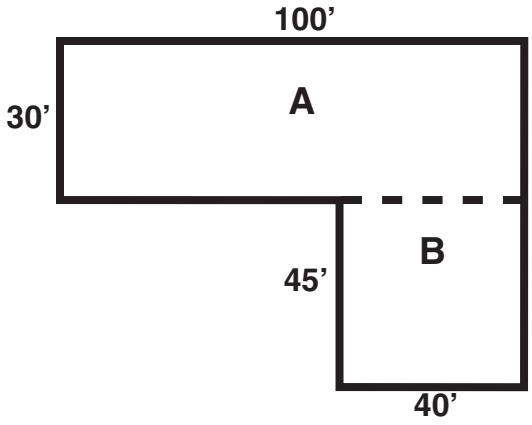


Consider the following three ways to measure this shape and find the correct number of square feet.

The shape could be divided into the shapes **A** & **B**.

A = 60’ x 30’ = 1,800 SF
B = 75’ x 40’ = 3,000 SF

1,800 SF + 3,000 SF = 4,800 SF



Another way to measure this parcel
is to divide it into two rectangles this way.

The measurements would be:

A = 100’ x 30’ = 3,000 SF
B = 40’ x 45’ = 1,800 SF

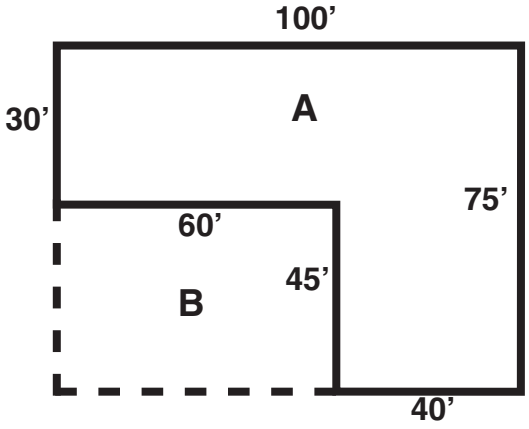
3,000 SF + 1,800 SF = 4,800 SF

Finally, yet another way to measure this parcel could be subtractive. Measure the imaginary outline of the entire rectangle and subtract the part that is “missing”.

The measurements would be:

A = 75’ x 100’ = 7,500 SF
B = 60’ x 45’ = 2,700 SF

7,500 SF – 2,700 SF = 4,800 SF



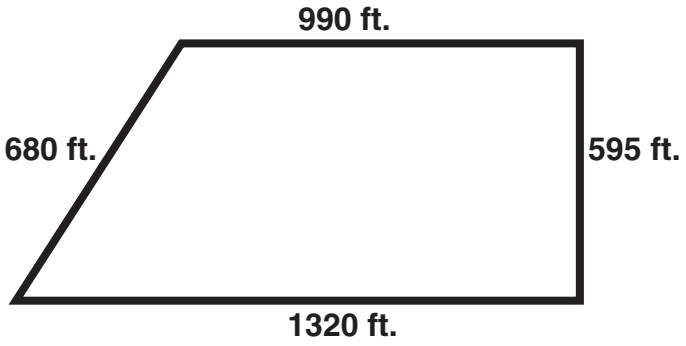
Notice that all 3 methods produce
The same result of **4,800 SF**.

To find the number of acres in this parcel, divide the number of square feet by the number of SF in an acre (43,560).

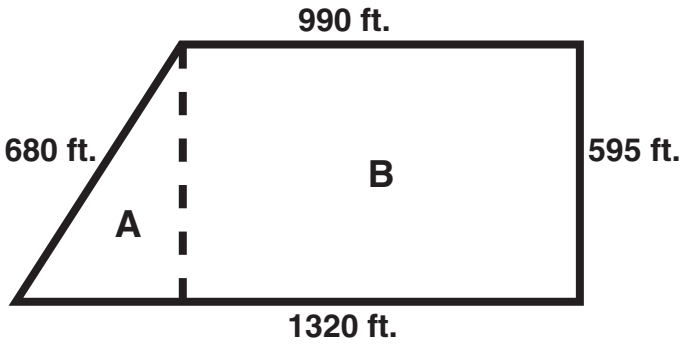
$$\frac{\textbf{4,800 SF}}{\textbf{43,560 SF}} = \textbf{.1102 Acres}$$

Example 2

By breaking down parcels into series of rectangles and triangles and using the measurements provided, one would be able to calculate the area of almost any parcel.



Step 1 Create a rectangle.
A right triangle (90°) can be created (triangle A) leaving rectangle B.

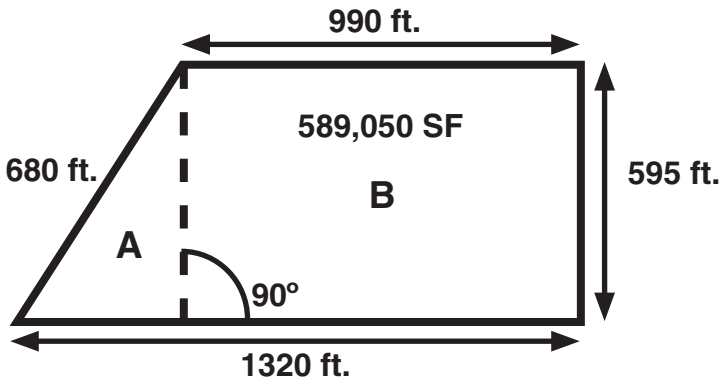


Step 2 In this example, the area of Rectangle B can be calculated using known values of 990 feet for the length and 595 feet for the width.

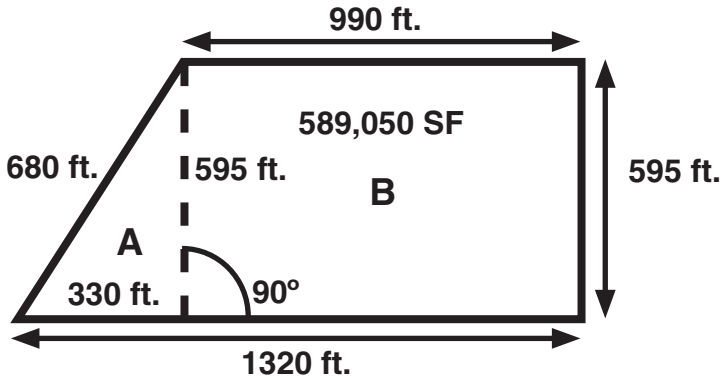
Area of the rectangle = **990 feet x 595 feet** = **589,050 square feet**.
L x W = Area

Step 3 The remaining area of the parcel is that of Right Triangle A.

However, looking at the triangle, there do not appear to be any usable values. This is a good opportunity to point out a very important note. The hypotenuse of the triangle (the long side of the triangle, in this example the line labeled as 680 ft.) is not used in calculating the area of a triangle. The area of a right triangle is calculated by multiplying the base times the height and dividing the product by two. The hypotenuse (long side) is never used.



In this example, the base and height values must be determined from the other measurements provided. As a result, the height of Right Triangle A is the height of Rectangle B (595 feet). For the base of the triangle, that value can be determined from the existing values as well. The base of Rectangle B is 990 feet. Considering the entire length of the bottom of the parcel is 1,320 feet and knowing that Triangle A is a right triangle, then the base of Right Triangle A is 1,320 feet minus 990 feet, or 330 feet.



Therefore, the area of Right Triangle A is: $\frac{\textbf{595 ft. x 330 ft.}}{\textbf{2}} = \textbf{98,175 square feet.}$

Step 4 Calculate the total acreage of the parcel. By taking the square footage of Right Triangle A, which equals 98,175, and adding the square footage of Rectangle B, which equals 589,050, one arrives at a total of 687,225 SF for the parcel. By dividing the total area of the parcel (687,225 SF) by 43,560 SF, a total of 15.78 acres for the parcel is calculated.

$$\textbf{589,050 SF + 98,175 SF} = \frac{\textbf{687,225 SF}}{\textbf{43,560 SF}} = \textbf{15.78 AC}$$

Unit 2- Summary

Land is always valued as if vacant and at its highest and best use.

The methods to value land are

- Square Foot- used when Size is most important
- Front Foot- used when Frontage is most important
- Site Value- used when Location is most important
- Acreage- used for rural land and large commercial and industrial locations

One acre is equal to 43,560 Square Feet.

Regular rectangular or square parcels can be measured by multiplying the length by the width.

Triangular parcels can be measured by multiplying the base by the height and dividing by 2.

Irregular parcels can often be measured by dividing up the parcel into measurable shapes like rectangles and triangles and adding those together.

A front foot is a section of land facing a frontage of road or water divided into 1-ft strips which are valued the same for the length of the parcel. This is different from the square foot method.

The 65-35 rule is a rule applying to triangular front foot lots. This appraisal technique gives the triangular shaped lot with its base on the frontage 65% of the value of entire front footage, and the triangular shaped portion with its point, or apex, on the frontage a value of 35% of the entire front footage value.

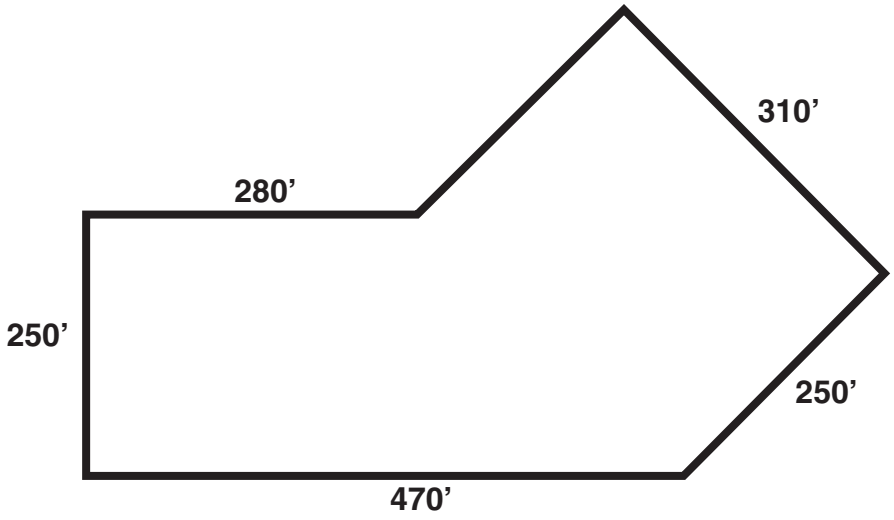
Review Exercise 2-1

Compute the square footage and the acreage for the following (assume all triangles are right triangles). Don't forget there are 43,560 SF in an acre.

Parcel shape		Measurements	Square footage	Acreage
1.	Square	1,528 ft. x 1,528 ft.	_____	_____
2.	Square	680 ft. each side	_____	_____
3.	Rectangle	1,250 ft. x 1,000 ft.	_____	_____
4.	Rectangle	125 ft. x 75 ft.	_____	_____
5.	Square	65 ft. x 65 ft.	_____	_____
6.	Triangle	475 ft. x 986 ft.	_____	_____
7.	Triangle	680 ft. x 360 ft.	_____	_____

Review Exercise 2-2

Find the area (in square feet and acres) of the figure below.



Number of Square Feet _____

Number of Acres _____

Unit 3- Mass Appraisal System

This unit covers the mass appraisal system and the various factors used to adapt a mass appraisal system to local jurisdictions.

The purpose of this unit is to provide a basic understanding of a mass appraisal system and its use.

In addition, the unit explains how mass appraisal systems can be modified to fit local markets.

Learning objectives

After completing the assigned readings, you should be able to

- define a mass appraisal system.
- identify the various factors used to adjust the IDOR Appraisal Publications.
- explain how the various factors are obtained and used.

Terms and concepts

Ad valorem
Cost factor
Quality grade
Design factor
Appraiser factor
Neighborhood factor
Remaining economic life (REL)
Depreciation
Actual age
Effective age
CDU (condition, desirability, and utility) rating

Mass Appraisal

Mass appraisal is the valuation of many properties using standard procedures that provide uniformity.

The purpose of mass appraisal is to produce equitable and efficient appraisals of all property in a jurisdiction for **ad valorem** (according to value) tax purposes. A mass appraisal system should incorporate all three approaches to value, but most systems are primarily based on the cost approach.

Various cost schedule publications are produced by the Illinois Department of Revenue (IDOR) and provided free to assessment officials. The IDOR schedules are a mass appraisal system. They are available on IDOR's website at tax.illinois.gov. Publications 126 and 127 are specifically designed for use for commercial and industrial properties.

The Job of the Assessor

Simply stated, the job or responsibility of the assessor is to place an assessed value in his or her column of the assessment books for each of the properties in the jurisdiction. This job is complex and requires a great deal of time and effort from the assessor. The assessor's professional judgement still greatly affects the outcome of this system.

There are four steps the assessor must complete for each property in the jurisdiction. The assessor must:

1. **Discover** — Find and inventory all real property using tax maps and property index numbers. Find newly constructed property by observation, reviewing building permits, and other methods.

2. **List** — Describe the characteristics of land and improvements on property record cards, including measuring improvements.

3. **Value** — Estimate the value of all real properties in the jurisdiction and ensure uniformity and equity in the methods used and the market values produced.

4. **Assess** — Apply an assessment level to these market values; arrive at an assessed value for each of the properties in the jurisdiction; ensure that the assessed values reflect a uniform level of assessments and that the assessed values are derived from current market values.

Unlike an independent appraiser, who has the time to carefully analyze the various approaches to value before arriving at an estimate of value for a single property, the assessor must estimate values for hundreds, or even thousands of properties within a relatively short period of time. The assessor is a mass appraiser.

The Appraisal Publications are designed for mass appraisal.

The cost schedules are used to apply the cost approach to value in a mass appraisal system. It is unreasonable to expect that every building value obtained using these schedules will be exact. However, it is expected that the value estimates produced will be well within tolerable limits.

The outcome of this system still depends greatly on the professional judgment of the assessor. This is especially true when an assessor must use factors that will adjust various values before arriving at the final value of the subject property. There are guidelines that can be used to establish factors, but assessors must continually rely on their skill and experience when assigning individual factors to each property.

Factors used with the IDOR Appraisal Publications

There are several factors that will be commonly used in this class to adjust values: Cost, Quality, Design, Appraiser, Neighborhood and REL/Depreciation.

1. Cost Factor

The commercial and industrial cost tables produced by IDOR in Publications 126 and 127 are developed from data obtained in the central Illinois area.

The use of a **cost factor** may be necessary for any assessor whose jurisdiction is not similar to this area. A cost factor is designed to adjust the **Replacement Cost New (RCN)** value to reflect the local cost of labor and materials.

The cost factor is determined by a cost study performed by the assessor with data collected by the assessor on actual costs of new construction in his or her jurisdiction as compared to the costs contained in IDOR's Publication 126.

2. Quality Grade

Quality grade represents the quality of construction, the workmanship, and the type of materials used. The quality of workmanship and materials can greatly affect the cost of construction and the value of the improvement.

Most improvements fall within a definite class of construction involving average quality of workmanship and materials. This type of construction is designated as grade "C" which carries a factor of 100 percent or 1.00.

The cost tables in the IDOR cost publications represent typical quality grades for that specific type of property. Some localities will never have an excellent quality building while in some localities it will be difficult to build a low cost or cheap building because of code requirements.

An assessor may use a different quality grade factor if he or she determines that the subject property was not built using average quality materials and workmanship for that jurisdiction.

The accuracy of an RCN obtained from the IDOR Appraisal Publications is greatly affected by proper quality grading.

There are six basic quality grades in the IDOR Appraisal Publications:

Grade	Quality	Factor
AA	Superior	225 %
A	Excellent	150 %
B	Good	122 %
C	Average	100 %
D	Inferior	82 %
E	Poor	50 %

One or two variations between the description of quality given in the Appraisal Publications and the structure being evaluated are considered normal and should not alter the quality grade. However, if a structure clearly falls between two different quality levels, the assessor can fine tune these adjustments by using pluses and minuses after the letter grade. For example, a C+ 10 grade improvement would have a grade factor of 10 percent above “C” and have a factor of 110 percent.

A quality grade must be assigned to each improvement by the assessor and should be established during construction if possible.

Quality grade may change based on the materials and construction standards used in cost schedule descriptions to establish the base cost for the RCN. It is possible for the quality grade to change several times during the life of the improvement as materials, technology, and construction standards improve or evolve.

The assessor must be cautious not to confuse quality and condition. Condition refers to the physical condition of the improvement. Condition changes due to depreciation, such as wear and tear, use, and abuse.

Quality Grade Descriptions

AA Grade — Buildings generally having an outstanding or exceptional architectural style and design, constructed with the finest quality materials and workmanship. Superior quality interior finish, built-in features, deluxe heating system, plumbing and lighting fixtures.

A Grade — Architecturally attractive buildings constructed with excellent quality materials and workmanship throughout. High quality interior finish and built-in features. Deluxe heating system and very good grade plumbing and lighting fixtures.

B Grade — Buildings constructed with good quality materials and above average workmanship throughout. Moderate architectural treatment. Good quality interior finish and built-in features. Good grade heating, plumbing and lighting fixtures.

C Grade — Buildings constructed with average quality materials and workmanship throughout, conforming to the base specifications used to develop the pricing schedule. Minimal architectural treatment. Average quality interior finish and built-in features. Standard grade heating, plumbing and lighting fixtures.

D Grade — Buildings constructed with economy quality materials and fair workmanship throughout. Void of architectural treatment. Cheap quality interior finish and built-in features. Low grade heating, plumbing and lighting fixtures.

E Grade — Buildings constructed with a very cheap grade of materials, usually “culls” and “seconds” and very poor-quality workmanship resulting from unskilled, inexperienced, “do-it-yourself” type labor. Low grade heating, plumbing, and lighting fixtures.

3. Design Factor

Another factor that may be used to adjust a building’s RCN is the **design factor**.

The IDOR Appraisal Publications are designed for use in determining RCN values for conventional, rectangular shaped structures of compact, efficient design. Architectural designs have become more diverse. There is an increased cost associated with a unique or unconventional structure due to the need for more materials and the need for more labor per square foot.

The following should be considered in determining whether to use a design factor.

- extensive use of costly materials in public areas, such as marble and rare woods.
- aesthetics that are used to attract and sell future tenants.
- design and operation of a mixed-use building because each use may require a different set of structural and operating requirements, such as individual entrances, elevator systems, and mechanical requirements.

In taller buildings, wind bracing, elevators, and waste removal facilities are some of the factors that affect design and cost consideration.

The design factor is assigned by the assessor to individual buildings and should remain unchanged during the life of the structure.

A design factor is more commonly used in quality grades “B,” “A,” and “AA” improvements, although it may be required for grade “C” construction.

4. Appraiser Factor

A jurisdiction may have more than one assessor or may employ field appraisers. Even though quality grades should be based upon an established standard, it is possible that quality grades may differ between appraisers in that jurisdiction.

An **appraiser factor** may be needed to bring buildings valued by that particular individual in line with the value of all buildings in the jurisdiction. This factor is applied to all the parcels listed by the individual assessor.

5. Neighborhood Factor

The neighborhood where the property is located has a direct effect on the value. For instance, the neighborhood of a property may be defined by a natural boundary formed by rivers, or political boundaries formed by zoning to protect the common use in an area. The assessor can analyze the neighborhood to determine if the area is in a stage of growth, stability, or decline to estimate the future use and value.

All the factors can be combined to result in one factor, or a **Combined Factor**.

Quality grade factor x Cost factor x Design factor x Neighborhood factor x Appraiser factor = Combined factor

Exercise 3-1

An average structure has a value of $700,000 in central Illinois. The subject is of good quality and is in an area where construction costs are higher. What is the combined factor if the cost factor is 1.06 and the quality grade factor is 1.22? _____
What is the new calculated value? $_____

6. REL/Depreciation

The final factor that is applied to all improvements is a **Remaining Economic Life (REL) factor**. This factor is applied to the true RCN to arrive at a full market value, which now reflects the adjustment made for depreciation.

Depreciation is the loss in value due to all factors. Remember, depreciation is placed into three categories: physical, functional, and external or economic depreciation.

All depreciating forces act concurrently. Within the IDOR Appraisal Publications, the **Commercial REL Depreciation Table** is developed to adjust for the differing rates of depreciation. This enables the assessor to fine tune the value of each individual property within a specific neighborhood. Please note that the Commercial REL Depreciation Table is not the same as the Residential depreciation table found in Publication 123.

Effective Age

Effective Age as defined by IAAO is "The typical age of a structure equivalent to the one in question with respect to its utility and condition. Knowing the effective age of an old, rehabilitated structure or a building with substantial deferred maintenance is generally more informative than knowing its chronological age." (Property Appraisal and Assessment Administration; Eckert, Gloudemans & Almy.)

Effective Age is an efficient and accurate method for applying an appropriate amount of depreciation to a structure.

The Effective Age of a structure reflects the amount of deterioration or depreciation. It is a measure of how old the structure is in effective terms as opposed to chronologically. **Any repair, remodel or renovation will tend to reduce the effective age.**

The starting point for determination of Effective Age is to have a professional understanding of the typical aging of an improvement. It is from that benchmark or basis that one can look at a structure and make a determination as to its effective age.

As an example, if one is looking at two properties, each of which is 20 years old chronologically, they may not have the same Effective Age. For instance, if they had wood siding and one of them had never been painted and was showing considerable deferred maintenance and deterioration compared to the typical deterioration of a

maintained structure, that would increase the Effective Age of the structure. If the other structure had been cared for in a typical manner, it would likely have a normal amount of depreciation and its **Effective Age would be close to its chronological age**. By contrast, an exceptionally well-maintained property would normally have less deterioration or depreciation and would thus have a lower Effective Age.

One other factor to remember is that when determining an effective age for the structure as a whole it is typical for the various components to deteriorate at different rates. For example, the typical life of a roof may be 30 years while carpets may have only a 10 to 15-year life.

The Effective Age of a property is its age in years as compared with other properties performing similar functions. This is the actual age minus the age which has been taken off by face-lifting, remodeling or structural reconstruction, and removal of functional inadequacies.

Effective age is an age which reflects a true remaining life for the property considering the typical life of similar buildings.

Remaining Economic Life = Economic Life – Effective Age

Economic Life

Economic Life is the period over which improvements to real property contribute to value. For instance, if the expected economic life value for a typical new commercial building is 50 years, this means on average, with average maintenance and average quality, this building will continue to have value for 50 years. This economic life can be affected by depreciation which can reduce its economic life, or it can be updated and meticulously maintained which can increase its economic life. The economic life of an improvement could be different than its actual **physical life**.

Physical Life

The total period an improvement lasts or is expected to last.

Remaining Economic Life

The estimated period over which existing improvements are expected to continue to contribute economically to the property value. In other words, the expected economic life minus the effective age (age accounting for other typical improvements plus depreciation).

Using the Commercial REL Depreciation Table

Schedule A — This schedule considers the actual age of the improvement, and what is referred to as the CDU rating of the improvement, to arrive at the **Effective Age**. This effective age is then used to find the REL factor, which is applied to the true RCN.

The CDU rating is assigned by the assessor to each property by comparing the subject property's physical condition "C," desirability "D," and utility "U" to other properties within the neighborhood, or jurisdiction if neighborhoods have not been established.

The CDU rating is the assessor's method of determining a rate of depreciation. Condition refers to physical depreciation, such as wear and tear and action of the elements that has taken place. Desirability refers to the economic or external depreciation, such as lack of appeal due to location, or some type of adverse influences outside the boundary lines of the property. Utility refers to functional obsolescence, such as lack of loading docks, too low or too high ceiling height, no parking for trucks or customers, lack of proper electrical feeds, and any super-adequacy or inadequacy that may be present.

The CDU rating (shown on Schedule A) is broken down into five classifications.

E	Excellent	Superior condition
G	Good	Better than average condition
A	Average	Normal wear and tear for area
P	Poor	Definitely below average condition
U	Unsound	Excessively deteriorated condition

Commercial REL Table

Schedule A						Schedule B	
Age* considering Physical Condition	Effective Age considering Desirability and Utility					2nd Effective Age	Remaining Economic Life Factor (REL)
	E	G	A	P	U		
1	1	1	1	6	11	1	98
2	1	1	2	7	12	2	96
3	1	1	3	8	13	3	94
4	1	1	4	9	14	4	92
5	1	1	5	10	15	5	90
6	1	1	6	11	16	6	88
7	1	2	7	12	17	7	86
8	1	3	8	13	18	8	84
9	1	4	9	14	19	9	82
10	1	5	10	15	20	10	80
11	1	6	11	16	21	11	78
12	2	7	12	17	22	12	76
13	3	8	13	18	23	13	74
14	4	9	14	19	24	14	72
15	5	10	15	20	25	15	70
16	6	11	16	21	26	16	68
17	7	12	17	22	27	17	66
18	8	13	18	23	28	18	64
19	9	17	19	24	29	19	62
20	10	15	20	25	30	20	60

Schedule A - Actual Age and CDU

Actual age and effective age are the same when the physical condition of improvement is average. Assume the physical condition is average for this class.

Step 1 Locate the age of the improvement in the "AGE" column.

Step 2 Determine the CDU of the subject and trace its age to its intersection for the effective age.
Example: If a property's age is "10," and the CDU is "good," the effective age is "5."

Schedule B - Effective Age

Step 3 This effective age is then located in the Eff. Age column and the percentage factor indicated is in the "REL: (REL factor) column. The REL factor is then applied to the true **Replacement Cost New (RCN)**, which depreciates the value to reflect full market value. REL is directly related to depreciation. For example: a commercial structure with an effective age of "5" has an REL factor of "90" percent.

REL (%) + DEP (%) = 100%

100% - REL (%) = Depreciation

The assessor must carefully review CDU ratings over time because the CDU rating of each property may change for a variety of reasons. Because each property is assigned an individual CDU rating, a change of one CDU may not require a change in the CDU ratings of other properties.

Exercise 3-2

Find the 2nd effective age, REL factor, and depreciation for the following:

1. A structure whose 1st effective age is 10 and has a CDU of "P".

   2nd Effective Age_____ REL_____ Depreciation_____%

2. An average structure, 5 years old, with a CDU of "A".

   2nd Effective Age_____ REL_____ Depreciation_____%

3. A structure with an actual age of 20, but 1st effective age of 10 with a CDU of "E".

   2nd Effective Age_____ REL_____ Depreciation_____%

Unit 3- Summary

The purpose of **mass appraisal** is to produce equitable and efficient appraisals of all property in a jurisdiction for ad valorem tax purposes.

Mass appraisal systems provide quickly obtained value estimates with reasonable substantiation in the records. A mass appraisal system should incorporate all three approaches to value, but most systems are primarily based on the cost approach.

The **IDOR Appraisal Publications** are designed for mass appraisal.

The **effective age** of an improvement is the current age reflected downward by depreciation or upward due to remodeling, facelift or other improvements.

A **cost factor** is designed to adjust the IDOR Appraisal Publications' replacement cost new (RCN) value to reflect the local cost of labor and materials.

The **quality grade** represents quality of construction, the workmanship, and the type of materials used. The quality of workmanship and materials can greatly affect cost.

A **design factor** adjusts for an increased cost associated with a structure with significant design features due to the need for more materials and the need for more labor per square foot. The design factor is handled in the same manner as a quality grade factor. It is assigned to individual properties and should remain unchanged during the life of the structure.

An **appraiser factor** can be used to adjust quality grade of all buildings valued by one appraiser in line with the value of all buildings in that jurisdiction.

A **neighborhood factor** can be applied to adjust all values in one defined neighborhood.

The **economic life** of an improvement is the period that improvements to real property contribute to value.

The **remaining economic life (REL)** is the estimated period over which existing improvements are expected to continue to contribute economically to the property value. This factor is applied to the true RCN to arrive at a full market value, which then reflects the adjustment made for depreciation.

The **replacement cost new (RCN)** is the current cost of constructing improvements having equal utility to the utility of the subject improvements before adjusting for depreciation.

The various factors can be multiplied together (chain multiplied) to calculate a single, overall **adjustment factor**.

Unit 3- Review questions

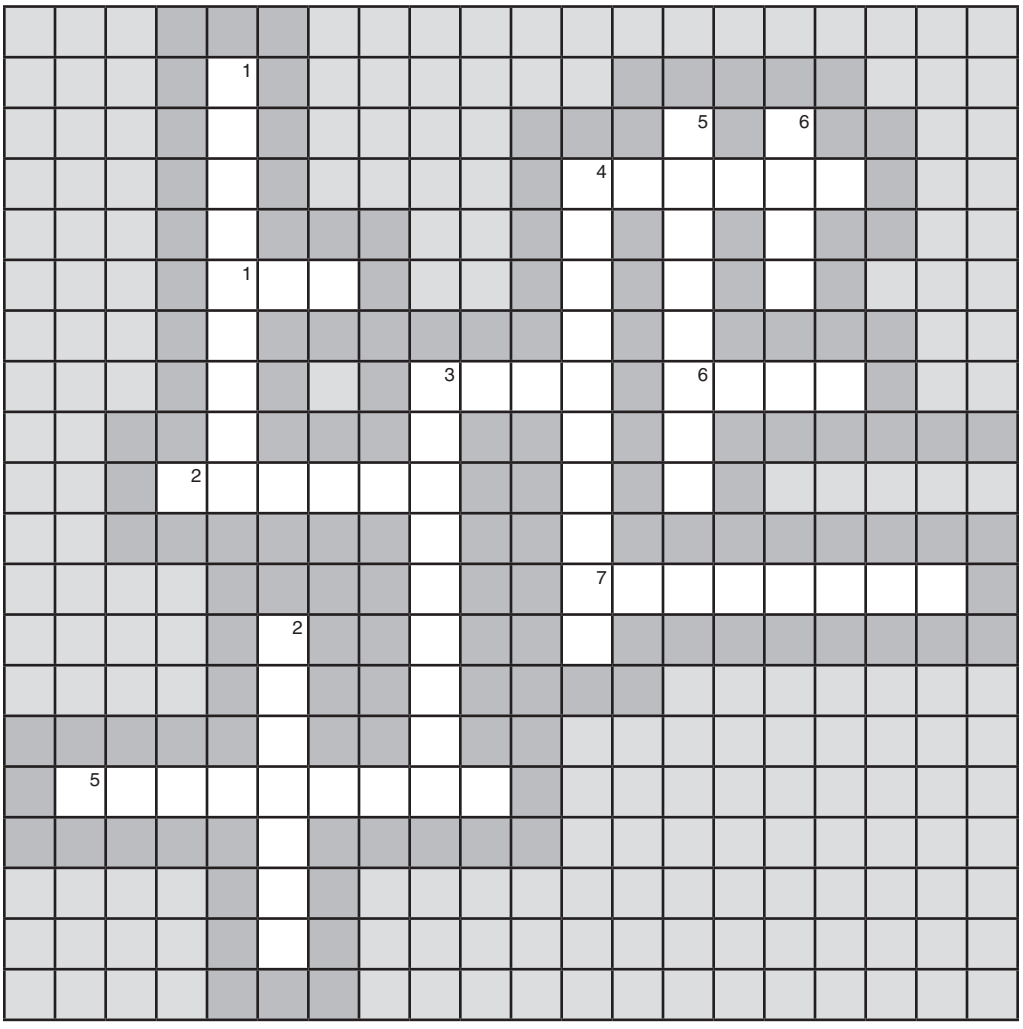
Complete the following crossword puzzle.

Across

1. _____ratings are assigned in relation to other structures within the neighborhood.
2. _____ factors adjust the appraisal publication values to account for unusual architectural designs.
3. _____factors adjust manual to current local labor and material rates.
4. A _____adjusts values by applying an increase or decrease.
5. A quality grade of “A” is considered _____.
6. An assessor is a _____ appraiser.
7. To place a value upon.

Down

1. This age helps determine REL.
2. Factor that may remain the same for the life of the improvement.
3. Physical depreciation refers to the _____ of the structure.
4. Type of depreciation that occurs when a structure has features like low ceilings, lack of air conditioning, etc.
5. Type of depreciation that is outside the property boundaries.
6. A not-so-great category under Schedule A



Unit 4- Completing the Data on Property Record Card 4-2019

This unit explains the computations and use of the data located on the commercial property record card (PRC-4-2019).

The purpose of this unit is to provide a basic understanding of what observations should be made when evaluating a commercial property and how the data is used to determine RCN values.

Learning objectives

After completing the assigned readings, you should be able to

- observe and evaluate features of commercial structures.
- identify data components on the PRC 4-2019.
- calculate values for each data component.
- understand the relationship between data values and various adjustment factors.

Terms and concepts

Data bank
Square feet of ground area (SFGA)
Party wall
Height (H)
Square feet of wall area (SFWA)
Elevation
Wall height adjustment factor
Square feet of floor area (SFFA)
PRC-3
PRC-4

PRC 3

Property Record — Commercial — Industrial

Ownership and Mailing Address

Property Address

Memo

Township	Volume	Tax Code	Area	Sect.	Block	Parcel	Unit

Property Class	Land Use	Zoning	NH Code	Card No. ____ of ____	Condo. Comm.

Record of Ownership	Date	Deed Stamps	Sale Price

Street		Nghbhd.		Utilities		Topo.		Division
Private Rd.		Improved		Water		Level		
Cul-de-sac		Static		Sewer		High		
Alley		Decline		Gas		Low		
Traffic Lt.		Blighted		Electric		Rolling		
Traffic Hvy.						View		

Building Permit Record

Date	Number	Amount	Year Assessed	N/C	P/U Year	Purpose

Summary of Assessed Values

	Orig. Asmt.: Year ____			Rev. by: Year ____		
	Full Value	Asmt. Level	Assessed Value	Full Value	Asmt. Level	Assessed Value
Land						
Bldgs.						
Total						

	Rev. by: Year ____			Rev. by: Year ____		
	Full Value	Asmt. Level	Assessed Value	Full Value	Asmt. Level	Assessed Value
Land						
Bldgs.						
Total						

	Rev. by: Year ____			Rev. by: Year ____		
	Full Value	Asmt. Level	Assessed Value	Full Value	Asmt. Level	Assessed Value
Land						
Bldgs.						
Total						

Land Computations

Unit Type	No. Units	Depth	Unit Value	D. Fac.	I. Fac.	Full Value

PRC-3 (R-1/00) (opposite PRC-4)

IL-492-1549

PRC 4-2019 **Property Record Card - Commercial - Industrial**

Construction Specifications

Foundation

	Basement/Crawl		Slab

Exterior Shell Type

2	Lt. Com. wood/ steel	6	Wood Post Fr.
3	Conc. Blk. unreinf.	7	Steel Pre-eng.
4	Conc. Blk. reinf.	8	Steel Struc FR
5	Conc. Tilt-up	9	Steel Struc FP

Exterior Wall Cover Material

	B	1	2	3	A
Vinyl/ Wood/ Metal					
Stucco/ Aluminum Siding					
Cedar/ Redwood/ Resin					
EIFS <2" thick					
Brick Veneer					
Stone Veneer					
Painted Concrete Block					
T-1-11 Plywood					
Aluminum/ Pine					
EIFS >2" thick					
Glass Curtain Wall					
Struc. Steel/ Aluminum					

Heat

	B	1	2	3	A
Central Warm Air					
Hot Water/ Steam					
Heat Pump					
Unit Heaters					
Other					
None					

Air Conditioning

	B	1	2	3	A
Central					
Heat Pump					
Unit					
None					

Roofing

Shingle		Metal/Other	
Composite		Slate	
Frame - Wood Steel Other			

Sprinklers

	B	1	2	3	A
None					
Present					

Plumbing Type and No. Fixtures

	1 Residential		2 Commercial
	3 Industrial		4 Specialty

Interior Finish and Floor Level

Retail		Restaurant		Multi-unit other	
Office		Warehouse		Other	
Manufacturing		Recreation		Vacant	
Grocery		Convenience		Abandoned	
Apartments		No.of Units		No. Rooms/ Unit	
Avg. Unit Size SF				Apt. Unit Factor	

Memo

Data Bank

SFGA	
Length	
Width	
Ratio L ÷ W	
Perimeter	
No. Stories	Table 1 2 3

Exterior Description

		Computation
WH	**SFFA x $/SF Floor Cost x WH Adj. x Party Wall**	
	Basement	
	1st Floor	
	2nd Floor	
	3rd Floor	
	Additional	
Total Base Price Structure		

Year Built

C D **G** NH A — Multiply by Comb. Fac. x

Age	1st Eff Age	2nd Eff Age	CDU	Structure RCN =	
				REL	x

Full Value Structural Shell

Interior Finish Description

Interior Base Cost Computation			if appl.	Computation
Finish & Area	**SFFA**	**$/SF Cost**	**Apt. Factor**	
1st/Main				
Base Price Interior				
Interior Adjustments				
A/C				
Heat				
Sprinkler				
Plumbing				
Other				
Subtotal Interior Adjustments				
Total Base Price Interior				

Quality Grade Year Remodeled

C D **G** NH A — Multiply by Comb. Fac. x

Age	1st Eff Age	2nd Eff Age	CDU	Interior RCN	
				REL	x

Full Value Interior Finish

Total Full Value Interior and Exterior Shell

Summary of Other Exterior Improvements (i.e. paving, signs, parking lot lighting, canopies, docks, store fronts, etc.)

Type	Number	Construction	Size	Rate	Subtotal	Grade	Factor	Replacment Cost New	AGE	CDU	REL	Full Value

Listed by:

Date:

Total Full Value Other Improvements

Total Full Value Exterior, Interior & Other

2019 PRC-4 (R-11/19) (opposite PRC-3)

Commercial Property Record Card (PRC 4-2019)

Each commercial property record card (PRC 4-2019) must be completed in detail before the assessor can accurately compute the improvement's upper limit of value, or it's Replacement Cost New (RCN).

The assessor first lists the data regarding the physical construction of the building on the PRC 4-2019. Working with PRC 4-2019 and appropriate Appraisal Publications, including the commercial square foot cost schedules (IDOR Publication 126) and/or the component-in-place (CIP) schedules (IDOR Publication 127), the assessor should value each floor of the improvement. Then, adjustments can be made to the cost values when applicable, as well as adding various components found in the building. This allows the assessor to arrive at a Replacement Cost New of the improvement. Depreciation will then be accounted for by using the Commercial Remaining Economic Life Table (REL).

A thorough understanding of the relationship between the PRC 4-2019 and the cost schedules is necessary for the assessor to calculate a valid Replacement Cost New.

Observing and Evaluating a New Commercial Structure

In order to record building characteristics, the assessor must be a keen observer of the property being evaluated. The first question to ask is "'is this structure residential or commercial?" How is this determined?

1. Location/Zoning/Permits/Plans

New structures must meet certain requirements to comply with local rules and regulations. Use the resources available to pull information about the subject property. What is the overall size of the parcel? What are the surrounding properties/structures?

2. Excavation and Site Prep

Observe what is happening at the site. What does the "footprint" look like? What is the type/size of foundation?

3. Building Type and Quality

Is the structure made with a wood frame? Is it "stick built?" Or is it made of steel, concrete, or wood posts? How many stories? What is the exterior cover material? Is there more than one exterior cover material? What type of roof does it have? Are there other similar properties in the jurisdiction?

4. Size of Improvement

Determine the square footage of the improvement. Is it rectangular or some other shape? The ratio of length to width will determine which cost schedule values to use.

5. Determine Features and Quality

Depending on the percent completion of the improvement, observe the HVAC and sprinkler systems if applicable. Note plumbing fixtures and type.

6. Interior Finish and Quality

Note the intended interior finish or finishes. For what will each area be used?

7. Note Other Improvements

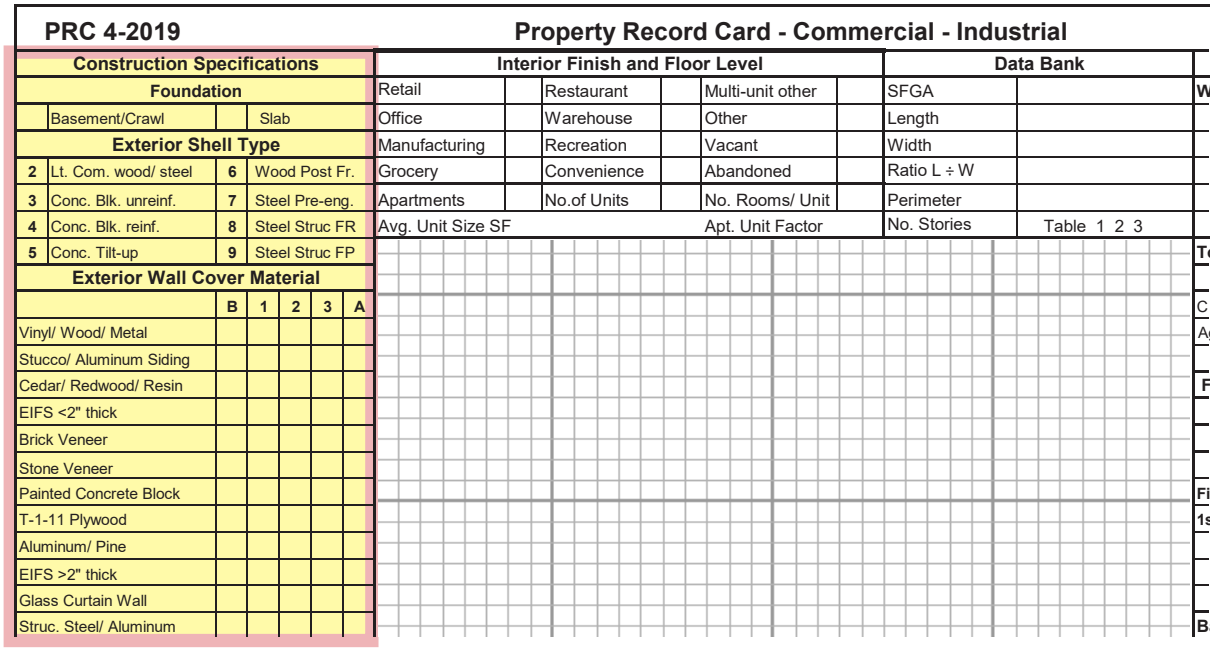
Paving, Parking Lots, Signs, Canopies, Lighting, Fences, etc.

Please note: These observations should also be made for existing (not newly built) structures. However, the cost approach to value is most accurate for newly constructed improvements where little depreciation has occurred.

Map of the Property Record Card 4 (PRC-4)

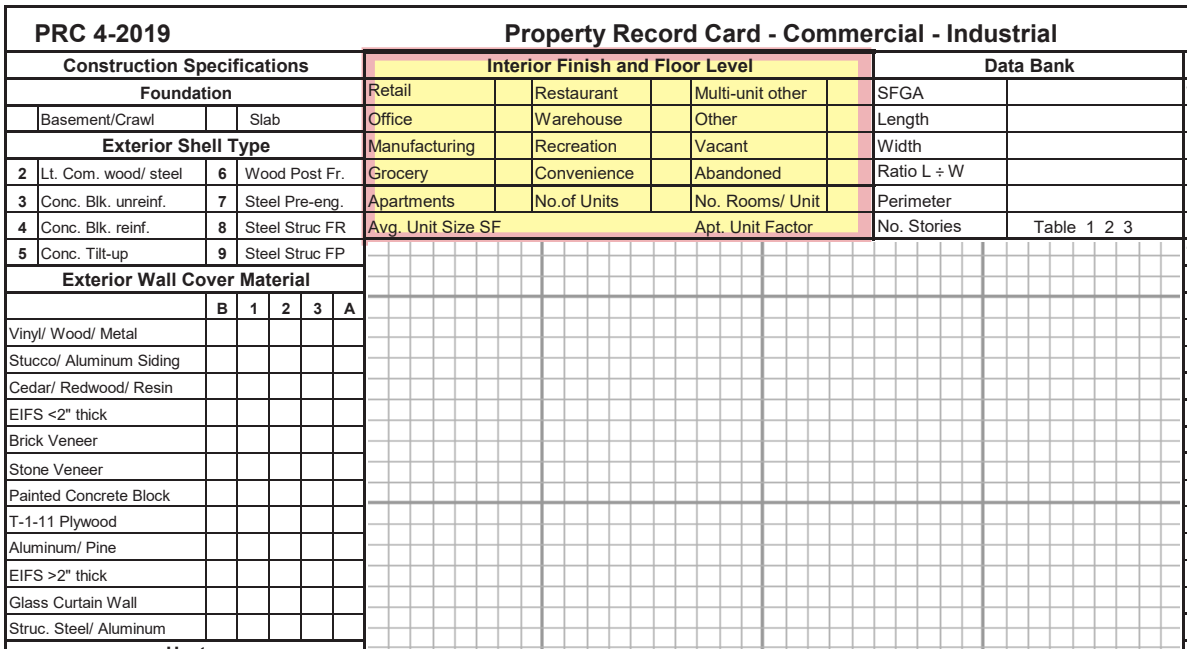
On the 2019 PRC-4, the left portion of the card is used for listing construction specifications and use of the building.

Construction specifications include foundation, structural shell, floors, exterior wall construction, interior finish type, heat, air conditioning, roofing, plumbing and sprinkling. The attributes are indicated per floor by placing an “X” in the appropriate box. In some instances, a number will be indicated as well to indicate number of fixtures, etc.



PRC 4-2019	Property Record Card - Commercial - Industrial												
Construction Specifications				**Interior Finish and Floor Level**							**Data Bank**		
Foundation				Retail		Restaurant		Multi-unit other			SFGA		W
	Basement/Crawl		Slab	Office		Warehouse		Other			Length		
Exterior Shell Type				Manufacturing		Recreation		Vacant			Width		
2	Lt. Com. wood/ steel	6	Wood Post Fr.	Grocery		Convenience		Abandoned			Ratio L ÷ W		
3	Conc. Blk. unreinf.	7	Steel Pre-eng.	Apartments		No.of Units		No. Rooms/ Unit			Perimeter		
4	Conc. Blk. reinf.	8	Steel Struc FR	Avg. Unit Size SF				Apt. Unit Factor			No. Stories	Table 1 2 3	
5	Conc. Tilt-up	9	Steel Struc FP										T
Exterior Wall Cover Material													
	B	1	2	3	A								C
Vinyl/ Wood/ Metal													A
Stucco/ Aluminum Siding													
Cedar/ Redwood/ Resin													F
EIFS <2" thick													
Brick Veneer													
Stone Veneer													
Painted Concrete Block													Fi
T-1-11 Plywood													1s
Aluminum/ Pine													
EIFS >2" thick													
Glass Curtain Wall													
Struc. Steel/ Aluminum													B

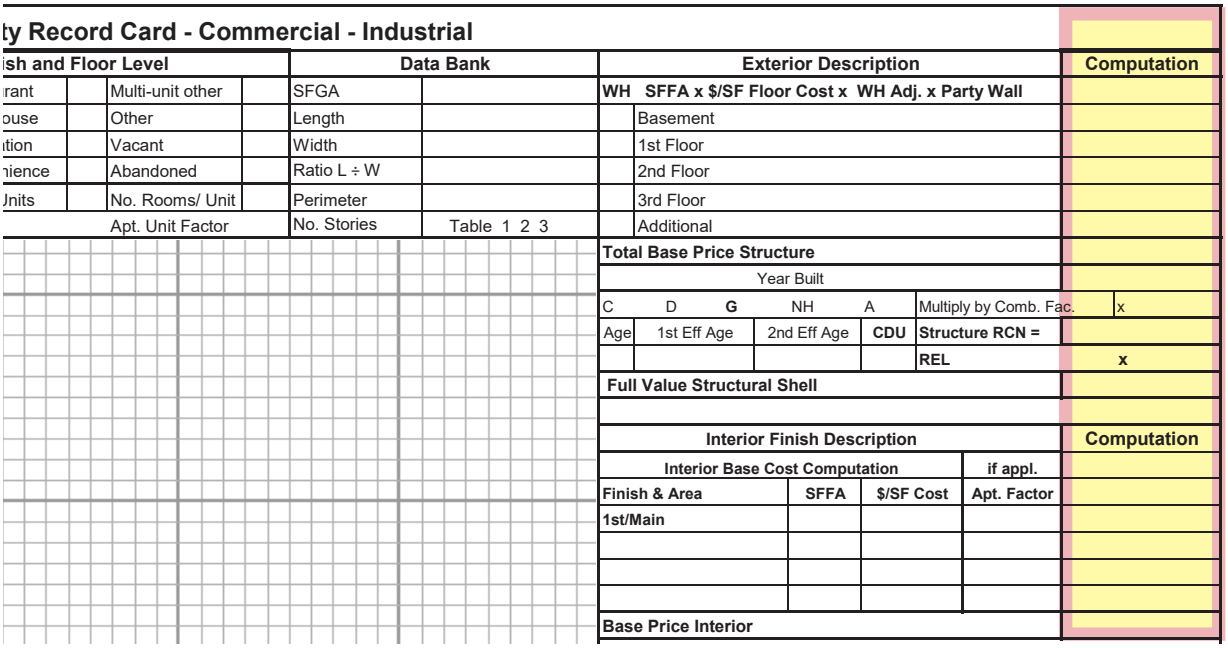
The upper middle of the card is for recording the types of interior finishes for which the building is used. An “X” can be placed in the appropriate area or a number for a particular floor area if applicable.



PRC 4-2019	Property Record Card - Commercial - Industrial												
Construction Specifications				**Interior Finish and Floor Level**							**Data Bank**		
Foundation				Retail		Restaurant		Multi-unit other			SFGA		
	Basement/Crawl		Slab	Office		Warehouse		Other			Length		
Exterior Shell Type				Manufacturing		Recreation		Vacant			Width		
2	Lt. Com. wood/ steel	6	Wood Post Fr.	Grocery		Convenience		Abandoned			Ratio L ÷ W		
3	Conc. Blk. unreinf.	7	Steel Pre-eng.	Apartments		No.of Units		No. Rooms/ Unit			Perimeter		
4	Conc. Blk. reinf.	8	Steel Struc FR	Avg. Unit Size SF				Apt. Unit Factor			No. Stories		Table 1 2 3
5	Conc. Tilt-up	9	Steel Struc FP										

Exterior Wall Cover Material	B	1	2	3	A
Vinyl/ Wood/ Metal					
Stucco/ Aluminum Siding					
Cedar/ Redwood/ Resin					
EIFS <2" thick					
Brick Veneer					
Stone Veneer					
Painted Concrete Block					
T-1-11 Plywood					
Aluminum/ Pine					
EIFS >2" thick					
Glass Curtain Wall					
Struc. Steel/ Aluminum					

Next, the right column on the 2019 PRC-4 is used for computing the full value of the structure. This column is called the **computation ladder**.



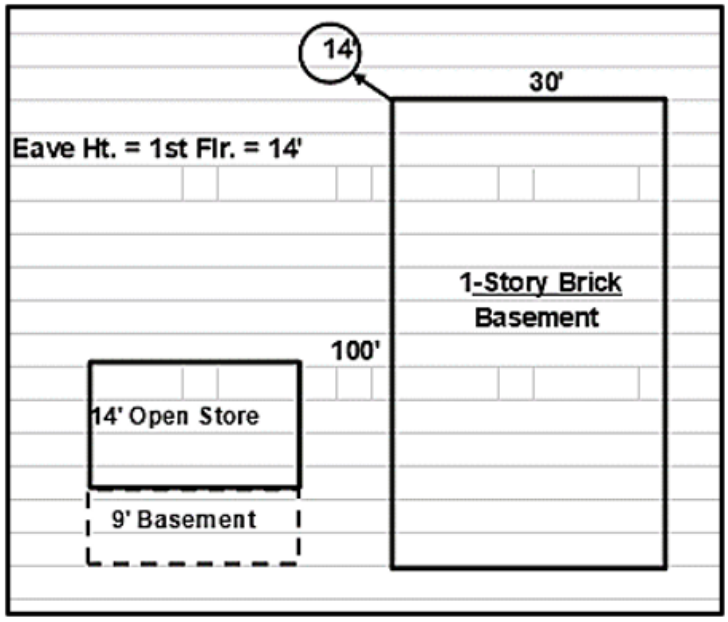
ty Record Card - Commercial - Industrial							
ish and Floor Level				**Data Bank**		**Exterior Description**	**Computation**
rant		Multi-unit other		SFGA		**WH SFFA x $/SF Floor Cost x WH Adj. x Party Wall**	
ouse		Other		Length		Basement	
tion		Vacant		Width		1st Floor	
nience		Abandoned		Ratio L ÷ W		2nd Floor	
Units		No. Rooms/ Unit		Perimeter		3rd Floor	
		Apt. Unit Factor		No. Stories	Table 1 2 3	Additional	
						Total Base Price Structure	
						Year Built	

C	D	G	NH	A	Multiply by Comb. Fac.	x
Age	1st Eff Age	2nd Eff Age	CDU		**Structure RCN =**	
					REL	**x**

Full Value Structural Shell	

Interior Finish Description				**Computation**
Interior Base Cost Computation			**if appl.**	
Finish & Area	**SFFA**	**$/SF Cost**	**Apt. Factor**	
1st/Main				
Base Price Interior				

An area is located in the center of the card for a sketch of the structure. A side view (elevation) can be completed as well as a perimeter (footprint) drawing in the space. Include all dimensions. Additional cards can be used for additional structures.



The Summary of Other Exterior Improvements area is used to note any features not attached to the structure like paving, signs, parking lots, garages etc.

Summary of Other Exterior Improvements (i.e. paving, signs, parking lot lighting, canopies, docks, store fronts, etc.)

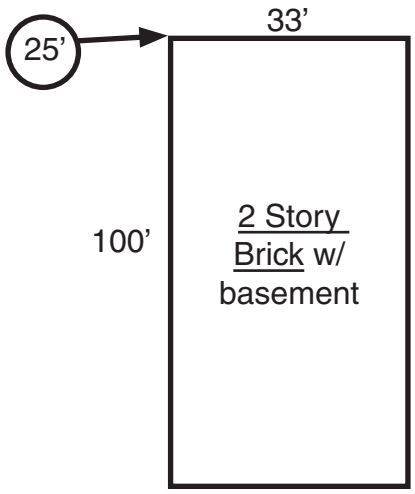
Type	Number	Construction	Size	Rate	Subtotal	Grade	Factor	Replacement Cost New	AGE	CDU	REL	Full Value

Data Bank

Data bank values impact the final value of the improvement. Consequently, it is very important that these values are accurately computed.

Data Bank	
SFGA	
Length	
Width	
Ratio L ÷ W	
Perimeter	
No. Stories	Table 1 2 3

SFGA- Square Feet of Ground Area **SFGA = L X W**



The square feet of ground area (SFGA) is the first component of the data bank. This value is obtained by multiplying the length of the building by the width of the building.

Length x Width = Square Feet of Ground Area

33’ x 100’ = 3,300 SFGA

Much of the cost is directly related to the SFGA.

Ratio of Length to Width

The ratio of length to width is calculated in order to correctly choose which cost schedule table will be used to reference costs. The tables differ by the relative proportion of the length of the structure as compared to the width of the structure. These factors will be used to adjust the cost of the structure based on its shape. In appraisal theory, a building that is square in shape (footprint of the SFGA) will cost less to construct than a building with a longer, more narrow, rectangular shape.

Divide the length of the structure (longest side) by the width. Table 1 is used for structures in which the length is less than 2x the width; Table 2 is used for structures in which the length is between 2x and 4x the width of the structure; and Table 3 is used when the structure’s length is greater than 4x the width.

Indicate the ratio, and circle which table (1, 2, or 3) will be used to determine the correct cost. Also note the number of stories or levels.

Building Structural Shell Type 3:

Unreinforced concrete block walls, wood joists--PAGE 1

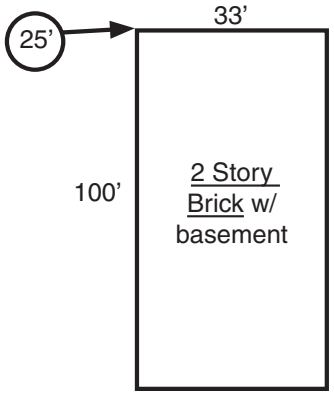
Structure type 3 has unreinforced concrete block load bearing walls, with wood joists & wood upper floors

Basement floor size:	2,000	4,000	6,000	8,000	10,000	15,000	25,000	40,000
Length < 2x width	54.96	46.60	43.12	40.97	39.44	37.29	34.97	33.33
Length > 2 < 4x width	58.54	49.51	45.36	42.87	41.20	38.69	36.09	34.24
Length > 4x width	64.30	53.33	48.57	45.75	43.79	40.76	37.66	35.50
Ground floor size:	**2,000**	**4,000**	**6,000**	**8,000**	**10,000**	**15,000**	**25,000**	**40,000**
Exterior type			**Table 1**	**Length less that 2x width**				
Paint only	38.52	31.63	28.74	26.94	25.68	23.90	21.96	20.59
Stucco	44.07	35.51	31.92	29.69	28.13	25.91	23.51	21.82
EIFS	50.43	39.97	35.58	32.85	30.94	28.24	25.29	23.22
Brick veneer	50.82	40.24	35.80	33.04	31.11	28.38	25.40	23.31
Stone veneer	87.43	65.88	56.84	51.22	47.28	41.72	35.66	31.40
Exterior type			**Table 2**	**Length from 2 to less than 4x width**				
Paint only	41.55	34.02	30.60	28.53	27.15	25.05	22.89	21.36
Stucco	47.82	38.48	34.23	31.66	29.95	27.35	24.67	22.76
EIFS	55.03	43.60	38.40	35.27	33.17	29.99	26.71	24.38
Brick veneer	55.46	43.91	38.66	35.49	33.36	30.15	26.84	24.48
Stone veneer	96.88	73.36	62.66	56.20	51.87	45.33	38.58	33.78
Exterior type			**Table 3**	**Length more than 4x width**				
Paint only	46.34	37.22	33.27	30.92	29.29	26.77	24.20	22.40
Stucco	53.76	42.45	37.54	34.63	32.61	29.48	26.29	24.06

Perimeter

Another component of the data bank is the perimeter. This is the linear measurement around the outside boundaries of the ground floor.
Perimeter = L + W + L + W

In the example, the structure is 33' x 100'.
(33' + 100' + 33' + 100' = 266') 266' is the Perimeter.



Other Measurements

EH, H or OH- Eave Height, Height, or Overall Height

Although not an official component of the Data Bank, the eave height, height, or overall height is the height of all the above ground stories. It is indicated by a circle and an arrow pointing to the corner of each change in height. If eave height is not given, add the floor-to-ceiling heights of all above-ground floors. This measurement is used in calculating cubic feet and square foot wall area components of the data bank.

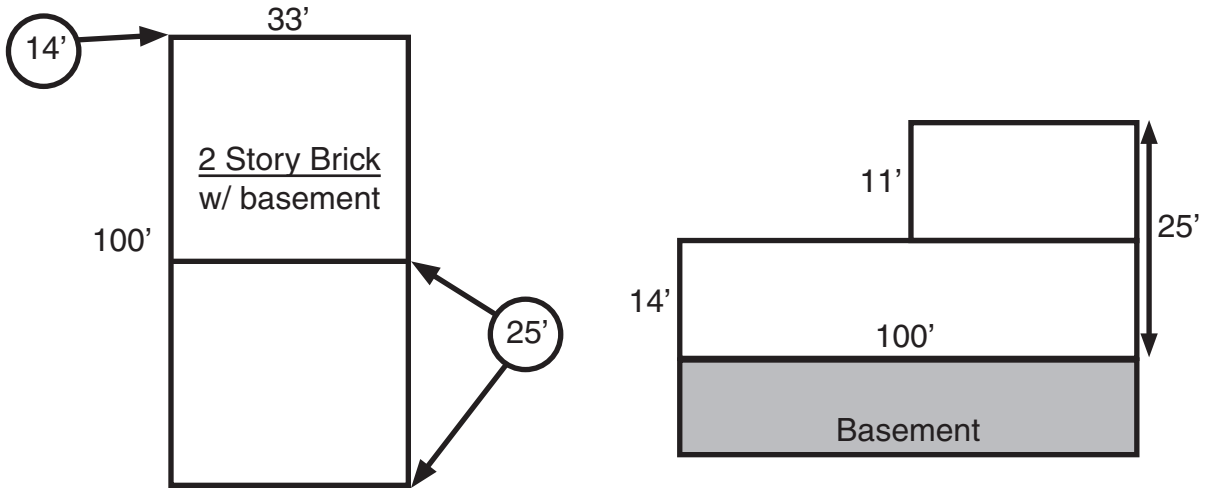
CF- Cubic Feet

The cubic feet of a structure is computed by multiplying the square feet of the ground area (SFGA) by the Eave Height (H), which is the height from the ground level to the eaves.

CF = SFGA x H

Structures with stories of unequal square footage

Some structures have ground floors with larger square footage than upper stories. A diagram of a building of this type may look something like this:



The illustration indicates an eave height on part of the building is higher than the eave height indicated on another part of the structure. This configuration would not change the SFGA or the ground floor perimeter.

Using Other Factors

Factors are used to adjust given values upwards or downwards. When using the Commercial Property Record Card (PRC-4), additional factors will be used for the following adjustments:

- Wall Height Factor
- Party Wall Factor
- Apartment Factor

Wall Height Factor

The wall height factor is used when the individual floor level wall heights differ from the typical wall heights used in each Exterior Shell Type. A factor is listed for each linear foot of difference. This factor increases or decreases the SF cost due to the difference in cost of building a structure taller or shorter than the height listed as “typical”.

For example, a single-story Type 2 structure has cost figures for a wall height of 14’ for the ground level in Table 1. Publication 126 indicates a 2.8% adjustment for each 1-foot difference of wall height. A 2,000 SF structure with a vinyl sided exterior has a ground level SF cost of $37.53 in Table 1. If the actual wall height of the structure is 15’, the SF cost would be calculated as $37.53 x 1.028 = $38.58/SF (a 2.8% increase is represented by a factor of 1.028).

Conversely, if the subject property being evaluated had a wall height of 13’, the factor would be a -2.8%. The factor for -2.8 % would be .972 (100% - 2.8% = 97.2% or .972). The calculation for the same building with a 13’ wall height would be $37.53 x .972 =$36.48/SF.

Building Structural Shell Type 2:

Light commercial wood/ steel stud exterior walls--PAGE 1

Structure type 2 is light commercial with wood or steel stud exterior load bearing walls, wood joists and wood upper floors

Included:
Site Prep
Excavation
Concrete Footin
Foundation
Reinf. Conc. Sla
Roof Structure
Roof Cover
Ext. Walls w/ Cla

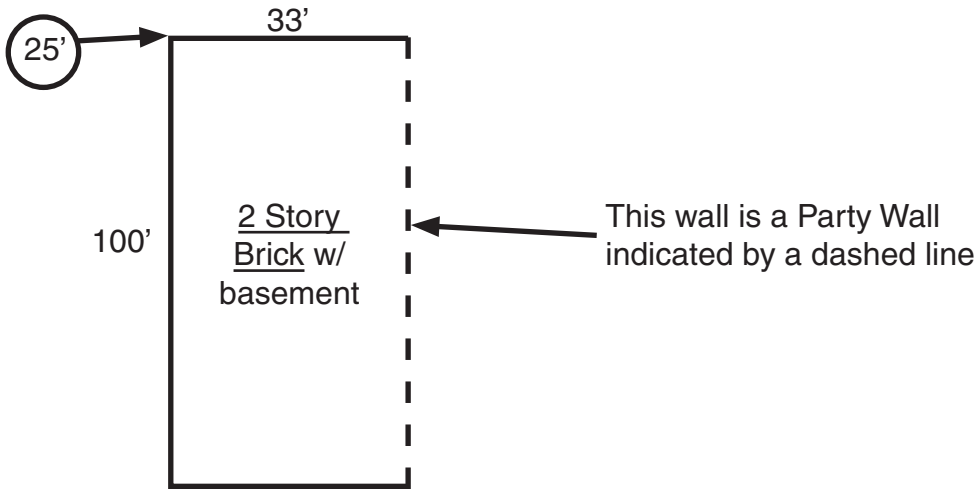
Basement Floor Size	**2,000**	**4,000**	**6,000**	**8,000**	**10,000**	**15,000**	**25,000**	**40,000**	**80,000**	1
Length < 2x width	41.50	33.71	30.45	28.41	26.99	24.98	22.79	21.25	19.57	
Length > 2 < 4x width	44.91	36.41	32.55	30.21	28.65	26.29	23.85	22.11	20.16	
Length > 4x width	50.32	40.03	35.56	32.91	31.07	28.22	25.32	23.29	20.99	
Ground Floor Size:	**2,000**	**4,000**	**6,000**	**8,000**	**10,000**	**15,000**	**25,000**	**40,000**	**80,000**	1
Exterior type			**Table 1**	**Length less that 2x width**						
Vinyl/ wood/ metal	37.53	30.93	28.16	26.44	25.24	23.53	21.68	20.37	18.95	
Stucco/ alum siding	39.37	32.22	29.22	27.36	26.05	24.20	22.20	20.78	19.24	

Wall ht adj +/- per 1 ft	2,000	4,000	6,000	8,000	10,000	15,000	25,000	40,000	80,000	120,0
Ground level WH = 14'	2.8%	2.4%	2.2%	2.0%	1.9%	1.7%	1.4%	1.2%	0.9%	0.8
Upper levels WH = 12'	4.0%	3.2%	2.9%	2.6%	2.4%	2.0%	1.7%	1.4%	1.0%	0.9
Basement level WH = 9'	6.9%	6.0%	5.4%	5.1%	4.7%	4.2%	3.6%	3.0%	2.4%	2.0

NOTE: Ground floor and upper floors must be of the same structure type, but may have different exterior types

Where's the Party? Party Wall Factors

A Party Wall is a building exterior perimeter wall that is a common wall between two buildings. Because the cost of the wall is shared between the two buildings, an adjustment is needed to recognize the lower cost for each building that shares the party wall. Party walls are often found in older downtown commercial structures. Years ago, the first commercial structure on the block was built with four walls. When an adjoining structure was constructed, rather than building four exterior walls for the structure, only three walls were constructed, and the builder tied-in to the existing wall of the previously constructed building for the fourth wall. Due to increased construction standards, this practice is no longer as widespread as it once was.



Because the building structural shell cost schedule square foot rates vary depending upon the shape of the building relative to its length and width, the party wall adjustment factors will also vary depending on the building shape. Thus, the party wall adjustment schedule considers:

- Size of the building
- Floor level
- Shape (length less than 2x width; length from 2x to 4x width; and length more than 4x width)
- Which walls are party walls (longer wall, shorter wall, 2 longer walls, or 2 shorter walls).

The ground floor perimeter wall includes the cost of the foundation and is therefore more costly, which explains the difference in factor rates between the floors even when the shape is the same.

The calculation is done in the same way as for wall height. One must pay close attention to which walls of the structure are affected as party walls to determine the correct factor to use.

A structure can have both wall height adjustments and party wall adjustments.

Building Structural Shell Types 2, 6, and 7 - Party Wall Ground Floor and Up

Ground floor size:	2,000	4,000	6,000	8,000	10,000	15,000	25,000	40,000	80,0
				Party wall on one long side of building					
Length less that 2x width	0.923	0.937	0.942	0.947	0.951	0.955	0.964	0.970	0.9
Length from 2 to 4x width	0.904	0.916	0.924	0.930	0.935	0.942	0.950	0.958	0.9
Length more than 4x width	0.888	0.902	0.909	0.916	0.920	0.929	0.939	0.948	0.9
				Party walls on both long sides of building					
Length less that 2x width	0.845	0.874	0.885	0.894	0.903	0.911	0.927	0.939	0.9
Length from 2 to 4x width	0.736	0.762	0.787	0.804	0.815	0.837	0.859	0.880	0.9
Length more than 4x width	0.607	0.653	0.682	0.702	0.717	0.749	0.785	0.814	0.8
				Party wall on one shorter side of building					
Length less that 2x width	0.955	0.961	0.965	0.968	0.969	0.974	0.977	0.981	0.9
Length from 2 to 4x width	0.970	0.974	0.977	0.978	0.980	0.982	0.985	0.987	0.9
Length more than 4x width	0.979	0.982	0.984	0.985	0.986	0.987	0.989	0.991	0.9
				Party walls on both shorter sides of building					
Length less that 2x width	0.910	0.921	0.931	0.935	0.938	0.947	0.954	0.961	0.9
Length from 2 to 4x width	0.867	0.878	0.893	0.900	0.905	0.918	0.928	0.938	0.9
Length more than 4x width	0.789	0.813	0.831	0.841	0.847	0.866	0.885	0.900	0.9

Apartment Factor

The apartment factor is applied to any apartment interior finish types and is used to account for the increase in the number of plumbing fixtures and kitchen cabinets in a building with smaller unit sizes.

Unit Size	500	600	700	800	900	1,000	1,100	1,200	1,300	1,400	1,500
Factor	1.15	1.13	1.11	1.09	1.07	1.06	1.04	1.03	1.02	1.01	1.00

The calculation is done after determining the average unit size. Average unit size is calculated by dividing the total number of square feet of the building by the number of units. This number will be the average unit size. Refer to the table above (also in Publication 126 on page 38) and multiply the interior finish cost per square foot by the factor. For instance, a 12-unit building of 8,400 SF would have an average unit size of 8,400 divided by 12 = 700 SF. The interior finish cost (from Page 38 of Pub 126) is $49.73/SF. The factor for 700 SF unit size is 1.11. So, $49.73 x 1.11 = $55.20/SF is the adjusted interior finish cost.

Exercise 4-1 Completing the Data Bank

This exercise steps through completing the data for four structures **A-D**. Read through the first example for structure "**A**" and then complete the three remaining columns of the data bank for structures "**B-D**" listed at the top of each column.

Structure A has a length of 40', a width of 36', and a height of 28'. Since no other information is given regarding height, assume that the height given is the eave height for the purposes of these calculations.

1. To compute the **Square Foot Ground Area**, multiply the length of 40', by the width of 36', for a total of 1,440 square feet for the structure.

2. To compute the **Perimeter (P)**, add the length of 40', the width of 36', the length of 40', and the width of 36', for a total of 152' for the structure's perimeter.

3. To determine the **L:W ratio**, divide the length by the width. Enter the number and correlate it with the correct cost table-Table 1 if L < 2 x W; Table 2 if L is 2 to 4 x W; Table 3 if L > 4 x W. 40' ÷ 36' = 1.11 for the ratio.

Exercise 4-1

1. Complete the remaining three columns. L is length, W is width and H is the overall height of all above-ground floors.

Structure	**A**	**B**	**C**	**D**
Description	**2-Story L40 W36 H28**	**2-Story L150 W48 H28**	**2-Story L800 W250 H28**	**3-Story L72 W48 H42**
SF Ground Area **(SFGA)**	**1,440**			
Perimeter **(P)**	**152**			
Length **(L)**	**40**			
Width **(W)**	**36**			
L:W Ratio	**1.11**			
Table Used	**1**			

Unit 4- Summary

The collection of data is one of the most important steps in determining value. This information is used to calculate the replacement cost of a structure and can be used in the market approach for comparative sales data development. You should be familiar with the data bank, along with the following formulas associated with the data bank:

1. Square feet of ground area **SFGA = L x W**
2. Perimeter **P = L + W + L + W**

A wall height adjustment factor is used when the actual wall height of a subject property differs from the typical height on the square foot schedule. The adjustments are given at the bottom of each Structural Shell Type schedule in Publication 126. The adjustment percentages should be converted to a factor.

A party wall is adjusted by a factor based on which wall or walls are shared. This accounts for the reduction in building and material costs for a 3-sided structure as compared to a 4-sided structure. There are party wall tables in Publication 126 for various structural shell types.

An apartment factor is used to adjust for the greater proportion of costs associated with additional plumbing fixtures and kitchen cabinetry for buildings finished with apartments of smaller SF sizes. The apartment factor table is located with the apartment interior finish in Publication 126.

The Property Record Card 4 (2019 PRC-4) is used to value commercial and industrial property.

The Property Record Card 3 (PRC-3) is the front page of the PRC-4 and contains owner names and mailing address, sales dates, PIN, land valuation, etc.

Unit 4- Review questions

1. Calculate the data bank for the following structures.

	2-Story L52 W36 H26	3-Story L50 W40 H42	2-Story L150 W75 H28
SFGA			
Perimeter			
L			
W			
L:W Ratio			
Table Used			

2. Calculate the data bank for the following structures, if 1 wall of the length is a party wall. The building is a Type 3 Structural Shell. Use the Party Wall Tables from Publication 126.

	2-Story L400 W140 H26	3-Story L200 W40 H42	2-Story L50 W40 H28
SFGA			
Perimeter			
L			
W			
L:W Ratio			
Table Used			
Party Wall: Bsmt			
Ground Floor			
Upper Floors			

Unit 5- IDOR Publication 126
Commercial Square Foot Schedules

This unit explains the use of the commercial square foot and subsidiary cost schedules found in the IDOR Publication 126, “Instructions for Commercial and Industrial Cost Schedules.”

The purpose of this unit is to provide a basic understanding of the format, values, and various adjustment factors found in Publication 126.

Learning Objectives

After completing the assigned readings, you should be able to

- locate base costs for the basement, first floor, and upper floors in the commercial schedules.
- locate and apply the wall height, apartment, and party wall adjustment factors.
- locate costs for plumbing, air conditioning, and sprinklers in the commercial supplemental cost schedules.
- identify pertinent construction specifications found on the 2019 PRC-4.
- determine the REL of a commercial improvement.
- arrive at a correct estimate of market value using the commercial square foot schedules and the 2019 PRC-4.

Terms and Concepts

Base cost
Base price adjustment (BPA) factor
Construction specifications
Effective Age
Wall height adjustment factor
Remaining economic life (REL)
Computation ladder
Actual, or Chronological age

Overview to Using IDOR's Commercial Cost Schedules (also called Cost Schedules, Appraisal Schedules, and Publication 126).

The Commercial Cost Schedules are a collection of data based on construction costs in Central Illinois. They are used to help assessors value certain types of commercial structures using a step-by-step process to complete a commercial property record card (PRC-4-2019).

The basic process is as follows:

- determine the size, structural shell type, age and use of the building.
- find the base cost based on the structural shell type.
- determine the quality grade and other factors affecting cost.
- determine RCN, depreciation and remaining economic life (REL) factor.
- determine the interior use(s) and find corresponding values/SF
- add and subtract values for features not included in the interior.
- apply various applicable factors to adjust the value.
- determine the RCN, depreciation and REL of the interior finish(s).
- determine the Full Value of the building today.

The commercial schedules in IDOR Publication 126 are based on construction costs in Central Illinois. The values given are also based on construction using average or typical quality for that occupancy, materials and workmanship. As discussed earlier, there are various factors that can be applied to adjust Publication 126 costs to reflect the values in various jurisdictions.

The Commercial Square Foot Schedules were developed for pricing typical retail buildings (1-5 stories), office buildings (1-10 stories), and various other building types.

For larger commercial buildings (above the sizes found in the cost schedules) and high-rise office complexes, the Component-in-Place (CIP) method from Publication 127 should be used.

It is important to use the appropriate schedule. As with any cost schedule, the assessor must be aware of the items that are included in the base cost, so as not to include them twice in the calculations. Before using a schedule, read all the information on the schedules.

Exterior structural shells, interior finishes and other improvements can all have unique ages, depreciation, quality grades and REL factors. The 2019 PRC-4 includes adjustment fields for all.

How to complete the Commercial 2019 PRC-4

Commercial 2019 PRC-4 Instructions
Structural Shell

Step 1 Determine the Building's Age, Structural Shell Type, Dimensions, Eave Height, Foundation, Exterior Wall Cover and Square Footage per floor level. Use the "Structural Shell Type" and Exterior Type to determine the cost per SF for each floor level. The ratio of the Length of the structure to the Width of the structure will determine which Table will be used. If the L ÷ W equals less than 2, use Table 1 figures. If L ÷ W is between 2 and 4, use Table 2. If L ÷ W is greater than 4, use Table 3.

Step 2 Sketch a diagram of the building and identify Structural Shell Type, Foundation, Exterior Cover Material and Interior Finish and label all dimensions.

Step 3 Select the appropriate SF cost reflecting the exterior cover material and interpolate for any costs for square footages that fall between listed SF costs.

Step 4 Note adjustments for wall height differences per floor level if needed.

Step 5 Note adjustments for party walls per floor level if needed.

Step 6 Multiply the SF cost per floor level by the number of square feet by any adjustment factors and enter this total on the computation ladder.

Step 7 Assign the appropriate quality grade factor, cost, design, neighborhood and appraiser factors (if applicable) and chain multiply to arrive at a single factor.

Step 8 Multiply the Total Base Price Structure by the combined factor to determine the Replacement Cost New (RCN).

Step 9 Determine the appropriate REL factor based on the Effective Age and CDU rating. Multiply the RCN by the REL factor to determine the Full Value of the Structural Shell.

Interior Finish

Step 1 Determine the Interior's Age and Finish Type, Dimensions and Square Footage for each floor. Some finish types will vary between and within floors.

Step 2 Select the appropriate SF cost from Section B of Publication 126.

Step 3 Multiply the Finished area per Floor by the SF cost. Apply an apartment factor if the interior finish is apartment/condo, and interpolate if necessary. This results in the Base Price of the Interior.

Step 4 Note the necessary adjustments for items like a/c, heating, sprinklers, plumbing fixtures, etc. Refer to each Interior Finish Type to confirm which items are included in the base price and adjust accordingly. Other features can be found in the component-in-place schedules in IDOR's Publication 127.

Step 5 Multiply the SF cost or unit cost by the number of square feet or units for each adjustment type and enter this total on the computation ladder. Subtotal all adjustments.

Step 6 Add the interior adjustments subtotal to the base price interior to determine the Total Base Price Interior.

Step 7 Assign the appropriate quality grade factor, cost, design, neighborhood and appraiser factors (if applicable) and chain multiply to arrive at a single factor.

Step 8 Multiply the Total Base Price Interior by the combined factor to determine the Replacement Cost New (RCN).

Step 9 Determine the appropriate REL factor based on the Effective Age and CDU rating. Note that this may be substantially different than the age and CDU for the Structural Shell due to remodeling. Multiply the RCN by the REL factor to determine the Full Value of the Interior Finish.

Step 10 Add the Full Value Structural Shell and the Full Value Interior Finish to determine the Total Full Value for both.

Summary of Other Exterior Improvements

Step 1 Note the Type of Exterior Improvement, number, construction type, and size in the designated area of the PRC.

Step 2 Find the Cost in the Publication 127 CIP schedules.

Step 3 Follow Steps 7, 8, and 9 from above to determine a Full Value for each improvement listed.

Step 4 Total the Full Value of the Other Improvements. Add to the Total Value of the Structural Shell and the Full Value Interior Finish to determine the Full Value Exterior, Interior and Other for the property.

IDOR Costing Methods

The Square Foot (SF) method presented is the primary method for valuing common commercial and industrial properties. The square foot method is used when size is the most important factor in determining value. The component-in-place method in Publication 127 is the best application for very large structures, more complex structures, or when more detail is required in the pricing. The Commercial Square Foot Schedule values provide SF costs for various typical buildings, together with modifiers for common deviations from the typical buildings. Component-in-Place **(CIP)** costs provide costs for each of the building components within the property. The schedules can also be used to adjust the SF costs and to price miscellaneous items.

Getting Started

In IDOR Publication 126, structures are classified according to their structural shell type. The initial step in SF estimation is determination of the structural shell construction and the exterior cover.

Structural Shell Types

Type 2: Light commercial with wood/steel exterior walls
Type 3: Unreinforced concrete block walls, wood joists
Type 4: Reinforced masonry walls, metal joists/decks with concrete
Type 5: Pre-cast concrete tilt-up walls, metal joists
Type 6: Engineered wood post frame buildings
Type 7: Pre-engineered steel frame buildings
Type 8: Structural steel frame with fire resistant coatings
Type 9: Steel reinforced concrete frame, nearly fireproof

Exterior Cover Types

Vinyl/wood/metal/T-1-11(grooved compressed wood)
Stucco/aluminum siding
Cedar/redwood/pine/resin siding
EIFS (Exterior insulation and finish system)
Brick/Stone veneer
Paint only
Glass curtain wall
Structural steel

Building Structural Shell Types 2-9

Type 2: Light Commercial

Wood or steel stud exterior load bearing walls, with wood joists & wood upper floors

These buildings are commercial having larger floor areas, with wood or steel stud exterior walls, and are one to three stories in height. There are few, if any, interior load bearing walls. The floor and roof framing consist of wood trusses, glulam beams, and wood posts or steel columns. The first-floor framing is supported directly on the foundation. The foundation consists of spread footings constructed with cast-in-place concrete or concrete masonry block. Exterior walls are wood or steel studs with plywood or oriented strand board (OSB) sheathing and a wide variety of exterior cover materials such as vinyl, wood, hardboard, fiberboard, metal, stucco, including masonry veneers such as brick and various types of stone. Exterior walls are not of concrete block, which is Type 3.

Type 3: Unreinforced concrete block walls, wood joists

Unreinforced concrete block load bearing walls, with wood joists & wood upper floors

These buildings have perimeter load-bearing walls that consist of unreinforced masonry, frequently concrete block. Interior bearing walls, when present, also consist of unreinforced masonry. The floor and roof framing consist of wood joists and trusses. Floors consist of structural panel or plywood sheathing. When they exist, ties between the walls and floors consist of bent steel plates or anchors embedded in the mortar joints and attached to framing. Foundations consist of heavier concrete-spread footings to support the added weight of the masonry load-bearing walls.

Type 4: Reinforced masonry walls, metal joists/ decks

Reinforced concrete block load bearing walls; upper floors with metal joists & decks having concrete fill

These buildings have reinforced masonry load-bearing walls and floors that consist of metal deck with concrete fill, precast concrete planks, tees, or double-tees, with or without a cast-in-place concrete topping slab and are stiff relative to the walls. There are no wood structural members. The floor and roof framing is supported on interior steel or concrete frames or interior reinforced masonry walls. Foundations consist of heavier concrete-spread footings to support the added weight of the masonry load-bearing walls.

Type 5: Pre-cast concrete tilt-up walls, metal joists

Precast concrete perimeter wall panels that are cast on site and tilted into place

These buildings are one or more stories in height and have precast concrete perimeter wall panels that are cast on site and tilted into place. Floor and roof framing consists of precast elements, cast-in-place concrete, or metal deck with concrete fill, and are stiff relative to the walls. Framing is supported on interior steel columns and perimeter concrete bearing walls. Lateral forces are resisted by the precast concrete perimeter wall panels. Wall panels may be solid or have large window and door openings which cause the panels to behave more as frames than as shear walls. Foundations consist of concrete-spread footings or deep pile foundations.

Type 6: Engineered wood post frame buildings

Engineered wood post frame buildings that were called pole buildings 40 years ago

These buildings feature large, solid sawn posts or laminated columns instead of wood studs, steel framing, or concrete masonry. They were called pole buildings 40 years ago, but now post-frame construction is an engineered wood-frame building system that meets UBC and IBC standards. Post-frame structures are more quickly erected than other kinds of buildings. Because the larger posts and the interlocking frame can handle greater loads than stud-wall construction, fewer structural materials are needed, which saves time and other costs. Also, because posts are spaced farther apart than

studs, post-frame buildings feature an exceptionally large wall cavity and provide ample room for insulation, lowering heating and cooling costs through the life of the building. Almost any type of exterior façade may be installed on post-frame buildings, which can be designed to meet the highest standards for quality and aesthetics. Post-frame construction is an efficient and economical option for low-rise applications and is now the construction method of choice for any number of commercial, industrial, municipal, residential, religious, and agricultural projects.

Type 7: Pre-engineered steel frame buildings

Pre-engineered and prefabricated with transverse rigid steel or light steel beam/ column frames

These buildings are mainly pre-engineered and prefabricated with transverse rigid steel frames. They are typically one story in height. However, they may be multi-story and built of pre-engineered, prefabricated steel columns and beams. The roof and walls consist of lightweight metal, fiberglass or similar panels. The frames are designed for maximum efficiency and the beams and columns consist of tapered, built-up sections with thin plates. The frames are built in segments and assembled in the field with bolted or welded joints but are lighter-weight steel without fire-resistant coatings found in Type 8 Structure buildings. Lateral forces in the transverse direction are resisted by the rigid frames. Lateral forces in the longitudinal direction are resisted by wall panel shear elements or rod bracing. Diaphragm forces are resisted by un-topped metal deck, roof panel shear elements, or a system of tension rod bracing. Pre-engineered construction is an efficient and economical option for low-rise applications and is now the construction method of choice for any number of commercial, industrial, municipal, and agricultural projects.

Type 8: Structural steel frame with fire resistant coatings

Frame assembly of heavy steel beams and steel columns coated with fire-resistant materials

These buildings consist of a frame assembly of steel beams and steel columns capable of supporting high-rise construction. Foundations consist of concrete-spread footings or deep pile foundations. Floor and roof framing consists of cast-in-place concrete slabs or metal deck with concrete fill supported on steel beams, open web joists, or steel trusses. Lateral forces are resisted by steel moment frames that develop their stiffness through rigid or semi-rigid beam-column connections. When all connections are moment-resisting connections, the entire frame participates in lateral force resistance.

Diaphragms consist of concrete or metal deck with concrete fill and are stiff relative to the frames. A steel building's structural members are expected to have fire resistance to prevent structural failure for a determined period of time to give the building occupants more time to escape and allow the fire service to control it. The required fire resistance periods for the different steel building types are found in local building codes. The structural steel needs to be protected against fire using the proper insulating materials and methods to protect the structural steel members and allow them to resist weakening for longer periods. Recent research has been conducted resulting in several fire-resistant steels with better strength levels developed. These steels represent a notable improvement over conventional steels in terms of elevated temperature yield strength.

Exterior walls consist of metal panel curtain walls, glazing, brick masonry, or precast concrete panels. When the interior of the structure is finished, frames are concealed by ceilings, partition walls, and architectural column furring.

Type 9: Steel reinforced concrete frame, nearly fireproof
Frame assembly of highly fire-resistant cast-in-place concrete beams and columns

These buildings consist of a frame assembly of steel reinforced cast-in-place concrete beams and columns capable of supporting very high-rise construction. Floor and roof framing consist of cast-in-place concrete slabs, concrete beams, one-way joists, two-way waffle joists, or flat slabs. Lateral forces are resisted by concrete moment frames that develop their stiffness through monolithic beam-column connections. Modern frames in regions of high seismicity have joint reinforcing, closely spaced ties, and special detailing to provide ductile performance. This detailing is not present in older construction. Exterior walls consist of metal panel curtain walls, glazing, brick masonry, or precast concrete panels. Foundations consist of concrete-spread footings or deep pile foundations.

Interior Finish Schedules
Building Use Types, Finish Descriptions, and Costs

The cost of the structural shell of the building is determined from the schedules in Section A of Publication 126. Once the structural shell is complete, the interior finish cost can be added from the finish rates in this section for numerous and varied uses as well as multiple uses that might exist. Hence, this cost approach method provides greater flexibility and precision by separately valuing the structural shell, which has a more predictable and longer life, and the interior finishes, which may have shorter lives, be refurbished frequently to a like-new condition, and accommodate a wide range of uses. The finish costs in Section B of Publication 126 reflect average quality construction, materials, and workmanship. Higher and lower quality construction must have appropriate quality factors applied.

The interior finish schedules are roughly grouped by 41 blended use or finish type. A commercial structure often has several separate finish types. Each can be calculated with the appropriate square footage multiplied by the cost per square foot indicated in Publication 126. The general groupings are:

- Office
- Retail
- Restaurant
- Recreation
- Manufacturing/Industrial
- Warehouse/Storage
- Multi-unit/ Human Care

For very specific finishes there are an additional 200 square foot costs included in Publication 126 on Page 39.

Note: Read the finish descriptions carefully to verify what is included in the finish as typical or customary.

Example 1

In the first example, use the schedules in Publication 126 in order to complete the first property record card. The card indicates that the structure has a Structural shell Type 2 and is finished as a retail store, so use the schedules on pages 10 and 32 of Publication 126.

Please remove the following pages for the property record card to go through the steps for valuing this property.

Example 1: Exterior Shell Type 2, 1-Story, General Retail Finish

The subject property is a 1-story commercial structure. It is 2,000 SF and built on a wood frame with vinyl siding (Exterior Shell Type 2) on a reinforced concrete slab. The property operates as a “lightly used items for re-sale” store. It has one typical employee bathroom.

The structure was constructed in 2020 with a quality grade of “C” and the physical condition is average. The desirability and utility are also average. It has central HVAC and a typical sprinkling system. There is also a 1300 SF asphalt parking lot.

Foundation	Reinforced concrete
Wall Framing	Load-bearing wood with some interior supports
Floors	Reinforced concrete
Exterior Walls	Average grade commercial vinyl siding
Interior Finish	Typical with average grade finish
HVAC	Typical with both central heat and cooling
Roof	Roof structure is wood deck with shingles
Plumbing	4 plumbing fixtures (3 type-2 commercial and one water heater)
Sprinklers	Yes, ordinary hazard wet pipe system

PRC 4-2019 **Example 1** **Property Record Card - Commercial - Industrial** **Example 1 Exterior Type 2, General Retail**

Construction Specifications

Foundation

	Basement/Crawl	X	Slab

Exterior Shell Type

(2)	Lt. Com. wood/ steel	6	Wood Post Fr.
3	Conc. Blk. unreinf.	7	Steel Pre-eng.
4	Conc. Blk. reinf.	8	Steel Struc FR
5	Conc. Tilt-up	9	Steel Struc FP

Exterior Wall Cover Material

	B	1	2	3	A
(Vinyl)/ Wood/ Metal		X			
Stucco/ Aluminum Siding					
Cedar/ Redwood/ Resin					
EIFS <2" thick					
Brick Veneer					
Stone Veneer					
Painted Concrete Block					
T-1-11 Plywood					
Aluminum/ Pine					
EIFS >2" thick					
Glass Curtain Wall					
Struc. Steel/ Aluminum					

Heat

	B	1	2	3	A
Central Warm Air		X			
Hot Water/ Steam					
Heat Pump					
Unit Heaters					
Other					
None					

Air Conditioning

	B	1	2	3	A
Central		X			
Heat Pump					
Unit					
None					

Roofing

Shingle	X	Metal/Other	
Composite		Slate	
Frame - Wood Steel Other			

Sprinklers

	B	1	2	3	A
None					
(Present)		X			

Plumbing Type and No. Fixtures

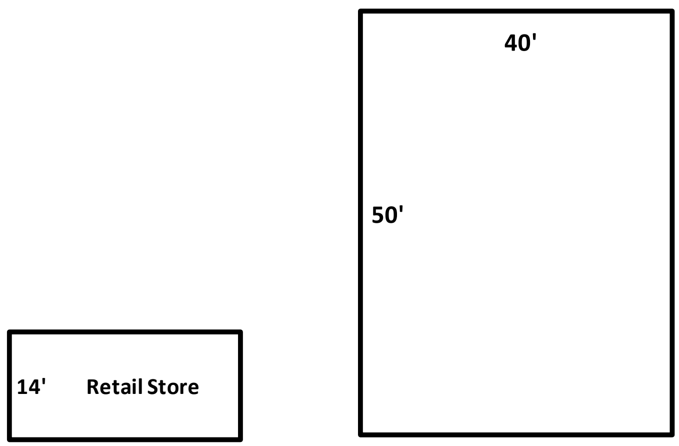
1 Residential	4	(2)	Commercial
3 Industrial		4	Specialty

Interior Finish and Floor Level

Retail	X	Restaurant		Multi-unit other	
Office		Warehouse		Other	
Manufacturing		Recreation		Vacant	
Grocery		Convenience		Abandoned	
Apartments		No.of Units		No. Rooms/ Unit	
Avg. Unit Size SF				Apt. Unit Factor	

Data Bank

SFGA	2,000
Length	50
Width	40
Ratio L ÷ W	1.25
Perimeter	180
No. Stories	Table (1) 2 3



Exterior Description

Exterior Description						Computation
WH	SFFA x $/SF Floor Cost x WH Adj. x Party Wall					
	Basement					
14	1st Floor 2,000 x 37.53					75,060
	2nd Floor					
	3rd Floor					
	Additional					
Total Base Price Structure						75,060
Quality Grade C		Year Built 2020				
C	D	G 1.00	NH	A	Multiply by Comb. Fac.	x 1.00
Age	1st Eff Age	2nd Eff Age	CDU		Structure RCN =	75,060
1	1	1	A		REL .98	x .98
Full Value Structural Shell						73,559

Interior Finish Description

Interior Base Cost Computation			if appl.	Computation
Finish & Area	SFFA	$/SF Cost	Apt. Factor	
1st/Main	2,000	44.46		88,920
Base Price Interior				88,920

Interior Adjustments						
A/C						
Heat						
Sprinkler 2,000 SF x 8.50						17,000
Plumbing						
Other						
Subtotal Interior Adjustments						17,000
Total Base Price Interior						105,920
Quality Grade C		Year Remodeled				
C	D	G 1.00	NH	A	Multiply by Comb. Fac.	x 1.00
Age	1st Eff Age	2nd Eff Age	CDU		Interior RCN	105,920
1	1	1	A		REL .98	x .98
Full Value Interior Finish						103,802
Total Full Value Interior and Exterior Shell						177,361

Memo

Summary of Other Exterior Improvements (i.e. paving, signs, parking lot lighting, canopies, docks, store fronts, etc.)

Type	Number	Construction	Size	Rate	Subtotal	Grade	Factor	Replacment Cost New	AGE	CDU	REL	Full Value
Parking Lot	1	Asphalt	1300 SF	2.97	3,861	C	1.00	3,861	1	A	0.98	3,784

Listed by:		Total Full Value Other Improvements	3,784
Date:		Total Full Value Exterior, Interior & Other	181,145

Example 1

The PRC is already completed, so review the items in the steps described in the previous pages.

Steps 1 & 2

Review the Construction Specifications for Foundation, Structural Shell, etc. on the left-hand column of the PRC. It refers to a Type 2 Structural Shell with vinyl siding on a slab.

PRC 4-2019

Construction Specifications			
Foundation			
	Basement/Crawl	X	Slab
Exterior Shell Type			
2	Lt. Com. wood/ steel	6	Wood Post Fr.
3	Conc. Blk. unreinf.	7	Steel Pre-eng.
4	Conc. Blk. reinf.	8	Steel Struc FR
5	Conc. Tilt-up	9	Steel Struc FP

Exterior Wall Cover Material	B	1	2	3	A
Vinyl/ Wood/ Metal		X			
Stucco/ Aluminum Siding					
Cedar/ Redwood/ Resin					
EIFS <2" thick					
Brick Veneer					
Stone Veneer					
Painted Concrete Block					
T-1-11 Plywood					
Aluminum/ Pine					
EIFS >2" thick					
Glass Curtain Wall					
Struc. Steel/ Aluminum					

Heat	B	1	2	3	A
Central Warm Air		X			
Hot Water/ Steam					
Heat Pump					
Unit Heaters					
Other					
None					

Air Conditioning	B	1	2	3	A
Central		X			
Heat Pump					
Unit					
None					

Roofing			
Shingle	X	Metal/Other	
Composite		Slate	
Frame - Wood Steel Other			

Sprinklers	B	1	2	3	A
None					
Present		X			

Plumbing Type and No. Fixtures			
1 Residential	4	2 Commercial	
3 Industrial		4 Specialty	

The structure has central heat and air conditioning. They are included in the base price.

Roofing type is indicated as shingle which is included as part of the base cost; Sprinklers are included, so an adjustment must be made. 4 type-2 commercial plumbing fixtures are included. The typical number of fixtures will be found in the interior finish schedule.

If a building has construction features other than those included in the base cost schedules, adjustments to the base cost must be made. So, the first step is determining what is included in the base cost schedule for structural shell type 2 found on page 4 of Publication 126.

Building Structural Shell Types 2-9

Type 2: Light Commercial

Wood or steel stud exterior load bearing walls, with wood joists & wood upper floors

These buildings are commercial having larger floor areas, with wood or steel stud exterior walls, and are one to three stories in height. There are few, if any, interior load bearing walls. The floor and roof framing consist of wood trusses, glulam beams, and wood posts or steel columns. The first-floor framing is supported directly on the foundation. The foundation consists of spread footings constructed with cast-in-place concrete or concrete masonry block. Exterior walls are wood or steel studs with plywood or oriented strand board (OSB) sheathing and a wide variety of exterior cover materials such as vinyl, wood, hardboard, fiberboard, metal, stucco, including masonry veneers such as brick and various types of stone. Exterior walls are not of concrete block, which is Type 3.

According to the schedule, the shell type is correctly identified as Type 2.

The interior finish is a general retail finish. The details are as follows from Pub 126:

$44.46	**General Retail Store Interior Finish** Retail use cost per square foot includes typical interior construction and finish, insulation, heating, air conditioning, and typical lighting and plumbing normally found in retail uses. Typical plumbing consists of a water heater and one fixture for every 800 square feet. The shape and size adjustments have already be accounted for in the Section A shell structure type cost. Not included in the interior finish costs are elevators and sprinkler systems. Other features are to be priced from the subsidiary schedules or the CIP schedules. Costs do not include site improvements such as paving and exterior lighting.

Now, refer to the sketch and data bank.

Interior Finish and Floor Level						Data Bank	
Retail	X	Restaurant		Multi-unit other		SFGA	2,000
Office		Warehouse		Other		Length	50
Manufacturing		Recreation		Vacant		Width	40
Grocery		Convenience		Abandoned		Ratio L ÷ W	1.25
Apartments		No.of Units		No. Rooms/ Unit		Perimeter	180
Avg. Unit Size SF				Apt. Unit Factor		No. Stories	Table (1) 2 3

The structure is 2,000 SF and the dimensions are 40’ x 50’. To determine which table (1, 2, or 3) in the cost schedule will be used, divide the length by the width (50 ÷ 40 = 1.25) 1.25 is less than 2, so Table 1 will be the correct table to use to find the SF cost.

Building Structural Shell Type 2:

Light commercial wood/ steel stud exterior walls--PAGE 1

Structure type 2 is light commercial with wood or steel stud exterior load bearing walls, wood joists and wood upper floors

Included:
Site Prep
Excavation
Concrete Footings
Foundation
Reinf. Conc. Slab Flr.
Roof Structure
Roof Cover
Ext. Walls w/ Cladding

Excluded:
Site Value
Sprinklers
Elevators
Interior Finish
Att. Ext. Improvements
Yard Improvements
Other Ext. Improvements

Basement Floor Size	**2,000**	**4,000**	**6,000**	**8,000**	**10,000**	**15,000**	**25,000**	**40,000**	**80,000**	**120,000**	**160,000**	**200,000**
Length < 2x width	41.50	33.71	30.45	28.41	26.99	24.98	22.79	21.25	19.57	18.84	18.38	18.09
Length > 2 < 4x width	44.91	36.41	32.55	30.21	28.65	26.29	23.85	22.11	20.16	19.29	18.79	18.45
Length > 4x width	50.32	40.03	35.56	32.91	31.07	28.22	25.32	23.29	20.99	19.98	19.38	18.98
Ground Floor Size:	**2,000**	**4,000**	**6,000**	**8,000**	**10,000**	**15,000**	**25,000**	**40,000**	**80,000**	**120,000**	**160,000**	**200,000**
Exterior type			**Table 1**	**Length less that 2x width**								
Vinyl/ wood/ metal	37.53	30.93	28.16	26.44	25.24	23.53	21.68	20.37	18.95	18.33	17.94	17.70
Stucco/ alum siding	39.37	32.22	29.22	27.36	26.05	24.20	22.20	20.78	19.24	18.57	18.15	17.88
Cedar/ redwood/ resin	42.15	34.17	30.82	28.74	27.28	25.22	22.97	21.39	19.68	18.92	18.45	18.15
EIFS	45.74	36.69	32.89	30.52	28.87	26.53	23.98	22.19	20.24	19.38	18.85	18.51
Brick veneer	46.13	36.96	33.11	30.71	29.04	26.67	24.09	22.27	20.30	19.43	18.89	18.55

Ground Floor Size:	2,000	4,000	6,000	8,000	10,000	15,000
Exterior type			Table 1	Length less that 2x width		
Vinyl/ wood/ metal	37.53	30.93	28.16	26.44	25.24	23.53
Stucco/ alum siding	39.37	32.22	29.22	27.36	26.05	24.20
Cedar/ redwood/ resin	42.15	34.17	30.82	28.74	27.28	25.22
EIFS	45.74	36.69	32.89	30.52	28.87	26.53
Brick veneer	46.13	36.96	33.11	30.71	29.04	26.67

Step 3

The square foot structural shell exterior cost is $37.53/SF for a 2,000 SF structure. This SF cost will be entered on the computation ladder.

Step 4 Wall Height Adjustment

There is no wall height adjustment because according to the sketch, the wall height is 14' and the base cost for the Structural Shell Type 2 is also 14'. The wall height table is located at the bottom of each Structural Shell Type cost table (ref. page 11 of Pub 126).

Square foot costs for a building with a floor to floor height that is different from the model used to calculate the base cost should be adjusted to reflect the actual building or floor height. This is referred to as a **Wall Height Adjustment**.

A wall height adjustment may be needed when costing out an individual floor. The retail schedule includes a standard wall height of 14' for the 1st story, 12' for upper stories, and 9' for basements. If a subject building's wall height varies from these dimensions, an adjustment to the base cost is necessary.

The wall height adjustment is specific to each structural shell type and is located on the bottom of each schedule. For Structural Shell Type 2, the table is as follows:

Wall ht adj +/- per 1 ft	2,000	4,000	6,000	8,000	10,000
Ground level WH = 14'	2.8%	2.4%	2.2%	2.0%	1.9%
Upper levels WH = 12'	4.0%	3.2%	2.9%	2.6%	2.4%
Basement level WH = 9'	6.9%	6.0%	5.4%	5.1%	4.7%

Step 5 Party Wall Adjustment

This is a free-standing building with no party walls, so no party wall adjustment is needed.

Step 6 Calculate the Structural Shell Adjusted SF Cost

Move to the "computation ladder" and enter in the SF cost of $37.53 and multiply it by 2,000 SF to determine the total base cost of the structural shell.

Example 1 Exterior Type 2, General Retail		
Exterior Description		Computation
WH SFFA x $/SF Floor Cost x WH Adj. x Party Wall		
	Basement	
14	1st Floor 2,000 x 37.53	75,060
	2nd Floor	
	3rd Floor	
	Additional	
Total Base Price Structure		75,060

Step 7 Apply Factors

If there are cost, design, quality grade, neighborhood, or appraiser factors to be applied, enter them on the computation ladder and chain multiply to find one combined factor.

Quality Grade C		Year Built 2020					
C	D	G 1.00	NH	A	Multiply by Comb. Fac.	x	1.00
Age	1st Eff Age	2nd Eff Age	CDU	Structure RCN =		75,060	

Step 8 Calculate RCN

Multiply the factor by the Total Base Price to get the Structure RCN (Replacement Cost New). The factor in this example is 1.00 since the quality grade is **C**.

Total Base Price Structure							75,060
Quality Grade C		Year Built 2020					
C	D	G 1.00	NH	A	Multiply by Comb. Fac.	x	1.00
Age	1st Eff Age	2nd Eff Age	CDU	Structure RCN =		75,060	

Step 9 Determine the REL and calculate Full Value

Determine the age of the structure. Remember, the cost approach to value is most reliable with new construction. This example is 1 year of age. The CDU (Condition, Desirability, and Utility) is Average **"A"**. This information will be used with the **Commercial REL** (Remaining Economic Life) **Table** found on page 51 of Pub 126.

Total Base Price Structure							75,060
Quality Grade C		Year Built 2020					
C	D	G 1.00	NH	A	Multiply by Comb. Fac.	x	1.00
Age	1st Eff Age	2nd Eff Age	CDU	Structure RCN =		75,060	
1	1	1	A	REL .98		x .98	
Full Value Structural Shell							73,559

Determine the Remaining Economic Life (REL) by finding the age based on condition known as the **First Effective Age**. The **Actual age** and the **Effective age** are the same when the physical condition of the improvement is **Average**.

So, the first column of the REL table indicates “Age considering physical condition”. This is also referred to as the **First Effective Age**. For this example, it is “1”.

Commercial REL Table
(Use for all Exterior Shell Types and all Interior finishes EXCEPT Apartment/ Condo/ Built-in Garage Interior Finishes. For those, use the Residential REL Table on page 64.)

Schedule A						Schedule B	
Age* considering Physical Condition	Effective Age considering Desirability and Utility					2nd Effective Age	Remaining Economic Life Factor
Age	E	G	A	P	U	Age	REL
1	1	1	1	6	11	1	98
2	1	1	2	7	12	2	96
3	1	1	3	8	13	3	94
4	1	1	4	9	14	4	92
5	1	1	5	10	15	5	90
6	1	1	6	11	16	6	88

The corresponding 2nd effective age is also “1” because the Desirability and Utility in Schedule A are A, or Average. In short, the 1-year old structure is average as compared to other similar 1-year-old structures. The REL is calculated as 98%, which is a factor of .98. This means the structure has only depreciated by 2% (100% - 98% = 2%). The REL factor is entered on the computation ladder.

Total Base Price Structure					**75,060**
Quality Grade **C**	Year Built **2020**				
C	D	**G 1.00**	NH	A	Multiply by Comb. Fac. x 1.00
Age	1st Eff Age	2nd Eff Age	**CDU**	**Structure RCN =**	**75,060**
1	**1**	**1**	**A**	**REL .98**	**x .98**
Full Value Structural Shell					**73,559**

The RCN is finally multiplied by the REL factor resulting in the Full Value of the Structural Shell.

The interior finish cost will next be calculated on the ladder.

Interior Finish

Step 1 Age, Dimensions, and Finish

The interior finish is the same age as the exterior structure. It is 1-year old. There is only one level. The structure is used to house a retail business. Refer to the Interior Finish Schedules in Section B of Publication 126 beginning on page 29 to find the appropriate cost per square foot. Select the General Retail Finish cost on page 32. The description is as follows.

$44.46	**General Retail Store Interior Finish** Retail use cost per square foot includes typical interior construction and finish, insulation, heating, air conditioning, and typical lighting and plumbing normally found in retail uses. Typical plumbing consists of a water heater and one fixture for every 800 square feet. The shape and size adjustments have already be accounted for in the Section A shell structure type cost. Not included in the interior finish costs are elevators and sprinkler systems. Other features are to be priced from the subsidiary schedules or the CIP schedules. Costs do not include site improvements such as paving and exterior lighting.

Step 2 Determine SF per Level

There is only one level at 2,000 SF. Enter $44.46 on the computation ladder

Step 3 Multiply SF by the $/SF Cost

Multiply 2,000 by $44.46 to determine the Base Cost Interior Finish

Interior Finish Description				Computation
Interior Base Cost Computation			if appl.	
Finish & Area	SFFA	$/SF Cost	Apt. Factor	
1st/Main	2,000	44.46		88,920
Base Price Interior				88,920

Step 4 Adjustments

Read the interior description carefully to determine what is and what is not included in the square foot cost selected. An adjustment must be made for any other features. In this example, sprinklers are not included in the base so the cost must be added. Refer to the Sprinkler Schedule 36 included in Pub 126. It is also part of Publication 127.

36	Fire Sprinkler System	
Sprinkler costs include all interior heads, supply lines, and accessories. Wet system piping contains water at all times; dry pipe system contains air under pressure and is used in unheated areas where freezing might be encountered. For dry pipe systems, add 10% to the wet system prices. Pumps should be added to the costs below.		
Area Serviced	Cost per SFSA	
	Ordinary Hazard*	Extra Hazard**
Through 1,000 SF	$8.75	$13.10
1,001 - 2,000	$8.50	$12.75
2,001-5,000	$5.60	$8.40
5,001-10,000	$4.68	$7.00
Over	$4.20	$6.30
*Ordinary hazard occupancies include stores, commercial, offices, garages, factories, warehouses, etc. ** Extra hazard occupancies include aircraft hangers, chemical works, linoleum manufacturing, paint shops and varnish works, solvent extracting. etc.		

Record the calculation on the computation ladder. 2,000 SF x $8.50 = $17,000. Then, look for any other features that must have adjustments added or subtracted.

***Please note*:** Not every adjustment is made on a $/SF basis. Some adjustments are whole dollar amounts. Please refer to the schedules in IDOR's Publication 127 for all component costs. Publication 126 contains just a small sample of frequently used schedules for ease of use.

Interior Adjustments	
A/C	
Heat	
Sprinkler 2,000 SF x 8.50	17,000
Plumbing	
Other	
Subtotal Interior Adjustments	17,000
Total Base Price Interior	105,920

Note: Plumbing fixtures are typically included as a number of fixtures per so many thousand square feet. The description for General Retail Finish includes one fixture for every 800 SF as well as a water heater. There are 4 fixtures recorded on the property record card.

This translates to a total number of 4 fixtures: 3 fixtures plus 1 water heater. To calculate the number of fixtures that would be typical for a 2,000 SF structure, divide 2,000 by 800 for a total of 2.5 fixtures. 2.5 would be rounded up to 3 (because there cannot be a fraction of a plumbing fixture!) and then add the water heater for a total of 4 fixtures. Since 4 is the number of fixtures expected and present in the subject property, *no adjustment will be needed for plumbing*.

Step 5 Calculate

Multiply the SF cost by all adjusted items as needed and add to computation ladder. There are no other adjustments on this example. Total all adjustments to the base price.

Base Price Interior	**88,920**
Interior Adjustments	
A/C	
Heat	
Sprinkler **2,000 SF x 8.50**	**17,000**
Plumbing	
Other	
Subtotal Interior Adjustments	**17,000**
Total Base Price Interior	**105,920**

Step 6 Total Base Price Interior

Add the subtotal of all adjustments to the interior base price per SF.

Step 7 Assign Factors

The quality grade is C, so the factor is 1.00. There are no cost, design, neighborhood and appraiser factors assigned. Multiply all factors together to arrive at a single factor (1.00 in this example).

Quality Grade **C**		Year Remodeled					
C	D	**G 1.00**	NH	A	Multiply by Comb. Fac.	x **1.00**	
Age	1st Eff Age	2nd Eff Age	**CDU**	**Interior RCN**		**105,920**	
1	**1**	**1**	**A**	**REL .98**		**x .98**	
Full Value Interior Finish						**103,802**	
Total Full Value Interior and Exterior Shell						**177,361**	

Step 8 Determine RCN

Multiply the Total Base Price Interior by the combined factor to determine the Replacement Cost New (RCN).

Step 9 Determine REL

Determine the appropriate REL factor based on the Effective Age and CDU rating. Note that this may be substantially different than the age and CDU for the Structural Shell due to remodeling.

***Please Note*:** Most interior finishes will reference the Commercial REL table. Apartments, hotels and motels, and several other finishes require different tables. Be sure to carefully read each interior finish description to ensure the correct REL table is being used.

Multiply the RCN by the REL factor to determine the Full Value of the Interior Finish.

Quality Grade C	Year Remodeled				
C	D	G 1.00	NH	A	Multiply by Comb. Fac. x 1.00
Age	1st Eff Age	2nd Eff Age	CDU	Interior RCN	105,920
1	1	1	A	REL .98	x .98
Full Value Interior Finish					103,802
Total Full Value Interior and Exterior Shell					177,361

Step 10 Total Interior and Exterior Full Values

Total the Full Value Structural Shell and the Full Value Interior Finish to determine Full Value. The shell FV is $73,559 plus the interior FV is $103,802. Adding them together results in a Total Full Value of the structure of $177,361.

Summary of Other Exterior Improvements

Step 1 List All Other Improvements

For all other improvements, the Summary of Other Exterior Improvements section is used to record those items such as paving, awnings, canopies, etc. This example only has additional paving of the parking lot. The size of the improvement and the rate are recorded. The parking lot is the same age as the improvement. It is 1-year old.

Summary of Other Exterior Improvements (i.e. paving, signs, pa					
Type	Number	Construction	Size	Rate	Subtotal
Parking Lot	1	Asphalt	1300 SF	2.97	3,861

Step 2 Determine the Cost

The rate is determined to be $2.97 per square foot. Multiply this by the number of square feet (1300SF) for a subtotal cost for the improvement of $3,861.

The paving schedule is one of the most often-used cost schedules included in Pub 126. It is also among the many schedules in Pub 127. If a component is not easily located in the few schedules in Pub 126, always reference Pub 127 for more information.

62	Paving
Paving Type	
Asphalt	**Per SFGA**
Binder Course	
2" Thick	$1.59
3" Thick	$2.33
4" Thick	$3.07
Wearing Course	
1 1/2" Thick	$1.38
2" Thick	$1.76
2 1/2" Thick	$2.14
Light Traffic (Drive-ins, Parking Lots, etc.)	$2.97
Heavy Traffic (Truck Stops, Service Stations, etc.)	$5.21
Concrete	**Per SFGA**
6"	$3.65
8"	$4.73
9"	$5.75
Crushed Stone (includes Grading)	**Per SFGA**
3"	$0.70
6"	$1.22
9"	$1.88

Step 3 Apply factors, determine RCN and REL

The quality grade and factor are applied (C is average and the factor is1.00). That total represents the RCN, which then is multiplied by the appropriate REL. The REL in this case is the same as that of the exterior shell-the parking lot was completed at the same time as the building. Many times, a parking lot will be much newer than the original structure, which would result in a different age and CDU as well as a higher REL factor (accounting for less depreciation).

Please Note: cost and other factors may also be applied and multiplied for a combined factor for each improvement.

ving, signs, parking lot lighting, canopies, docks, store fronts, etc.)							
Subtotal	Grade	Factor	Replacment Cost New	AGE	CDU	REL	Full Value
3,861	C	1.00	3,861	1	A	0.98	3,784
		Total Full Value Other Improvements					3,784
		Total Full Value Exterior, Interior & Other					181,145

Multiply the factors by the subtotal, then multiply the RCN by the REL factor to get a full value for the parking lot of $3,784.

Step 4 Total

Total the other improvements, then add to the full value of the exterior and the interior as well for the total full value of all of the improvements.

Exterior shell full value $ 73,559
Interior finish full value $ 103,802
Other improvements full value $ 3,784
Total Full Value for the improvement $ 181,145

The following property record card examples follow the same steps. A full explanation is included where there are differences from Example 1.

Example 2 Structural Shell Type 4, 3-Story Medical Office Finish

The subject property is a 3-story commercial structure measuring 100' x 60'. It has three 6,000 SF levels plus the unfinished basement. It is built of reinforced concrete block and steel with a brick veneer exterior covering (Exterior Structural Shell Type 4). The property houses medical offices.

The structure and interior are 6 years old and quality grade **C**. The CDU is average. It has central heat, a/c and sprinkling as well as 46 commercial grade plumbing fixtures. There is also an elevator with 3 additional stops. There is also a 20,000 SF concrete parking lot and 12 single pole aluminum lights in the parking lot.

Exterior Structural Shell

Step 1
Age: 6
Construction: Type 4 reinforced concrete block
Dimensions: 60 x 100 = 6,000SF x 3 levels plus basement
L ÷ W = 1.667 = < 2 so Table 1 will be used in the cost tables

Step 2
Exterior cover: Brick veneer
Interior finish:Medical office levels 1,2,3

Step 3

SF base cost shell:	Table 1	Basement	$43.12
		Main level	$55.37
		2nd level	$33.54
		3rd level	$33.54

PRC 4-2019 **Example 2** **Property Record Card - Commercial - Industrial** **Type 4** **Medical Office**

Construction Specifications				Interior Finish and Floor Level						Data Bank	
Foundation				Retail		Restaurant		Multi-unit other		SFGA	6,000
X	Basement/Crawl		Slab	Office 1,2,3	X	Warehouse		Other		Length	100
Exterior Shell Type				Manufacturing		Recreation		Vacant		Width	60
2	Lt. Com. wood/ steel	6	Wood Post Fr.	Grocery		Convenience		Abandoned		Ratio L ÷ W	1.667
3	Conc. Blk. unreinf.	7	Steel Pre-eng.	Apartments		No.of Units		No. Rooms/ Unit		Perimeter	320
(4)	Conc. Blk. reinf.	8	Steel Struc FR	Avg. Unit Size SF				Apt. Unit Factor		No. Stories	Table (1) 2 3
5	Conc. Tilt-up	9	Steel Struc FP								

Exterior Wall Cover Material

	B	1	2	3	A
Vinyl/ Wood/ Metal					
Stucco/ Aluminum Siding					
Cedar/ Redwood/ Resin					
EIFS <2" thick					
Brick Veneer		X	X	X	
Stone Veneer					
Painted Concrete Block					
T-1-11 Plywood					
Aluminum/ Pine					
EIFS >2" thick					
Glass Curtain Wall					
Struc. Steel/ Aluminum					

Heat

	B	1	2	3	A
Central Warm Air		X	X	X	
Hot Water/ Steam					
Heat Pump					
Unit Heaters					
Other					
None					

Air Conditioning

	B	1	2	3	A
Central		X	X	X	
Heat Pump					
Unit					
None					

Roofing

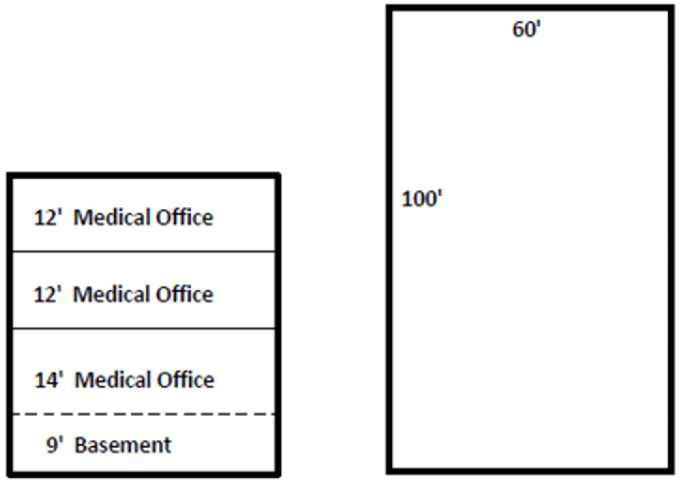
Shingle		Metal/Other	X
Composite		Slate	
Frame - Wood Steel Other			

Sprinklers

	B	1	2	3	A
None					
Present		X	X	X	

Plumbing Type and No. Fixtures

1 Residential	46	(2) Commercial	
3 Industrial		4 Specialty	



Memo

Exterior Description		Computation
WH	SFFA x $/SF Floor Cost x WH Adj. x Party Wall	
9'	Basement 6,000 SF x 43.12	258,720
14'	1st Floor 6,000 SF x 55.37	332,220
12'	2nd Floor 6,000 SF x 33.54	201,240
12'	3rd Floor 6,000 SF x 33.54	201,240
	Additional	
Total Base Price Structure		993,420
QuLity Grade C	Year Built 2015	

C	D	G	NH	A	Multiply by Comb. Fac.	x 1.00
Age	1st Eff Age	2nd Eff Age	CDU	Structure RCN =		
6	6	6	A	REL	x .88	

Full Value Structural Shell	874,210

Interior Finish Description				Computation
Interior Base Cost Computation			if appl.	
Finish & Area	SFFA	$/SF Cost	Apt. Factor	
1st/Main	6,000	71.67		430,020
2nd	6,000	71.67		430,020
3rd	6,000	71.67		430,020
Base Price Interior				1,290,060
Interior Adjustments				
A/C				
Heat				
Sprinkler 6,000 SF x 3 = 18,000 x 4.20				75,600
Plumbing - typical				
Other passenger elevator 97,500 + 21,540 (3 stops @ 7,180)				119,040
Subtotal Interior Adjustments				194,640
Total Base Price Interior				1,484,700
Quality Grade C	Year Remodeled 2014			

C	D	G	NH	A	Multiply by Comb. Fac.	x 1.00
Age	1st Eff Age	2nd Eff Age	CDU	Interior RCN		1,484,700
6	6	6	A	REL .88	x .88	

Full Value Interior Finish	1,306,536
Total Full Value Interior and Exterior Shell	2,180,746

Summary of Other Exterior Improvements (i.e. paving, signs, parking lot lighting, canopies, docks, store fronts, etc.)

Type	Number	Construction	Size	Rate	Subtotal	Grade	Factor	Replacment Cost New	AGE	CDU	REL	Full Value
Parking	1	6" concrete	20,000 SF	3.65	73,000	C	1.00	73,000	6	A	0.88	64,240
Lighting	12	Alum single-pole	20'	2,100	25,200	C	1.00	25,200	6	A	0.88	22,176

Listed by:

Date:

Total Full Value Other Improvements	86,416
Total Full Value Exterior, Interior & Other	2,267,162

Basement and Ground Floor costs per SF

Building Structural Shell Type 4:

Reinforced masonry walls, metal joists/ decks--PAGE 1

Structure type 4 has reinforced concrete block load bearing walls; upper floors with metal joists & decks having concrete fill

Basement floor size:	2,000	4,000	6,000	8,000	10,000	15,000	25,000	40,000
Length < 2x width	54.96	46.60	43.12	40.97	39.44	37.29	34.97	33.33
Length > 2 < 4x width	58.54	49.51	45.36	42.87	41.20	38.69	36.09	34.24
Length > 4x width	64.30	53.33	48.57	45.75	43.79	40.76	37.66	35.50
Ground floor size:	**2,000**	**4,000**	**6,000**	**8,000**	**10,000**	**15,000**	**25,000**	**40,000**
Exterior type			**Table 1**	**Length less that 2x width**				
Paint only	63.91	52.92	48.30	45.43	43.43	40.58	37.49	35.32
Stucco	69.46	56.80	51.49	48.19	45.87	42.60	39.05	36.54
EIFS	75.82	61.26	55.15	51.35	48.69	44.92	40.83	37.95
Brick veneer	76.21	61.53	55.37	51.54	48.86	45.06	40.94	38.03
Stone veneer	112.82	87.17	76.41	69.71	65.03	58.40	51.20	46.12

Upper Floor costs per SF

Building Structural Shell Type 4:

Reinforced masonry walls, metal joists/ decks--PAGE 2

Structure type 4 has reinforced concrete block load bearing walls; upper floors with metal joists & decks having concrete fill

Upper floor size:	2,000	4,000	6,000	8,000	10,000	15,000	25,000	40,000
Exterior type			**Table 1**	**Length less than 2x width**				
Paint only	37.48	30.43	27.47	25.62	24.34	22.51	20.53	19.13
Stucco	42.19	33.73	30.17	27.96	26.42	24.23	21.85	20.17
EIFS	47.72	37.60	33.35	30.71	28.86	26.24	23.40	21.39
Brick veneer	48.05	37.83	33.54	30.87	29.01	26.36	23.49	21.47
Stone veneer	79.82	60.08	51.80	46.64	43.04	37.94	32.39	28.49

Step 4
Wall height, as noted in the sketch, is typical according to Structural Shell Type 4 Schedule-no adjustment needed.

Step 5
Structure is free-standing. No party walls recorded.

Step 6

SF base cost shell: Table 1	Basement	$43.12 x 6,000SF =	$258,720
	Main level	$55.37 x 6,000SF =	$332,220
	2nd level	$33.54 x 6,000SF =	$201,240
	3rd level	$33.54 x 6,000SF =	$201,240
	Base Price Structure		**$993,420**

Step 7

Quality grade is C, so the factor is 1.00. No other factors are indicated for cost, design, neighborhood and appraiser. The combined factor is 1.00.

Step 8

Multiply the base price by the combined factor to determine RCN. $993,420 x 1.00 = $993,420.

Step 9

The age of the structure is 6. The CDU is Average. The corresponding REL factor is .88. Multiply the RCN ($993,420) x the REL factor (.88) to determine the Full Value of the Structural Shell- **$874,210**.

Schedule A						Schedule B	
Age* considering Physical Condition	Effective Age considering Desirability and Utility					2nd Effective Age	Remaining Economic Life Factor
Age	E	G	A	P	U	Age	REL
1	1	1	1	6	11	1	98
2	1	1	2	7	12	2	96
3	1	1	3	8	13	3	94
4	1	1	4	9	14	4	92
5	1	1	5	10	15	5	90
6	1	1	6	11	16	6	88
7	1	2	7	12	17	7	86
8	1	3	8	13	18	8	84
9	1	4	9	14	19	9	82

Interior Finish

Step 1

The interior finish is the same age as the exterior structure- 6 years-old. There are 3 levels plus an unfinished basement used for storage. Refer to the Interior Finish Schedule on page 30 of Publication 126.

$71.67	**Medical Office Interior Finish** Medical office finish cost per square foot includes typical interior construction and finish, insulation, heating, air conditioning, and typical lighting and plumbing normally found in medical, dental, and veterinary offices. Typical plumbing includes one fixture every 400 square feet. The shape and size adjustments have already been accounted for in the Section A shell structure type cost. Not included in the interior finish cost are elevators and sprinkler systems. Other features are to be priced from the subsidiary schedules or the CIP schedules. Costs do not include site improvements such as paving and canopies.

Step 2
Each level has 6,000 SF. Enter $71.67 for the cost for the 1st, 2nd, and 3rd floors. The unfinished basement cost is included in the structural shell cost, so no additional adjustment is needed.

Step 3
Multiply 6,000SF x 71.67 for each floor and add all 3 floors together to determine the Base Cost Interior Finish.

Interior Finish Description				Computation
Interior Base Cost Computation			if appl.	
Finish & Area	SFFA	$/SF Cost	Apt. Factor	
1st/Main	6,000	71.67		430,020
2nd	6,000	71.67		430,020
3rd	6,000	71.67		430,020
Base Price Interior				1,290,060

Step 4
According to information provided on the PRC, an adjustment is needed for sprinklers as well as for any elevators.

36	Fire Sprinkler System	
Sprinkler costs include all interior heads, supply lines, and accessories. Wet system piping contains water at all times; dry pipe system contains air under pressure and is used in unheated areas where freezing might be encountered. For dry pipe systems, add 10% to the wet system prices. Pumps should be added to the costs below.		
Area Serviced	Cost per SFSA	
	Ordinary Hazard*	Extra Hazard**
Through 1,000 SF	$8.75	$13.10
1,001 - 2,000	$8.50	$12.75
2,001-5,000	$5.60	$8.40
5,001-10,000	$4.68	$7.00
Over	$4.20	$6.30

The total SF Service Area (SFSA) would be 6,000 x 3 = 18,000SF. The cost selected would be $4.20 SFSA. Enter this cost on the computation ladder.

Elevators are also not included in the base cost for the Medical Office Finish type, so an adjustment must be made to add for the cost. Refer to Schedule 49 on page 34 of Publication 127. Elevator capacity can usually be found in the elevator or on plans and permits.

49	Passenger Elevators	
	Electric	
Costs include shaft, penthouse, cab and automatic controls for passenger-operated (push-button) elevator with power-operated doors. Deduct 10% for manual controls.		
Speed/FPM	**Capacity (Lbs.)**	**Cost per Elevator***
100	2,000	$86,000
	2,500	$98,500
	3,000	$105,000
150	2,000	$97,500
	2,500	$112,000
	3,000	$118,500
200	2,000	$103,700
	2,500	$127,300
	3,000	$128,600
250	2,000	$115,500
	2,500	$130,200
	3,000	$137,500
300	2,000	$122,500
	2,500	$137,500
	3,000	$145,000
350	2,000	$129,500
	2,500	$145,000
	3,000	$152,500
***Add for Each Stop**		$7,180

The building has 4 levels: basement, 1st, 2nd, and 3rd floors. The basement would be considered the 1st stop, included in the cost on Schedule 49. The 1st, 2nd, and 3rd floor would need additional "stops" added at $7,180 per stop. Enter the elevator cost of $97,500 and an additional $7,180 for each of the first, second, and third floors on the computation ladder ($7,180 x 3 = $21,540).

Interior Adjustments	
A/C	
Heat	
Sprinkler **6,000 SF x 3 = 18,000 x 4.20**	**75,600**
Plumbing - **typical**	
Other passenger elevator **97,500 + 21,540 (3 stops @ 7,180)**	**119,040**
Subtotal Interior Adjustments	**194,640**

Does the plumbing need an adjustment? What is "typical" plumbing for a medical office? Refer to the interior finish schedule for Medical Office. It indicates there is one fixture for every 400 SF. 18,000 SF ÷ 400 = 45 fixtures plus the water heater. 46 fixtures are indicated on the PRC, so no plumbing adjustment is necessary.

Step 5

Multiply the costs by all adjusted items as needed and add to the computation ladder. Total the adjustments.

Base Price Interior	1,290,060
Interior Adjustments	
A/C	
Heat	
Sprinkler 6,000 SF x 3 = 18,000 x 4.20	75,600
Plumbing - typical	
Other passenger elevator 97,500 + 21,540 (3 stops @ 7,180)	119,040
Subtotal Interior Adjustments	194,640
Total Base Price Interior	1,484,700

Step 6
Add the subtotal of all adjustments to the base price interior. The Total Base Price Interior is $1,484,700.

Step 7
The quality grade is C, or a factor of 1.00, and no other factors are indicated. So, the combined factor is 1.00.

Step 8
Determine the RCN by multiplying the total Base Price Interior ($1,484,700) by the combined factor (1.00) = $1,484,700.

Step 9
The REL factor is determined to be .88 for a 6-year-old structure with a CDU of A, or Average. It is the same as the structural shell.

Schedule A						Schedule B	
Age* considering Physical Condition	Effective Age considering Desirability and Utility					2nd Effective Age	Remaining Economic Life Factor
Age	E	G	A	P	U	Age	REL
1	1	1	1	6	11	1	98
2	1	1	2	7	12	2	96
3	1	1	3	8	13	3	94
4	1	1	4	9	14	4	92
5	1	1	5	10	15	5	90
6	1	1	6	11	16	6	88
7	1	2	7	12	17	7	86
8	1	3	8	13	18	8	84
9	1	4	9	14	19	9	82

Multiply the RCN ($1,484,700) by the REL factor (.88) for a Full Value Interior Finish of $1,306,536.

C	D	G	NH	A	Multiply by Comb. Fac.	x 1.00
Age	1st Eff Age		2nd Eff Age	CDU	Interior RCN	1,484,700
6	6		6	A	REL .88	x .88
Full Value Interior Finish						1,306,536

Step 10
Add the Full Value Structural Shell to the Full Value Interior Finish to get the Total Full Value of the Structure. $874,210 + $1,306,536 = $2,180,746.

C	D	G	NH	A	Multiply by Comb. Fac.	x 1.00
Age	1st Eff Age		2nd Eff Age	CDU	Interior RCN	1,484,700
6	6		6	A	REL .88	x .88
Full Value Interior Finish						1,306,536
Total Full Value Interior and Exterior Shell						2,180,746

Summary of Other Exterior Improvements

Steps 1 & 2
The listed improvements are parking and lighting. The concrete parking lot is 20,000SF. Select $3.65 from the No. 62 Paving Schedule (located in Pub 126 as well as in Pub 127).

62 Paving	
Paving Type	
Asphalt	Per SFGA
Binder Course	
2" Thick	$1.59
3" Thick	$2.33
4" Thick	$3.07
Wearing Course	
1 1/2" Thick	$1.38
2" Thick	$1.76
2 1/2" Thick	$2.14
Light Traffic (Drive-ins, Parking Lots, etc.)	$2.97
Heavy Traffic (Truck Stops, Service Stations, etc.)	$5.21
Concrete	Per SFGA
6"	$3.65
8"	$4.73
9"	$5.75

Also, lighting in the parking lot is listed on the PRC. The cost for lighting can be found on schedule 63, Yard Lighting. There are 12 lights. Aluminum single-pole lights have a cost of $2,100 each. 12 x $2,100 = $25,200.

63 Yard Lighting				
Type and Height	1 Arm	2 Arm	3 Arm	4 Arm
Aluminum				
20'	$2,100	$2,270	$2,440	$2,610
30'	$3,200	$3,560	$3,920	$4,280
40'	$4,000	$4,200	$4,400	
Steel				
20'	$2,460	$2,585	$2,710	$2,835
30'	$3,360	$3,450	$3,540	$3,630

Steps 3 & 4

The lighting and parking lot are the same age as the structure, and are of average quality, or grade C. There were no other factors indicated for cost, design, neighborhood, or appraiser. For each item, multiply the rate by the size or number, and then by the quality grade factor of 1.00 to determine RCN.

Summary of Other Exterior Improvements (i.e. paving, signs, parking lot lighting, canopies, docks,							
Number	Construction	Size	Rate	Subtotal	Grade	Factor	Replacment Cost New
1	6" concrete	20,000 SF	3.65	73,000	C	1.00	73,000
12	Alum single-pole	20'	2,100	25,200	C	1.00	25,200

Next, determine the REL (which is the same as for the structure) of .88. Refer to the Commercial REL Table in Publication 126 (or as used previously in this example for the Exterior Structural Shell).

Schedule A						Schedule B	
Age* considering Physical Condition	Effective Age considering Desirability and Utility					2nd Effective Age	Remaining Economic Life Factor
Age	E	G	A	P	U	Age	REL
1	1	1	1	6	11	1	98
2	1	1	2	7	12	2	96
3	1	1	3	8	13	3	94
4	1	1	4	9	14	4	92
5	1	1	5	10	15	5	90
6	1	1	6	11	16	6	88
7	1	2	7	12	17	7	86
8	1	3	8	13	18	8	84
9	1	4	9	14	19	9	82

Multiply the REL factor by the RCN to determine the Full Value for each improvement.

nting, canopies, docks, store fronts, etc.)				
Replacment Cost New	AGE	CDU	REL	Full Value
73,000	6	A	0.88	64,240
25,200	6	A	0.88	22,176

Add the Full Value of the Other Improvements to the Full Value Interior and Full Value Structural Shell. This result is the Total Full Value for the property, not including the land value.

ng lot lighting, canopies, docks, store fronts, etc.)						
de	Factor	Replacment Cost New	AGE	CDU	REL	Full Value
	1.00	73,000	6	A	0.88	64,240
	1.00	25,200	6	A	0.88	22,176
Total Full Value Other Improvements						86,416
Total Full Value Exterior, Interior & Other						2,267,162

Structural Shell Full Value = $874,210
Interior Finish Full Value = $1,306,536
Other Exterior Improvements = $86,416
Total Full Value = $ 2,267,162

Example 3
1-story Structural Shell Type 3, Restaurant Interior Finish

This is a 20-year-old 40’ x 100’ concrete block 1-story structure with a brick veneer exterior and an unfinished basement. It has central heat and air. There are sprinklers present on the main level. There are also 11 plumbing fixtures, as well as a walk-in cooler and a walk-in freezer.

The parking lot is concrete. The CDU is Good for the structural shell, and Average for the interior finish.

PRC 4-2019 **Example 3** **Property Record Card - Commercial - Industrial** **Exterior Type 3 Restaurant**

Construction Specifications

Foundation

X	Basement/Crawl		Slab

Exterior Shell Type

2	Lt. Com. wood/ steel	6	Wood Post Fr.
(3)	Conc. Blk. unreinf.	7	Steel Pre-eng.
4	Conc. Blk. reinf.	8	Steel Struc FR
5	Conc. Tilt-up	9	Steel Struc FP

Exterior Wall Cover Material

	B	1	2	3	A
Vinyl/ Wood/ Metal					
Stucco/ Aluminum Siding					
Cedar/ Redwood/ Resin					
EIFS <2" thick					
Brick Veneer		X			
Stone Veneer					
Painted Concrete Block					
T-1-11 Plywood					
Aluminum/ Pine					
EIFS >2" thick					
Glass Curtain Wall					
Struc. Steel/ Aluminum					

Heat

	B	1	2	3	A
Central Warm Air		X			
Hot Water/ Steam					
Heat Pump					
Unit Heaters					
Other					
None					

Air Conditioning

	B	1	2	3	A
Central		X			
Heat Pump					
Unit					
None					

Roofing

Shingle	X	Metal/Other	
Composite		Slate	
Frame - Wood Steel Other			

Sprinklers

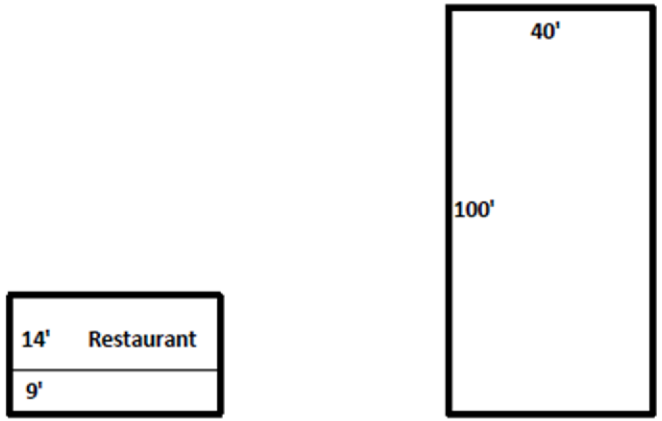
	B	1	2	3	A
None					
Present		X			

Plumbing Type and No. Fixtures

	1 Residential	11 (2)	Commercial
	3 Industrial		4 Specialty

Interior Finish and Floor Level

Retail		Restaurant	X	Multi-unit other			
Office		Warehouse		Other			
Manufacturing		Recreation		Vacant			
Grocery		Convenience		Abandoned			
Apartments		No.of Units		No. Rooms/ Unit			
Avg. Unit Size SF				Apt. Unit Factor			



Data Bank

SFGA	4,000
Length	100
Width	40
Ratio L ÷ W	2.5
Perimeter	280
No. Stories	Table 1 (2) 3

Exterior Description

			Computation
WH	SFFA x $/SF Floor Cost x WH Adj. x Party Wall		
9'	Basement 4,000 x 49.51		198,040
14'	1st Floor 4,000 x 43.91		175,640
	2nd Floor		
	3rd Floor		
	Additional		
Total Base Price Structure			373,680
Quality Grade C	Year Built	2001	

C	D	G	NH	A	Multiply by Comb. Fac.	x 1.00
Age	1st Eff Age	2nd Eff Age	CDU	Structure RCN =		373,680
20	20	15	G	REL		x .70
Full Value Structural Shell						261,576

Interior Finish Description

Interior Base Cost Computation			if appl.	Computation
Finish & Area	SFFA	$/SF Cost	Apt. Factor	
1st/Main	4,000	81.41		325,640
Base Price Interior				325,640
Interior Adjustments				
A/C				
Heat				
Sprinkler				
Plumbing				
Other walk-in cooler $13,250 and freezer $12,950				26,200
Subtotal Interior Adjustments				26,200
Total Base Price Interior				351,840
Quality Grade C	Year Remodeled 2001			

C	D	G	NH	A	Multiply by Comb. Fac.	x 1.00
Age	1st Eff Age	2nd Eff Age	CDU	Interior RCN		351,840
20	20	20	A	REL .60		x .60
Full Value Interior Finish						211,104
Total Full Value Interior and Exterior Shell						472,680

Memo

Summary of Other Exterior Improvements (i.e. paving, signs, parking lot lighting, canopies, docks, store fronts, etc.)

Type	Number	Construction	Size	Rate	Subtotal	Grade	Factor	Replacment Cost New	AGE	CDU	REL	Full Value
Parking Lot	1	6" Concrete	7,800 SF	3.65	28,470	C	1.00	28,470	20	A	0.60	17,082

Listed by:

Date:

Total Full Value Other Improvements 17,082

Total Full Value Exterior, Interior & Other 489,762

Example 3
1-story Structural Shell Type 3 Restaurant Interior Finish

Steps 1-6 Drawing, Data Bank and Cost Tables

Table 2 will be used for Structural Shell Type 3 and basement. (100' Length ÷ 40 Width = 2.5). There is a typical 9' height unfinished basement and a typical 14' main floor height.

Building Structural Shell Type 3:

Unreinforced concrete block walls, wood joists--PAGE 1

Structure type 3 has unreinforced concrete block load bearing walls, with wood joists & wood upper floors

Basement floor size:	2,000	4,000	6,000	8,000	10,000	15,000	25,000	40,(
Length < 2x width	54.96	46.60	43.12	40.97	39.44	37.29	34.97	33
Length > 2 < 4x width	58.54	49.51	45.36	42.87	41.20	38.69	36.09	34
Length > 4x width	64.30	53.33	48.57	45.75	43.79	40.76	37.66	35

The basement cost is $49.51/SF. Enter this on the Property Record Card and multiply by 4,000 SF on the computation ladder. $49.51 x 4,000 = $198,040.

Ground floor size:	2,000	4,000	6,000	8,000	10,000	15,000	25,000	40,000
Exterior type			**Table 1**	**Length less that 2x width**				
Paint only	38.52	31.63	28.74	26.94	25.68	23.90	21.96	20.59
Stucco	44.07	35.51	31.92	29.69	28.13	25.91	23.51	21.82
EIFS	50.43	39.97	35.58	32.85	30.94	28.24	25.29	23.22
Brick veneer	50.82	40.24	35.80	33.04	31.11	28.38	25.40	23.31
Stone veneer	87.43	65.88	56.84	51.22	47.28	41.72	35.66	31.40
Exterior type			**Table 2**	**Length from 2 to less than 4x width**				
Paint only	41.55	34.02	30.60	28.53	27.15	25.05	22.89	21.36
Stucco	47.82	38.48	34.23	31.66	29.95	27.35	24.67	22.76
EIFS	55.03	43.60	38.40	35.27	33.17	29.99	26.71	24.38
Brick veneer	55.46	43.91	38.66	35.49	33.36	30.15	26.84	24.48
Stone veneer	96.88	73.36	62.66	56.20	51.87	45.33	38.58	33.78

The main floor cost is $43.91. Remember to use Table 2. Enter this on the Property Record Card and multiply by 4,000 SF on the computation ladder. $43.91 x 4,000 = $175,640.

Data Bank		Exterior Description		Computation
SFGA	4,000	WH	SFFA x $/SF Floor Cost x WH Adj. x Party Wall	
Length	100	9'	Basement 4,000 x 49.51	198,040
Width	40	14'	1st Floor 4,000 x 43.91	175,640
Ratio L ÷ W	2.5		2nd Floor	
Perimeter	280		3rd Floor	
No. Stories	Table 1 (2) 3		Additional	
		Total Base Price Structure		373,680

The diagram and property description do not indicate wall height or party wall adjustments needed. Total the basement and 1st floor costs to determine the total base price of the structure. $198,040 + $175,640 = $373,680.

Step 7 Determine and Apply Factors

No adjustments are indicated on the PRC for Cost, Design, Grade, Neighborhood, or Appraiser factors. A factor of 1.00 (indicating no change) can be entered on the PRC.

Step 8 Determine the RCN

Multiply the total base price by the factor to determine the RCN of the structural shell.

Total Base Price Structure						373,680
Quality Grade C			Year Built	2001		
C	D	G	NH	A	Multiply by Comb. Fac.	x 1.00
					Structure RCN =	373,680

Step 9 Determine the REL factor

The restaurant is 20 years old. The assessor judges it to be in better than average condition based on other similar 20-year-old structures that are Type 3 concrete block construction. A CDU rating of **Good** is applied. Referring to the REL table, a 20-year-old structure (1st effective age) with a Good rating would translate to a 15-year-old 2nd effective age. The REL factor would be .70.

Schedule A						Schedule B	
Age* considering Physical Condition	Effective Age considering Desirability and Utility					2nd Effective Age	Remaining Economic Life Factor
Age	E	G	A	P	U	Age	REL
1	1	1	1	6	11	1	98
2	1	1	2	7	12	2	96
3	1	1	3	8	13	3	94
4	1	1	4	9	14	4	92
5	1	1	5	10	15	5	90
6	1	1	6	11	16	6	88
7	1	2	7	12	17	7	86
8	1	3	8	13	18	8	84
9	1	4	9	14	19	9	82
10	1	5	10	15	20	10	80
11	1	6	11	16	21	11	78
12	2	7	12	17	22	12	76
13	3	8	13	18	23	13	74
14	4	9	14	19	24	14	72
15	5	10	15	20	25	15	70
16	6	11	16	21	26	16	68
17	7	12	17	22	27	17	66
18	8	13	18	23	28	18	64
19	9	14	19	24	29	19	62
20	10	15	20	25	30	20	60
21	11	16	21	26	31	21	58

Multiply the RCN by the .70 factor to determine the Full Value of the Structural Shell. $373,680 x .70 = $261,576.

Age	1st Eff Age	2nd Eff Age	CDU	Structure RCN =	373,680
20	20	15	G	REL	x .70
Full Value Structural Shell					261,576

This completes the valuation of the Structural Shell.

Interior Finish-Restaurant

Step 1 Determine the Age, Finish type and SF

This property is finished as a restaurant. It does not appear to be refinished or updated in the last 20 years. It also appears to be of average quality and condition. It is 4,000 SF.

Step 2 Determine the SF Cost

Select the cost per square foot as indicated on the interior finish schedules. Note the items that are included and not included. All items that are considered real property must have adjustments on the PRC. The SF base cost is $81.41/SF.

$81.41	**Table Service Restaurant Interior Finish** The base square foot interior finish cost includes typical interior construction and finish, insulation, heating, air conditioning, and typical lighting and plumbing normally found in most restaurants. Typical plumbing includes two rest rooms with four fixtures each, a utility sink, food preparation sink, and a water heater. Also included is a sprinkler system including an extra protection grease and ventilation system in the cooking area. The shape and size adjustments have already been accounted for in the Section A shell structure type cost. Other features are to be priced from the subsidiary schedules or the CIP schedules. Not included are drive-up windows, walk-in refrigerators/ freezers, and exterior improvements such as paving, canopies, and signs.

Step 3 Multiply to determine the Base Price Interior

4,000 SF x $81.41= $ 325,640.

Interior Finish Description				Computation
Interior Base Cost Computation			if appl.	
Finish & Area	SFFA	$/SF Cost	Apt. Factor	
1st/Main	4,000	81.41		325,640
Base Price Interior				325,640

Step 4 Adjustments

Carefully note adjustments. In the restaurant interior finish, it may be difficult to determine which items are real versus personal property. Ventilation, fire suppression and refrigeration systems are usually considered real property-removal of these items would cause damage and loss of use/value to the property.

Heating and A/C, typical plumbing, restaurant ventilation, and sprinkling are all included in the interior base cost finish. There are 11 plumbing fixtures noted on the PRC by the assessor. That is the typical number included according to the interior finish schedule. No adjustment is necessary.

There is a walk-in cooler and a separate walk-in freezer that will need to be added to the PRC. These unit costs can be found in Publication 127, Component-in-Place Schedules.

47, cont.	Cold Storage Refrigeration, Doors, continued			
Walk-in Boxes-Prefab				
Cost includes complete galvanized unit 7'6" high, including doors, floors and refrigeration equipment. For wood exterior and interior, deduct 10%; without floor, deduct 6%.				
Size/SF		**32° F to 60° F**	**5° F to 31° F**	**Minus 15° to 5° F**
50	**Freezer**	$9,750	$12,950	$14,200
100	**Cooler**	$13,250	$19,250	$23,000
200		$20,500	$28,000	$36,750
300		$26,250	$36,350	$46,000
400		$33,500	$41,500	$51,000
500		$38,150	$48,200	$61,900

The 100 SF walk-in cooler has a value of $13,250. The 50 SF freezer has a value of $12,950.

Steps 5 & 6 Subtotal Adjustments and add to Base Price Interior

The adjustments made are a gross total, not a dollar per square foot total that needs to be multiplied by the number of square feet. The gross total of each refrigeration unit is added together and then added to the base price interior. $13,250 + $12,950= $26,200.

Interior Adjustments	
A/C	
Heat	
Sprinkler	
Plumbing	
Other **walk-in cooler $13,250 and freezer $12,950**	**26,200**
Subtotal Interior Adjustments	**26,200**
Total Base Price Interior	**351,840**

The Total Base Price Interior is $325,640 + $26,200 = $351,840.

Steps 7 & 8 Adjustment factors and Determine RCN

There are no additional factors to adjust the base price, so the factor is 1.00. Multiply by the Base Price Interior to determine the RCN. $351,840 x 1.00 = $351,840, which is the new RCN for the interior.

Step 9 Determine the REL and Full Value of the Interior

The interior is of average condition. Remember, the Structural Shell was considered in Good condition. This means that the REL factor will be different. Refer to the REL Table.

Schedule A						Schedule B	
Age* considering Physical Condition	Effective Age considering Desirability and Utility					2nd Effective Age	Remaining Economic Life Factor
Age	E	G	A	P	U	Age	REL
1	1	1	1	6	11	1	98
2	1	1	2	7	12	2	96
3	1	1	3	8	13	3	94
4	1	1	4	9	14	4	92
5	1	1	5	10	15	5	90
6	1	1	6	11	16	6	88
7	1	2	7	12	17	7	86
8	1	3	8	13	18	8	84
9	1	4	9	14	19	9	82
10	1	5	10	15	20	10	80
11	1	6	11	16	21	11	78
12	2	7	12	17	22	12	76
13	3	8	13	18	23	13	74
14	4	9	14	19	24	14	72
15	5	10	15	20	25	15	70
16	6	11	16	21	26	16	68
17	7	12	17	22	27	17	66
18	8	13	18	23	28	18	64
19	9	17	19	24	29	19	62
20	10	15	20	25	30	20	60
21	11	16	21	26	31	21	58

The REL factor for a 20-year-old interior in average condition is .60. Multiply the RCN ($351,840) by the REL (.60) to determine the Full Value of the Interior Finish ($211,104).

C	D	G	NH	A	Multiply by Comb. Fac.	x 1.00
Age	1st Eff Age		2nd Eff Age	CDU	Interior RCN	351,840
20	20		20	A	REL .60	x .60
Full Value Interior Finish						211,104

Step 10 Total Full Value

Add the Full Value of the Structural Shell to the Full Value of the Interior Finish to determine the Full Value of the Structure. $261,576 + $211,104 = $472,680

Full Value Structural Shell	261,576
Full Value Interior Finish	211,104
Total Full Value Interior and Exterior Shell	472,680

Summary of Other Improvements

Steps 1 & 2 Note the Improvement, Type and Size

There is a concrete parking lot that is recorded on the PRC. It is 7800 SF. Find the appropriate cost in the shortcut in Publication 126 (the schedule is also located in Publication 127).

Summary of Other Exterior Improvements (i.e. paving, signs, pa					
Type	Number	Construction	Size	Rate	Subtotal
Parking Lot	1	6" Concrete	7,800 SF	3.65	28,470

Concrete	Per SFGA
6”	$3.65
8”	$4.73
9”	$5.75

Multiply the $3.65 rate by the 7,800 SF for a Subtotal of $28,470.

Step 3 Determine Any Factors and the RCN

The parking lot appears to be the same age as the restaurant. If there is a new parking lot, the REL factor can be adjusted. Otherwise, the REL for a 20-year-old improvement in Average condition is .60. RCN ($28,470) x REL (.60) = $17,082 Full Value

aving, signs, parking lot lighting, canopies, docks, store fronts, etc.)							
Subtotal	Grade	Factor	Replacment Cost New	AGE	CDU	REL	Full Value
28,470	C	1.00	28,470	20	A	0.60	17,082

Step 4 Total the Structural Shell, Interior Finish and Other Improvements

Full Value Other ($17,082) + Full Value Interior and Exterior ($472,680) = Total Full Value Exterior, Interior and Other ($489,762).

lot lighting, canopies, docks, store fronts, etc.)					
Factor	Replacment Cost New	AGE	CDU	REL	Full Value
1.00	28,470	20	A	0.60	17,082
Total Full Value Other Improvements					17,082
Total Full Value Exterior, Interior & Other					489,762

Example 4: 1-story Structural Shell Type 3, General Office Finish

Complete the following PRC and answer the following questions using the information provided on the PRC and Publication 126.

1. What is the age (in years) of the structural shell? _____
2. What Table is used for the structural shell as determined by the L ÷ W ratio? _____
3. What is the REL for the exterior structural shell? _____
4. What is the $/SF Cost for the 1st floor structural shell? _____
5. What is the dollar adjustment for plumbing fixtures? _____
6. What is the dollar adjustment for sprinklers? _____
7. What is the Full Value of the parking lot? _____
8. What is the Full Value of the Exterior, Interior and Other? _____

PRC 4-2019 **Example 4** **Property Record Card - Commercial - Industrial** **Type 3/General Office**

Construction Specifications

Foundation

X	Basement/Crawl		Slab

Exterior Shell Type

2	Lt. Com. wood/ steel	6	Wood Post Fr.
3	Conc. Blk. unreinf.	7	Steel Pre-eng.
4	Conc. Blk. reinf.	8	Steel Struc FR
5	Conc. Tilt-up	9	Steel Struc FP

Exterior Wall Cover Material

	B	1	2	3	A
Vinyl/ Wood/ Metal					
Stucco/ Aluminum Siding					
Cedar/ Redwood/ Resin					
EIFS <2" thick					
Brick Veneer		X			
Stone Veneer					
Painted Concrete Block					
T-1-11 Plywood					
Aluminum/ Pine					
EIFS >2" thick					
Glass Curtain Wall					
Struc. Steel/ Aluminum					

Heat

	B	1	2	3	A
Central Warm Air		X			
Hot Water/ Steam					
Heat Pump					
Unit Heaters					
Other					
None					

Air Conditioning

	B	1	2	3	A
Central		X			
Heat Pump					
Unit					
None					

Roofing

Shingle		Metal/Other	X
Composite		Slate	
Frame - Wood	Steel	Other	

Sprinklers

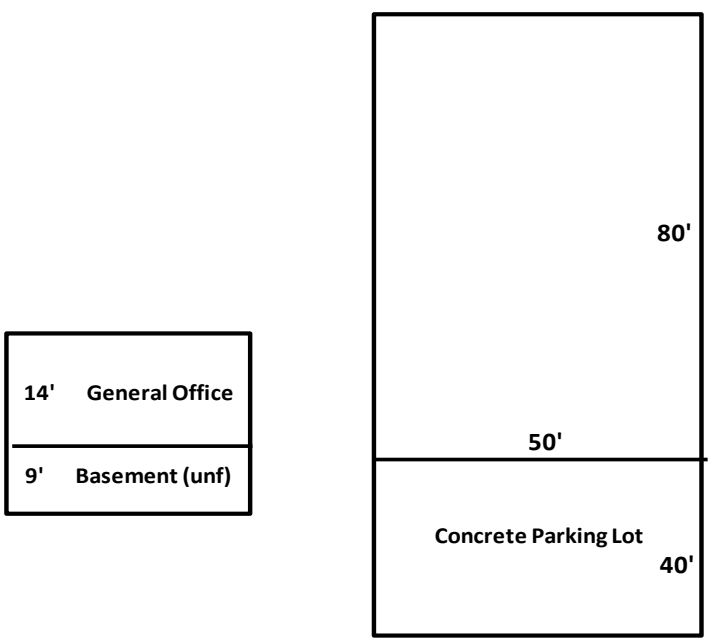
	B	1	2	3	A
None					
Present		X			

Plumbing Type and No. Fixtures

	1 Residential	7	2 Commercial
	3 Industrial		4 Specialty

Interior Finish and Floor Level

Retail		Restaurant		Multi-unit other		SFGA		
Office	X	Warehouse		Other		Length		
Manufacturing		Recreation		Vacant		Width		
Grocery		Convenience		Abandoned		Ratio L ÷ W		
Apartments		No.of Units		No. Rooms/ Unit		Perimeter		
Avg. Unit Size SF				Apt. Unit Factor		No. Stories 1	Table 1 2 3	



Memo

Data Bank

Exterior Description **Computation**

WH	SFFA x $/SF Floor Cost x WH Adj. x Party Wall	
	Basement	
	1st Floor	
	2nd Floor	
	3rd Floor	
	Additional	
	Total Base Price Structure	

Quality Grade **C** Year Built **1970**

C	D		NH	A	Multiply by Comb. Fac.	
Age	1st Eff Age	2nd Eff Age	CDU	Structure RCN =		
			A	REL	x	

Full Value Structural Shell

Interior Finish Description **Computation**

Interior Base Cost Computation			if appl.	
Finish & Area	SFFA	$/SF Cost	Apt. Factor	
1st/Main Gen Office				
Base Price Interior				
Interior Adjustments				
A/C				
Heat				
Sprinkler				
Plumbing				
Other				
Subtotal Interior Adjustments				
Total Base Price Interior				

Quality Grade **C** Year Remodeled 2010

C	D	G	NH	A	Multiply by Comb. Fac.	x
Age	1st Eff Age	2nd Eff Age	CDU	Interior RCN		
			A	REL	x	

Full Value Interior Finish

Total Full Value Interior and Exterior Shell

Summary of Other Exterior Improvements (i.e. paving, signs, parking lot lighting, canopies, docks, store fronts, etc.)

Type	Number	Construction	Size	Rate	Subtotal	Grade	Factor	Replacment Cost New	AGE	CDU	REL	Full Value
Parking Lot	1	6" Concrete (lt)				C			11	A		

Listed by:

Date:

Total Full Value Other Improvements

Total Full Value Exterior, Interior & Other

Unit 5- Summary

The Appraisal Publications assist with a mass appraisal system.

The schedules in the manual are based on construction costs in central Illinois.

The values given are also based on construction using average quality materials and workmanship.

There are various factors that can be applied to adjust Publication 126 to reflect the values in various jurisdictions.

There are Exterior Structural Shell Types based on construction type and materials as well as Interior Finish Types that can be referenced in Publication 126 in order to value many combinations of buildings with commercial uses.

For buildings larger than what the schedules allow, Publication 127 and the component-in-place (CIP) method should be used.

The base cost is the cost indicated in the schedules representing the cost of construction in central Illinois per square foot of the structure.

Other features not included in the base cost should be priced from the subsidiary schedules or applicable CIP schedules in Publication 127.

Common adjustments may include the following:

- Wall height
- Party Walls
- Apartment factors
- Sprinklers
- Plumbing

There can be features outside the main building structure which may be of a different age, quality and condition of the structure. They may include the following:

- Signage
- Parking lots
- Sidewalks and other concrete work
- Outbuildings, etc.

The commercial schedules are used in conjunction with the commercial property record cards (PRC-3 and PRC 4-2019).

PRC 4-2019 is used for listing construction specifications, property use, and for computing building values.
PRC-3 (on the opposite side of PRC-4) is used for valuing commercial or industrial land.

If a building has construction features other than those included in the base cost schedules, adjustments to the base cost must be made.

Unit 5- Review questions

1. T or F A Type 2 Structural Shell measures 70' x 100'. The first floor has a wall height of 16'. A wall height adjustment factor would be needed.

2. T or F The same Type 2 Structural Shell as in question 1 would reference Table 2 in the cost schedule.

3. T or F The replacement cost new minus the depreciation equals the full value of the structure.

4. T or F An apartment factor is used to reflect the increased costs of kitchens and baths in structures with smaller unit sizes.

5. T or F An Exterior Structural Shell can be of a different age, quality grade and condition than the Interior Finish.

6. T or F Features that are not included in the SF base cost may be found in Publication 127.

7. T or F IDOR's Property Record Card 4 is used to record owner name and mailing address, PIN, and land values.

8. T or F The typical number of plumbing fixtures included in an interior finish may be adjusted by the observed or recorded number of fixtures.

Unit 6- The Income Approach

This unit covers the ways in which the IRV formula is used to calculate the income of a property, the capitalization rate for a property, and the market value for a property. It also demonstrates how to derive the net operating income of a property to more accurately determine value.

The purpose of this unit is to provide a basic understanding of how the IRV formula can be utilized in the assessment process of income producing properties.

Learning Objectives

After completing the assigned readings, you should be able to determine

- the capitalization rate for a property when given the net income and the value.
- the value for a property when given the cap rate and income.
- the income for a property when given the cap rate and value.
- the potential gross income (PGI) for a property.
- the vacancy and collection losses for a property when given the market standard percentage.
- the effective gross income.
- allowable expenses.
- the net operating income.

Terms and Concepts

IRV Formula
Building capitalization rate
Land capitalization rate
Net income
Market value
Potential gross income (PGI)
Vacancy and collection losses
Effective gross income (EGI)
Allowable expenses
Please **V**iew **M**y **E**lectronic **E**mail **R**ight **N**ow
Market or Economic rent
Contract rent

The Income Approach

Income-producing properties, such as hotels, nursing homes, apartments, and offices are often valued based on the net income these properties produce for their owners.

The **Income Approach** has its widest application in the appraisal of income-producing property. Commercial property is usually bought and sold on its ability to generate and maintain a stream of income for its owner.

The value of such property is a measure of the amount, quality, and durability of the future net income the property can be expected to return to its owner.

The justified price paid for income-producing property is no more than the amount of investment required to produce a comparably desirable return. In addition, since the market can be analyzed to determine the net return anticipated by investors, it follows that the value of income-producing property can be derived from the income the property can produce, or its potential gross income.

Capitalization

The process for converting the net income produced by property into an indication of its value is called capitalization.

The capitalization rate can be determined by dividing the income a property produces by the market value of the property.

Market value (V) = net income (I) ÷ capitalization rate (R) $\frac{I}{R \times V}$

Income

If one knows the net income of a property and the value, to find the appropriate capitalization rate, cover up the “R” in the formula which leaves I divided by V.

Divide the net income “I” by the value “V” to get the capitalization rate “R.”

Net Operating Income

Net operating income is basically the gross income received minus the expenses. It represents the “net”, or “return” to the investor.

To arrive at net operating income, use the following formula:

Potential Gross Income (PGI)
– **V**acancy and collection losses
+ **M**iscellaneous income
= **Effective Gross Income (EGI)**
– **A**llowable Expenses
– **R**eserves for replacements **(RR)**
= **Net Operating Income (NOI)**

The **Potential Gross Income (PGI)** is the **economic rent** for a property at 100 percent occupancy, 100 percent of the time.

When estimating the PGI, it is important to base it on economic, or **market rent**, which may not be the same as contract rent.

Economic or market rent is rent based on market standards, or the rent of similar properties in the area.

Contract rent is the rent the property is actually receiving, based on a lease or other agreement.

For instance, an investor of the subject 10-unit apartment building leases the 1-bedroom units for $700/month. In this area, other investors are typically leasing their 1-bedroom units for $800/month. To determine the Potential Gross Income for the Subject Property, the $800/month figure would be used as the PGI ($800 x 10 units x 12 months), not the actual $700. The owner of the subject building could be (potentially) receiving rents of $800/month.

Vacancy and Collection Loss

It is highly unlikely that a property will be rented to 100 percent capacity at all times, so a deduction for "vacancy loss" is allowed. The amount of the deduction is based on market standards, or the vacancy rate typical for the area. At least some vacancy is to be expected for the repair and maintenance downtime between tenants.

Deductions are also allowed for "collection losses." Collection losses are losses that result from tenants' failure to pay rent. These losses are also based on market standards, or collection losses typical for the area.

Amounts deducted for both vacancy and collection losses will be a percent of the PGI.

Miscellaneous Income

Income property can also generate income from sources other than rent. For example, an apartment building may have laundry facilities, vending machines, or locked storage areas. The owner may also receive monies for parking spaces. This **Miscellaneous Income** is an addition to the potential gross income resulting in the **Effective Gross Income**.

Effective Gross Income

The Effective Gross Income (EGI) is calculated by estimating the PGI, subtracting the appropriate amounts for vacancy and collection losses, and adding any miscellaneous income.

From the EGI, the allowable expenses and reserves for replacements are subtracted to arrive at the Net Operating Income (NOI).

Allowable Expenses

Allowable expenses are the expenses necessary for the operation of the business to keep it competitive with other properties in the area. Some examples of allowable expenses are

- salaries,
- utilities,
- management,
- insurance,
- supplies,
- materials,
- repairs, and
- maintenance.

For assessment purposes, certain expenses are not allowed when calculating the net operation income. They include:

- property taxes,
- debt service (mortgage and interest), taken into consideration in the capitalization rate,
- income taxes,
- depreciation,
- capital improvements, and
- owner's business expenses that are not necessary for maintaining the rent produced by the property.

Reserves for Replacements

The final deduction is for **Reserves for Replacements**. The parts of a structure that must be replaced before the building reaches the end of its economic life have an annual expense deduction.

Examples of items for this category are carpeting, floor coverings, roofing, appliances, heating, and air conditioning.

How to Determine Capitalization

After accounting for these components of the income statement used to find NOI, determine which form of the capitalization rate (the "R" in the IRV formula) should be used: the building capitalization rate, or the land capitalization rate.

If the property has a building, the Building capitalization rate is used.

The **Building capitalization rate** is comprised of **three** rates:

- an effective tax rate,
- a recapture rate, and
- a mortgage interest rate.

If the property consists of land that is bare and unimproved, the Land capitalization rate is used.

The **Land capitalization rate** includes only **two** rates:

- an effective tax rate, and
- a mortgage interest rate.

The **Effective Tax Rate** is the rate determined by multiplying the level of assessment by the aggregate (total) tax rate supported by an individual property. It is used to calculate property taxes by applying the effective tax rate to the full market value.

The **Mortgage Interest Rate** is the interest rate used to convert future payments into present value.

The **Recapture Rate** is used to describe the rate of recovery of an investment in a wasting asset—one that becomes less valuable because it is used up.

The recapture rate is not used when determining the capitalization rate for bare and unimproved land. This is because the recapture rate describes the rate of recovery of an investment in a wasting asset; one that becomes less valuable because it is used up. Land does not generally depreciate or become used up, so it is not a wasting asset.

For class purposes, **a gravel parking lot is not considered improved land**. Therefore, no recapture rate is used in the cap rate. **Only use the effective tax rate and the mortgage interest rate.**

***A paved lot is considered improved (it can depreciate)** and the cap rate will be calculated using all three rates.

Value is simply the market value, or what a sale of the real estate would bring on the open market.

Example of Determining a Value Using the Income Approach

An apartment building has 15 units that rent for $500 per month. The allowable expenses are $50 per unit, per month. The appropriate capitalization rate is 10.25 percent. What is the value of the building?

IRV formula = $\frac{I}{R \times \bigcirc}$ Divide I (Net Operating Income) by R (the capitalization rate).

To arrive at a value, identify the net operating income and the appropriate capitalization rate.

1. Determine the potential gross income.
15 (units) x $500 per unit x 12 (months) = PGI $90,000

2. Determine the annual allowable expenses.
15 (units) x $50 per unit x 12 (months) = – Exp – $9,000

3. Determine the net operating income
$90,000 - $9,000 = NOI $81,000

4. Apply the IRV formula

IRV formula = $\frac{I}{R \times \bigcirc}$ $\frac{81,000}{.1025}$ = $790,244

The value of the property is **$790,244**.

Exercise 6-1 IRV Formulas

Using the IRV formula, complete the following questions.

1. A retail building recently sold for $900,000. The net annual income is $135,000.

   What is the capitalization rate? _____

2. A small office building provides its owner with a net annual income of $27,400. The appropriate capitalization rate is 9.35 percent.

   What is the value of this office building? _____

3. The capitalization rate for an office building is 11.3 percent. This building recently sold for $452,600.

   What is the net annual income? _____

4. An apartment building recently sold for $375,700. The net annual income for this building $53,428.

   What is the capitalization rate? _____

5. An apartment building has 20 units that rent for $350 per month. The allowable expenses are $25 per unit, per month. The capitalization rate is 12.54 percent.

   What is the value of this building? _____

6. An asphalt parking lot recently sold for $267,900. The mortgage interest rate is 9.25 percent, the recapture rate is 2.54 percent, and the effective tax rate is 2.00 percent.

   What is the parking lot's net annual income? _____

Exercise 6-2 Income Analysis

In this exercise, prepare an income statement to determine the net operating income and value for an improvement.

The formula for arriving at a net operating income is:

	Potential Gross Income (PGI)
–	**V**acancy and collection losses
+	**M**iscellaneous income
=	**Effective Gross Income (EGI)**
–	**A**llowable Expenses
–	**R**eserves for replacements **(RR)**
=	**Net Operating Income (NOI)**

The net operating income (NOI) is the income that is used in the IRV formula to determine the value of an improvement.

There are several steps to follow in preparing an income statement. First, determine the potential gross income (PGI). Remember, PGI is the economic or market rent for a property at 100 percent occupancy.

The next step is to determine the vacancy and collection losses. The market currently is indicating that a 3% loss is typical for the area.

Now add in miscellaneous income. This is any income other than rent, and it may come from several sources such as parking, coin-operated laundry facilities, vending, etc.

Subtract the vacancy and collection losses from the PGI and add in the miscellaneous income to determine the effective gross income (EGI).

The next step is to determine the adjustments for allowable expenses. Allowable expenses are the expenses that are reasonable, typical, and necessary for the operation of the business. In preparing the income statement, taxes and interest are not considered allowable expenses. This is because taxes and interest are reflected in the capitalization rate.

For this exercise, go through the 14 categories listed under “Expenses,” select the appropriate amounts, and write them on the appropriate lines. Add these amounts to arrive at the total allowable expenses.

The final step in the formula is to subtract allowable expenses from the effective gross income to arrive at the net income.

A mnemonic that can be used to remember the order of the formula is:

Please		**Potential Gross Income (PGI)**
View	–	**V**acancy and collection losses
My	+	**M**iscellaneous income
Electronic	=	**Effective Gross Income (EGI)**
Email	–	**E**xpenses
Right	–	**R**eserves for replacements **(RR)**
Now	=	**Net Operating Income (NOI)**

Income and analysis statement

Evaluate the income and expense statement below to develop the current net annual income. Determine which expenses are allowed and enter the amount in the last column. Use the above formula to derive NOI. Then use IRV to determine value.

Income Information	**Allowed**		**Amount**
Rents received	YES		$ 113,845
Vacancy and collection loss 3%			
Parking spaces		2,400	
Vending and laundry		1,500	
Effective gross income			
	------	-----	-----
Expenses:	------	-----	-----
Management		$4,500	
Administrative		200	
Fuel		2,800	
Electrical		360	
Water		155	
Income tax		13,000	
Scavenger (trash removal)		975	
Paint and painting supplies		800	
Property tax		16,000	
Fur coat for M.M.		4,525	
Reserves for replacement		6,250	
Insurance		500	
Mortgage interest		7,250	
Janitor		3,600	
Total allowable expenses	-----		
Net operating income	-----		

Net operating income = $_____

Overall capitalization rate = 14.3 percent

Value of property = $ _____

$$\frac{I}{R \times V}$$

Unit 6- Summary

$$\frac{I}{R \times V}$$

I = Net income
R = Capitalization rate
V = Market value

	Potential Gross Income (PGI)
–	**V**acancy and collection losses
+	**M**iscellaneous income
=	**Effective Gross Income (EGI)**
–	**A**llowable Expenses
–	**R**eserves for replacements **(RR)**
=	**Net Operating Income (NOI)**

Please
View
My
Electronic
Email
Right
Now

Building cap rate = effective tax rate + mortgage interest rate + recapture rate

Land cap rate = effective tax rate + mortgage interest rate

Capitalization rate - the rate of return on a real estate investment property based on the income that the property is expected to generate. The capitalization rate is used to estimate the investor's potential return on his or her investment.

Effective tax rate - the total tax rate determined by applying the aggregate tax rate to an individual property's market value.

Mortgage interest rate - the rate of interest charged by the lender in addition to the principal.

Recapture rate - the rate of recovery of a wasting asset, one which becomes less valuable over time.

Unit 6- Review questions

1. A 100-space paved parking lot rents for $30 a month per space. The effective tax rate is 2.54 percent, the mortgage interest rate is 9.35 percent, and the recapture rate is 3.00 percent.

   What is the value of the parking lot? $_____

2. A 2-story commercial building has a value of $960,000. The building provides its owner with a monthly net income of $6,000 per floor. This is well in line with similar properties.

   What is the building capitalization rate? _____

3. Unimproved land used as a parking lot recently sold for $270,000. The recapture rate is 3.25 percent, the mortgage interest rate is 8.15 percent, and the effective tax rate is 2.50 percent.

   What is the net income of this parking lot? $_____

4. A 12-unit apartment building has (6) 1-bedroom units, (4) 2-bedroom units, and (2) 3-bedroom units. The 3-bedroom units rent for $1200 a month, the 2-bedroom units rent for $875 a month, and the 1-bedroom units rent for $600 a month. Similar properties in the area have recorded their monthly income to be at $10,000 a month.

   What is the potential gross income of this apartment building? $_____

5. An office building has a potential gross income of $152,176. The vacancy and collection loss is 4%.

   What is the dollar amount of the vacancy and collection loss? $_____

   What is the effective gross income? $_____

Unit 7- The Sales Comparison Approach

This unit covers the adjustments to comparable properties to arrive at a value for the subject property.

The purpose of this unit is to provide a basic understanding of how the sales comparison, or market approach method of appraisal can be used to determine a value.

Learning Objectives

After completing the assigned readings, you should be able to

- compute the gross income multiplier, the net income, the overall rate, and the unit price, for a property.
- make the necessary adjustments.
- select the property that is most comparable to the subject property.
- identify three indications of value and select the best one for the subject property.

Terms and Concepts

Unit price
Gross income multiplier (GIM)
Gross rent
Sales price
Units
Overall rate
Adjusted sales price
Adjusted unit price

Sales Comparison, or Market Approach

The sales comparison, or market approach is one of the three methods (cost approach, income approach, sales comparison approach) which an assessor can use to value property for assessment purposes. Sales of properties that are similar to the subject (the one that is to be valued) are compared and adjusted to reflect similar and dissimilar features to arrive at a fair market value.

The sales comparison approach is dependent on the availability of recent sales of comparable properties and the validity of the appraisers' judgments made regarding their similarities and differences.

Consideration must be given to all the tangible and intangible factors influencing value.

- location
- size
- date of sale
- construction
- age
- physical features
- condition
- desirability, and usefulness (or utility)
- property rights

The appraiser adjusts the comparable sales to the subject property.

If the comparable property is **superior** in some manner to the subject property, the sales price of the comparable property is adjusted **downward** to the subject property.

Likewise, if the comparable property is **inferior** in some manner to the subject property, the sales price of the comparable property is adjusted **upward** to the subject property. An easy way to remember the adjustments is:

Comp Superior, Subtract (-)
Comp Inferior, Increase (+)

Adjustments

For example, an adjustment may be warranted if several comparable industrial warehouse sales are alike in every way except two are located near an interstate highway and the other sales are located a mile away from any major roadway. If the properties by the interstate sold for more than the non-interstate properties and the subject is by an interstate, then the location seems to be a factor affecting price.

An **upward adjustment** would be required before the inferior sales can be used to estimate the value of the subject property located next to the interstate.

A **downward adjustment** may be necessary if comparable sales are superior to the subject property because they have a railroad spur and the subject property does not. The significance of this approach is in its ability to estimate value that directly reflects the activity of buyers and sellers in the market.

The time (how many months ago) the sale occurred is important because the value of real estate varies over time with changing economic and property conditions. Unlike residential real estate appraisal, the selection of comparable commercial properties may often occur in areas outside of the jurisdiction and may be sales that occurred over 1 year ago. This is based on the fewer number of commercial properties, fewer sales, and a wider search for sold properties.

Units of Comparison – the Gross Income Multiplier and Unit Price

The Gross Income Multiplier (GIM) is used in commercial real estate to roughly value a property in order to make an **investment** decision. It is a ratio of property value to gross income. It is a multiplier, not a percentage.

To arrive at a GIM, divide the sales price by the gross rent.

GIM = Sales Price ÷ Gross Rent (Gross Income) or GIM = $\frac{SP}{GI}$

The first step in calculating a GIM is to select several comparables from which sufficient information can be developed. Such comparable properties should be similar in terms of size, price, location, rents, etc.

Example: Gross Income Multiplier
The subject property has a gross income of $50,000. A comparable sale with a gross income of $56,000 and a selling price of $392,000 is found. (In actual practice, several comparables would be located and analyzed.)

$$\text{GIM} = \frac{\text{Sale Price}}{\text{Gross Income}}$$

$$\text{GIM} = \frac{\$392,000}{\$56,000} = 7$$

The comparable sold for 7 times its gross income. This multiplier can be used with the subject property to arrive at a value:

GIM = SP ÷ GI or V (SP) = GIM x GI = 7 x $50,000 = $350,000

The value for the subject property could be estimated at $350,000.

The **Unit Price** is calculated by taking the sales price of the entire property (adjusted to reflect current value) divided by the number of units (apartments, offices, storage units, etc.)

Unit Price = Adjusted Sales Price ÷ Number of Units or $UP = \frac{\text{Adj. SP}}{\text{\# Units}}$

The adjusted Sales Price is used because it is necessary to reflect what the current sales price would be today, not when the property last sold.

The first step in the sales comparison approach is to gather information on comparable properties that have sold. Once the information is gathered, the assessor should study the properties to determine if any adjustments are needed.

The GIM can be used to quickly survey the market for investment opportunity by filtering out properties with a low sales price relative to gross income. It is somewhat limited due to not considering the expenses associated with a property. It would also not be a good indicator of value for an owner-occupied property.

Exercise 7-1 Apartment Building Sales Comparison

The following 5 sales presented in the analysis grid were selected as the most comparable to the subject property. All the sales are located in the subject's market area. First determine what units of comparison to use to arrive at a value for the subject. Use two units of comparison: the unit value and a GIM to estimate the market value of the subject property. Then determine which method of comparison results in the best indication of value. To calculate an overall cap rate for the property, use the IRV formula to find the rate.

Market Data

The subject property is a 24-unit apartment building with 11 efficiencies and 13 one-bedroom apartments. The annual gross rent is $113,845 and expenses are $26,162. The subject was built 12 years ago. It has vinyl siding over a wood frame and average quality of construction.

An analysis of all apartment property sales within the neighborhood indicates an annual market increase of 5 percent. The following 5 sales presented in the analysis grid were selected as the most comparable to the subject property.

Sale 1- 107 Capitol

The property at 107 Capitol, built 12 years ago of vinyl siding on a wood frame, is in a condition that is inferior to the subject property. The subject property is in a better location than the property at 107 Capitol.

Sale 2- 455 Main

The property at 455 Main, also built 12 years ago of average quality construction, has vinyl siding on a wood frame. It sold one year ago. It is of average condition. The location is superior to the subject property.

Sale 3- 806 Capitol

The property at 806 Capitol, built 8 years ago, sold two years ago. The location of sale 3 is inferior to the subject property. However, the construction quality of 806 Capitol is superior to the subject property.

Sale 4- 355 Pine

The property at 355 Pine was built 9 years ago and sold one year ago. The condition and location of 355 Pine are superior to the subject property. The construction quality of this property is also superior to the subject property.

Sale 5- 456 State

The condition of 456 State, built 12 years ago of vinyl on a wood frame, is like the subject property. The location is similar to the subject, and it is of average quality construction.

Part I- Use the grid with the market data that has been given and determine GIM and Unit Price.

Sales Price adjusted for time (adjusted sales price) is the number that should be used in determining GIM, income, and unit price, in order to compare current values of all the sales (market data indicates a 5% yearly increase in value).

Check answers on the next page. Round answers to full dollars.

Subject Parcel	Sale 1	Sale 2	Sale 3	Sale 4	Sale 5
Address	107 Capitol	455 Main	806 Capitol	355 Pine	456 State
Sales date	Current	1 yr. ago	2 yrs. ago	1 yr. ago	Current
Sales price	$642,000	$626,000	$510,000	$612,000	$584,000
SP adjusted for time	N/A	+5%	+10%	+5%	N/A
	$642,000				$584,000
Gross rent	$110,700	$111,840	$99,960	$113,280	$108,240
GIM					
Expenses	$25,440	$25,680	$23,040	$26,040	$24,900
Net income					
Overall rate					
Units	27	24	18	18	22
Unit price					
Monthly Unit Gross income					

Subject Parcel	Sale 1	Sale 2	Sale 3	Sale 4	Sale 5
Address	107 Capitol	455 Main	806 Capitol	355 Pine	456 State
Sales date	Current	1 yr. ago	2 yrs. ago	1 yr. ago	Current
Sales price	$642,000	$626,000	$510,000	$612,000	$584,000
SP adjusted for time	N/A	+5%	+10%	+5%	N/A
	$642,000	$657,300	$561,000	$642,600	$584,000
Gross rent	$110,700	$111,840	$99,960	$113,280	$108,240
GIM	5.80	5.88	5.61	5.67	5.40
Expenses	$25,440	$25,680	$23,040	$26,040	$24,900
Net income	**$85,260**	**$86,160**	**$76,920**	**$87,240**	**$83,340**
Overall rate	**13.28 %**	**13.11 %**	**13.71 %**	**13.58 %**	**14.27 %**
Units	27	24	18	18	22
Unit price	**$23,778**	**$27,388**	**$31,167**	**$35,700**	**$26,545**
Monthly Unit Gross income	4100/12 $342.00	4660/12 $388.00	5553/12 $463.00	6293/12 $524.00	4920/12 $410.00

Each sale is now examined to determine if any **adjustment** is necessary. Once the data has been reviewed, come up with a total ranking for each property.

After making all the necessary adjustments and calculations, the appraiser would study the grid to determine the sales which are most comparable to the subject property. Once the comparables have been selected, values can be determined for the subject property.

Use the data sheet on the next page and the previous grid to fill in Part II with “Inferior,” “Similar,” or “Superior.” If there is nothing written for the characteristic, it is similar.

Here are the steps using **Sale 1**.

The previous grid noted that **Sale 1** at 107 Capitol was a "current" sale, so the date of sale is **"Similar."** Since it was built 12 years ago when the subject property was also built, the age is also "Similar."

Sale 1 is constructed of vinyl siding on a wood frame, so it is **similar** to the subject's construction quality. From the data sheet, **Sale 1** is in a condition that is inferior to the subject property.

The **subject** property is in a **better** location than the property at 107 Capitol. Since the subject property is in a better location than **Sale 1**, then **Sale 1** has an inferior location to the subject property. Remember to **always adjust the comparable property**.

From the grid, note that **Sale 1** has 15 efficiency apartments and 12 1-bedroom apartments which is **similar** to the subject.

Looking at the **Sale 1** column, there are **2 "Inferior"** characteristics with the remaining characteristics rated **"Similar"**. One would conclude **Sale 1** is somewhat **inferior** to the subject which would indicate a value higher than $23,778 per unit for the subject.

Part Two- complete the grid for sales 2 – 5.

Parcel	Subject	Sale 1	Sale 2	Sale 3	Sale 4	Sale 5
Date of Sale	—	Similar				
Location	—	Inferior				
Condition	—	Inferior				
Age	12 yrs. old	Similar				
Construction Quality	Vinyl	Similar				
# of Adjustments	—	**2**				
Overall Rating	—	**Inferior**				

For each sale, add together the number of adjustments and determine an overall rating of the property characteristics as being similar, inferior or superior to the subject. The sale with the fewest number of adjustments will be the best comparable, or property most like the subject.

Unit Price (dollar per apartment unit of measure) Analysis:

Sale 5 should have been selected as the property most comparable to the subject because it required the least number of adjustments.

Since sale 1 overall is inferior to the subject, a value higher than the sale price of $23,778 per unit (table on page 122) for the subject is indicated.

Sale 2 is similar; a price in the $27,388 range might be better for the subject. Sale 3 was also similar and had a unit price of $31,157. Sale 4 was superior overall, with a unit price of 35,700. So, the value estimate for the subject property should be less than the sale price of sale 4.

The subject is most similar (least number of adjustments) to sale 5 which sold for $26,545.

To arrive at a value for the subject property based on unit price, multiply the number of apartment units in the subject property by the unit value indicated by the selected comparable.

The subject property has 24 apartment units. Value them at $26,545 per unit as it was discovered from the market.

26,545 x 24 = $637,080

Gross Income Multiplier (GIM) Unit of Measure Analysis

For the gross income multiplier, again choose sale 5 as the sale with the least number of adjustments, but this time look at the GIM, a value for the subject property based on income.

To arrive at a value for the subject property using the GIM, multiply the **subject property's gross rent by the comparable GIM**.

Multiply the subject's gross income by the GIM of 5.40 for sale 5. The subject property has a gross rent of $113,845.

5.40 X $113,845 = $ 614,763

The Last Analysis- Consistency

Now, **consistency (meaning reliability)** will be examined.

The unit prices range from $23,778 to $35,700 per unit (apartment). This would most likely be considered a large sales price spread considering expenses have been factored into the analysis. **These unit prices are highly variable (not consistent).**

The GIM for the comparables range from 5.40 to 5.88, meaning that the known comparables' sales prices varied from 5.40 times gross rent to 5.88 times gross rent. These numbers are **very consistent, meaning they have little variability (consistent)**.

Considering the 5 sales, which unit of value, the unit price or the GIM is most consistent?

_____

This would be the basis for which unit of value to choose.

After determining, through this calculation, that the market is responding to the GIM, the value that the assessor would place on the property would be **$614,763, which is the number that was calculated using the GIM of the most similar sale, Sale 5, multiplied by the subject's gross income**.

Unit 7- Summary

The sales comparison approach to value arrives at a value for the subject property by comparing it to similar properties that have sold. Consideration must be given to all the tangible and intangible factors influencing value, such as location, construction, age, physical features, condition, desirability, and usefulness.

If the comparable property that has sold is superior in some manner to the subject property being evaluated, the sales price of the comparable property is adjusted downward to the subject property. Likewise, if the comparable property is inferior in some manner to the subject property, the sales price of the comparable property is adjusted upward to the subject property.

Comp Superior, Subtract (-)
Comp Inferior, Increase (+)

The **GIM** is a method to evaluate property based on its sale price and gross rents.

Unit 7- Review questions

1. T or F When using the sales comparison, or market approach, one never adjusts the subject.

2. T or F The formula for the GIM is the gross rent divided by the sales price.

3. T or F Make a minus adjustment to the comparable if it is inferior to the subject.

4. T or F If the market is showing an annual increase of 3 percent, a sale occurring 2 years ago would have a minus adjustment of 6 percent.

5. T or F The GIM is a unit of comparison in the income approach to value.

6. T or F When valuing property using the sales comparison, or market approach, 3 to 5 sales is recommended.

Exam Preparation

Examination Information

- You must have a calculator- one that displays up to 10 decimal points is best.
- The exam consists of 50 multiple choice questions.
- Each question is worth an equal number of points when the exam is graded.
- There is only one best answer for each question on the examination.
- Two hours are allotted for completion of the exam.
- The exam is closed book. All class materials, papers, computers, and cellular devices must be removed from the table before taking the exam.
- Cellular phones may not be used as calculators.

Test-Taking Strategies

- Read each question thoroughly and choose the one best answer provided.
- Review the answer sheet for any skipped answers or multiple answers for the same question.
- Some test-takers prefer to answer questions that they are confident in the answers first and choose to skip over harder questions or questions that involve math calculations. If this is done, be sure to complete the correct answer on the answer sheet for the questions being answered. The answer sheets are graded by hand, so question numbers may be circled so that they can be easily identified during the second pass through the exam.
- Be mindful of the time allotted. If a question is taking a lot of time to answer, move past it and come back to it later.
- Guessing an answer is better than leaving it blank if time becomes an issue.

Answer key

Units 1 through 7

1-B Introduction to Commercial Assessment Practices

Unit 1- Review answers

Match these terms to the correct definition. There may be more than one answer to the terms.

1. **F** Sales comparison
2. **C,D** Cost approach
3. **A** Income approach
4. **B** Depreciation
5. **E** Capitalization

A. $\frac{I}{R \bullet V}$

B. The loss of value due to all causes.

C. MV = Land value + (RCN - depreciation).

D. Approach that is most applicable when the improvement is new and is at its highest and best use.

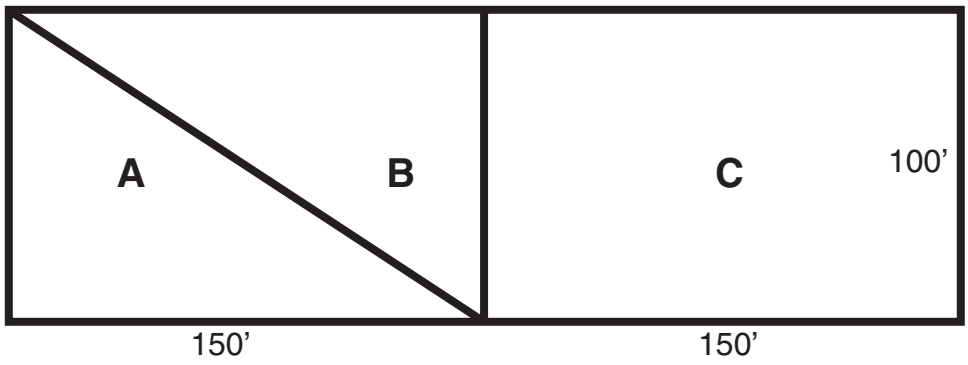
E. Conversion of the net return produced by a property into an indication of value.

F. Adjust recent comparable sales to the subject.

Exercise 2-1 answers

	Site Shape	Measurements	Square Footage	Approx. Acreage
1.	Rectangle	400’ x 800’	320,000	7.35
2.	Rectangle	320’ x 480’	**153,600**	**3.53**
3.	Triangle	320’ x 480’	76,800	1.76
4.	Triangle	150’ x 180’	**13,500**	**.31**
5.	Square	150’ x 150’	**22,500**	**.52**
6.	Triangle	600’ x 900’	**270,000**	**6.20**

7. Refer to the diagram below

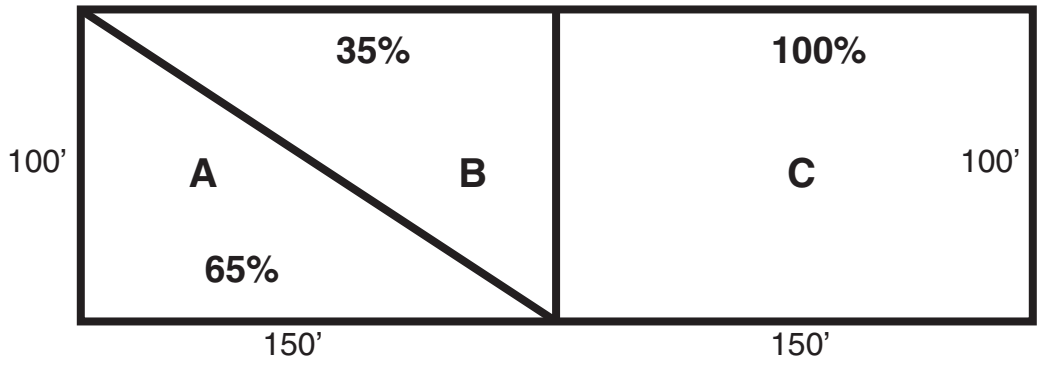


Compute the values for the three parcels
If the square foot value is $1.00/SF

A **$7,500**
B **$7,500**
C **$15,000**

Exercise 2-2 answers

65/35 Rule (Applies to Front Foot Only)



Compute the values for the three parcels above if the front foot value is $100/FF.

A **$9,750**

B **$5,250**

C **$15,000**

A $ 9,750 (150’ x $100/FF x 65%)
B $ 5,250 (150’ x $100/FF x 35%)
C $15,000 (150’ x $100/FF)

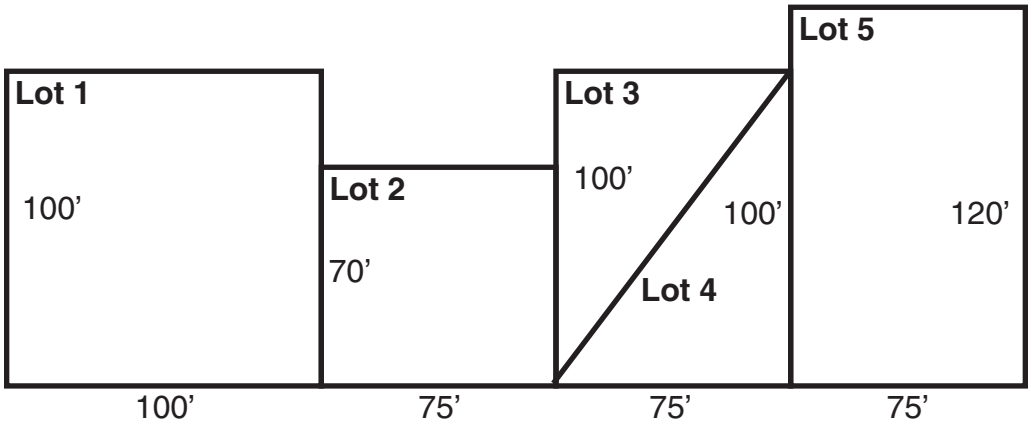
Exercise 2-3 answers

For this exercise, the front foot unit of comparison derived from the market is $100 per front foot. The square foot value derived from the market is $1/SF.

Value the lots using the formulas below.

Front Foot: **Lot value = number of FF x $ per FF x factor for shape**

Square Foot: **Lot value = number of SF x $ per SF**



Lot 1	FF value =	**$10,000**	Lot 2	FF value =	**$7,500**
	SF value =	**$10,000**		SF value =	**$5,250**
Lot 3	FF value =	**$2,625**	Lot 4	FF value =	**$4,875**
	SF value =	**$3,750**		SF value =	**$3,750**
Lot 5	FF value =	**$7,500**			
	SF value =	**$9,000**			

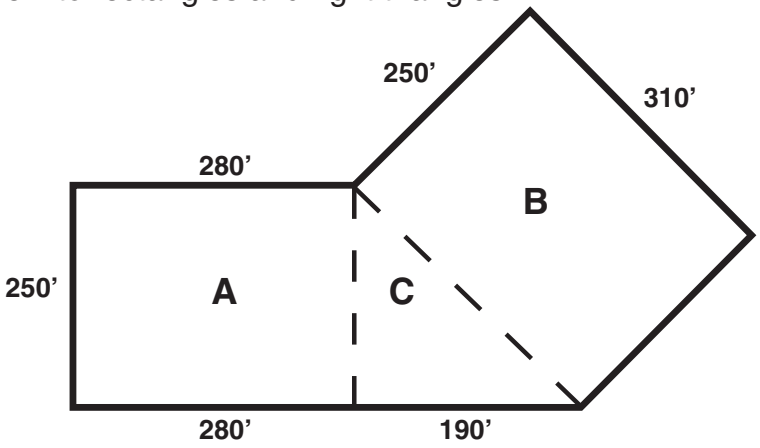
Review Exercise 2-1 answers

Compute the square footage and the acreage for the following (assume all triangles are right triangles). Don't forget there are 43,560 SF in an acre.

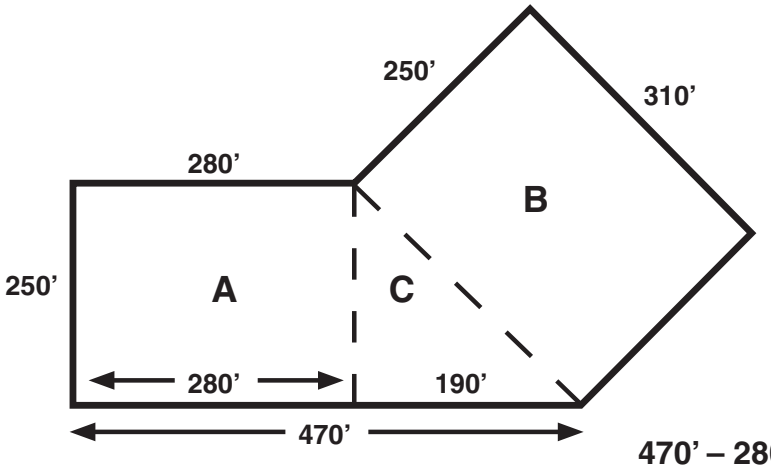
	Parcel shape	Measurements	Square footage	Acreage
1.	Square	1,528 ft. x 1,528 ft.	**2,334,784**	**53.60**
2.	Square	680 ft. each side	**462,400**	**10.62**
3.	Rectangle	1,250 ft. x 1,000 ft.	**1,250,000**	**28.70**
4.	Rectangle	125 ft. x 75 ft.	**9,375**	**.22**
5.	Square	65 ft. x 65 ft.	**4,225**	**.10**
6.	Triangle	475 ft. x 986 ft.	**234,175**	**5.38**
7.	Triangle	680 ft. x 360 ft.	**122,400**	**2.81**

Review Exercise 2-2 answers

First divide the figure into rectangles and right triangles.

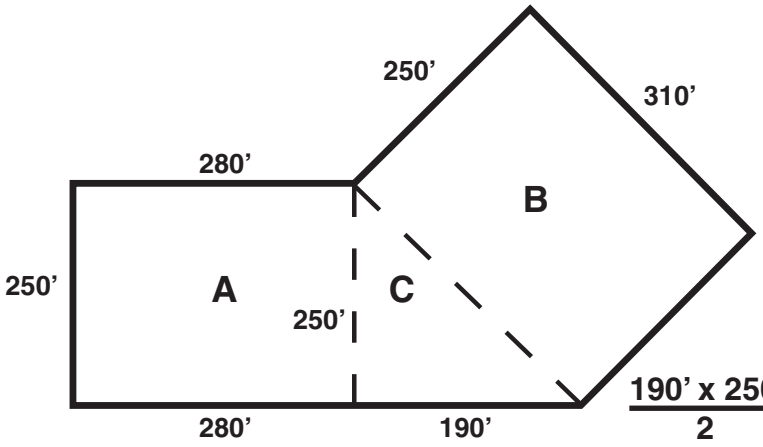


Remember that the opposite sides of rectangles have the same measurement. The base of the triangle is found by subtracting the length of the side of the rectangle from the length of the whole side.



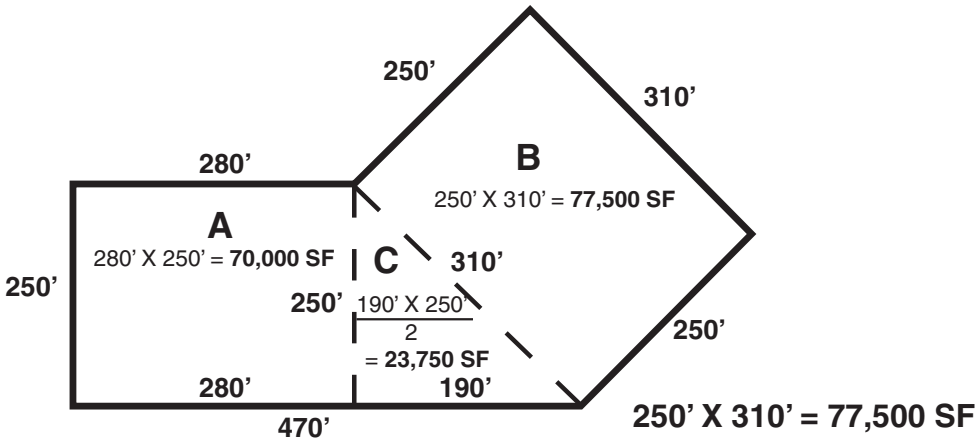
470' – 280' = 190'

The area of rectangle **A = 280' x 250' = 70,000 SF**. The area of the triangle C can be determined with the formula for finding the area of a triangle $\frac{(B \times h)}{2}$.



$\frac{190' \times 250'}{2}$ **= 23,750 SF**

Now the area of rectangle B can be determined again using the mathematical fact that opposite sides of a rectangle have the same measurement.



Finally, add **A + B + C = 70,000 SF + 23,750 SF + 77,500 SF= 171,250 SF.**

$$\textbf{Acreage} = \frac{\textbf{171,250 SF}}{\textbf{43,560 SF}} = \textbf{3.93 acres}$$

Unit 3-Exercise answers

Exercise 3-1

An average structure has a value of $700,000 in central Illinois. The subject is of good quality and is in an area where construction costs are higher. What is the combined factor if the cost factor is 1.06 and the quality grade factor is 1.22? **1.29**
What is the new calculated value? $**903,000**

Exercise 3-2

Find the 2nd effective age, REL factor, and depreciation for the following:

1. A structure whose 1st effective age is 10 and has a CDU of “P”.

   2nd Effective Age**15** REL**70** Depreciation**30**%

2. An average structure, 5 years old, with a CDU of “A”.

   2nd Effective Age**5** REL**90** Depreciation**10**%

3. A structure with an actual age of 20, but 1st effective age of 10 with a CDU of “E”.

   2nd Effective Age**1** REL**98** Depreciation**2**%

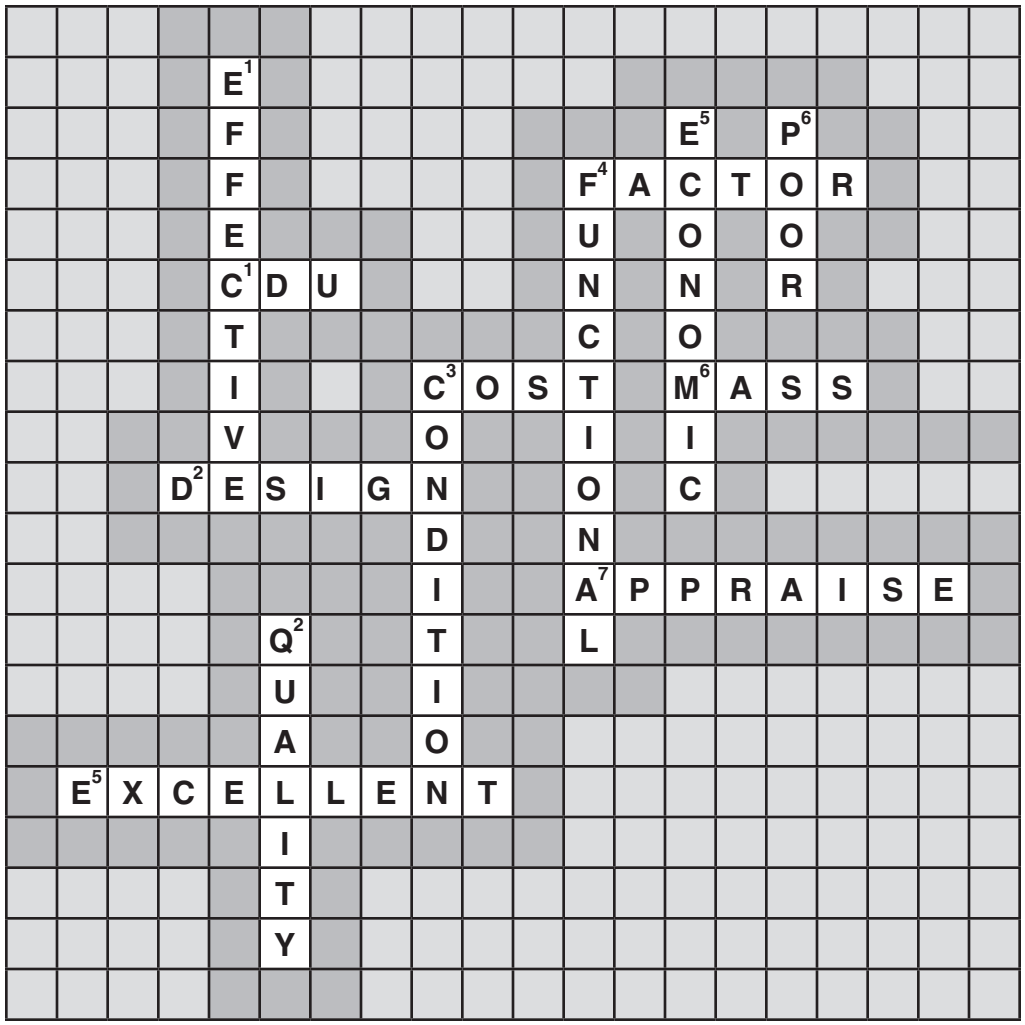
Unit 3- Review answers

Across

1. **CDU** ratings are assigned in relation to other structures within the neighborhood.
2. **DESIGN** factors adjust the appraisal publication values to account for unusual architectural designs.
3. **COST** factors adjust manual to current local labor and material rates.
4. A **FACTOR** adjusts values by applying an increase or decrease.
5. A quality grade of “A” is considered **EXCELLENT**.
6. An assessor is a **MASS** appraiser.
7. To place a value upon. **APPRAISE**

Down

1. This age helps determine REL. **EFFECTIVE**
2. Factor that may remain the same for the life of the improvement. **QUALITY GRADE**
3. Physical depreciation refers to **CONDITION** the of the structure.
4. Type of depreciation that occurs when a structure has features like low ceilings, lack of air conditioning, etc. **FUNCTIONAL**
5. Type of depreciation that is outside the property boundaries. **ECONOMIC**
6. A not-so-great category under Schedule A. **POOR**


E1
F
F
E
C1 D U
T
I
V
D2 E S I G
Q2
U
A
E5 X C E L L E N T
I
T
Y
E5
F4 A C T O R
U O O
N N R
C O
C3 O S T M6 A S S
O I I
N
D
I A7 P P R A I S E
T L
I

Unit 4- Exercise 4-1 answers

1. Complete the remaining three columns. L is length, W is width and H is the overall height of all above-ground floors.

Structure	**A**	**B**	**C**	**D**
Description	**2-Story L40 W36 H28**	**2-Story L150 W48 H28**	**2-Story L800 W250 H28**	**3-Story L72 W48 H42**
SF Ground Area **(SFGA)**	**1,440**	**7,200**	**200,000**	**3,456**
Perimeter **(P)**	**152**	**396**	**2,100**	**240**
Length **(L)**	**40**	**150**	**800**	**72**
Width **(W)**	**36**	**48**	**250**	**48**
L:W Ratio	**1.11**	**3.13**	**3.20**	**1.50**
Table Used	**1**	**2**	**2**	**1**

Unit 4- Review answers

1. Calculate the data bank for the following structures.

	2-Story L52 W36 H26	3-Story L50 W40 H42	2-Story L150 W75 H28
SFGA	**1,872**	**2,000**	**11,250**
Perimeter	**176'**	**180'**	**450'**
L	**52**	**50**	**150**
W	**36**	**40**	**75**
L:W Ratio	**1.44**	**1.25**	**2.00**
Table Used	**1**	**1**	**2**

2. Calculate the data bank for the following structures, if 1 wall of the length is a party wall. The building is a Type 3 Structural Shell. Use the Party Wall Tables from Publication 126.

	2-Story L400 W140 H26	3-Story L200 W40 H42	2-Story L50 W40 H28
SFGA	**56,000 SF**	**8,000 SF**	**2,000 SF**
Perimeter	**1,080'**	**480'**	**180'**
L	**400'**	**200'**	**50'**
W	**140'**	**40'**	**40'**
L:W Ratio	**2.86**	**5.00**	**1.25**
Table Used	**2**	**3**	**1**
Party Wall: Bsmt	**.929***	**.899**	**.847**
Ground Floor	**.922***	**.855**	**.852**
Upper Floors	**.897***	**.823**	**.818**

*Closest factor was chosen at 40,000 SF. Factors may be interpolated in practice, but the interpolation process is not covered in this course.

Example 4: Answer for 1-story Structural Shell Type 3, General Office Finish

Complete the following PRC and answer the following questions using the information provided on the PRC and Publication 126.

1. What is the age (in years) of the structural shell? 51

2. What Table is used for the structural shell as determined by the L ÷W ratio? Table 1

3. What is the REL for the exterior structural shell? .10

4. What is the $/SF Cost for the 1st floor structural shell? $40.24

5. What is the dollar adjustment for plumbing fixtures? $3,000

6. What is the dollar adjustment for sprinklers? $22,400

7. What is the Full Value of the parking lot? $5,694

8. What is the Full Value of the Exterior, Interior and Other? $265,850

PRC 4-2019 **Example 4** **Property Record Card - Commercial - Industrial** **Type 3/General Office**

Construction Specifications				Interior Finish and Floor Level						Data Bank		Exterior Description		Computation
Foundation				Retail		Restaurant		Multi-unit other		SFGA	4,000	WH SFFA x $/SF Floor Cost x WH Adj. x Party Wall		
X Basement/Crawl		Slab		Office	X	Warehouse		Other		Length	80	9	Basement 4,000 SF x $ 46.60	186,400
Exterior Shell Type				Manufacturing		Recreation		Vacant		Width	50	14	1st Floor 4,000 SF x $ 40.24	160,960
2 Lt. Com. wood/ steel	6	Wood Post Fr.		Grocery		Convenience		Abandoned		Ratio L ÷ W	1.6		2nd Floor	
(3) Conc. Blk. unreinf.	7	Steel Pre-eng.		Apartments		No.of Units		No. Rooms/ Unit		Perimeter	260		3rd Floor	
4 Conc. Blk. reinf.	8	Steel Struc FR		Avg. Unit Size SF				Apt. Unit Factor		No. Stories 1	Table (1) 2 3		Additional	
5 Conc. Tilt-up	9	Steel Struc FP										**Total Base Price Structure**		347,360

Exterior Wall Cover Material	B	1	2	3	A
Vinyl/ Wood/ Metal					
Stucco/ Aluminum Siding					
Cedar/ Redwood/ Resin					
EIFS <2" thick					
(Brick Veneer)		X			
Stone Veneer					
Painted Concrete Block					
T-1-11 Plywood					
Aluminum/ Pine					
EIFS >2" thick					
Glass Curtain Wall					
Struc. Steel/ Aluminum					

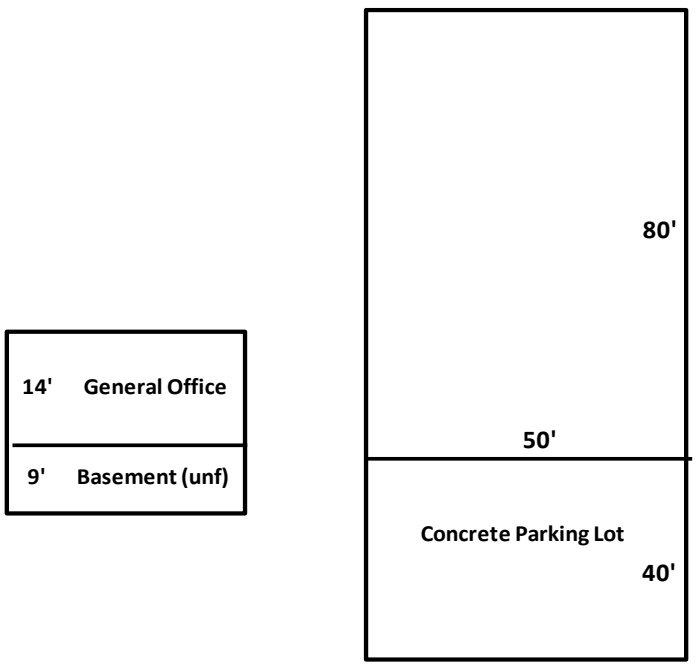
Heat	B	1	2	3	A
Central Warm Air		X			
Hot Water/ Steam					
Heat Pump					
Unit Heaters					
Other					
None					

Air Conditioning	B	1	2	3	A
Central		X			
Heat Pump					
Unit					
None					

Roofing			
Shingle		Metal/Other	X
Composite		Slate	
Frame - Wood Steel Other			

Sprinklers	B	1	2	3	A
None					
(Present)		X			

Plumbing Type and No. Fixtures			
1 Residential	7	(2) Commercial	
3 Industrial		4 Specialty	



Memo

Listed by:

Date:

Interior Finish Description				Computation
Interior Base Cost Computation			if appl.	
Finish & Area	SFFA	$/SF Cost	Apt. Factor	
1st/Main Gen Office	4,000	65.90		263,600
Base Price Interior				263,600
Interior Adjustments				
A/C				
Heat				
Sprinkler $5.60 x 4,000 SF				22,400
Plumbing + 2 fixtures (5 expected) x $1,500				3,000
Other				
Subtotal Interior Adjustments				25,400
Total Base Price Interior				289,000

Quality Grade C	Year Remodeled 2010				
C	D	G 1.00	NH	A	Multiply by Comb. Fac. x 1.00

Age	1st Eff Age	2nd Eff Age	CDU	Interior RCN	289,000
11	11	11	A	REL .78	x .78

Full Value Interior Finish	225,420
Total Full Value Interior and Exterior Shell	260,156

Summary of Other Exterior Improvements (i.e. paving, signs, parking lot lighting, canopies, docks, store fronts, etc.)

Type	Number	Construction	Size	Rate	Subtotal	Grade	Factor	Replacment Cost New	AGE	CDU	REL	Full Value
Parking Lot	1	6" Concrete (lt)	2,000 SF	$3.65	7,300	C	1.00	7,300	11	A	0.78	5,694

Total Full Value Other Improvements	5,694
Total Full Value Exterior, Interior & Other	265,850

Unit 5- Review exercise answers

1. (T) or F — A Type 2 Structural Shell measures 70' x 100'. The first floor has a wall height of 16'. A wall height adjustment factor would be needed.

2. T or (F) — The same Type 2 Structural Shell as in question 1 would reference Table 2 in the cost schedule.

3. (T) or F — The replacement cost new minus the depreciation equals the full value of the structure.

4. (T) or F — An apartment factor is used to reflect the increased costs of kitchens and baths in structures with smaller unit sizes.

5. (T) or F — An Exterior Structural Shell can be of a different age, quality grade and condition than the Interior Finish.

6. (T) or F — Features that are not included in the SF base cost may be found in Publication 127.

7. T or (F) — IDOR's Property Record Card 4 is used to record owner name and mailing address, PIN, and land values.

8. (T) or F — The typical number of plumbing fixtures included in an interior finish may be adjusted by the observed or recorded number of fixtures.

Unit 6- Exercise 6-1 answers

Using the IRV formula, complete the following questions.

1. A retail building recently sold for $900,000. The net annual income is $135,000.
   What is the capitalization rate? **15%**

   135,000/900,000 = .1500 or 15%

2. A small office building provides its owner with a net annual income of $27,400. The appropriate capitalization rate is 9.35 percent.
   What is the value of this office building? **$293,048**

   27,400/ .0935 = 293,048

3. The capitalization rate for an office building is 11.3 percent. This building recently sold for $452,600.
   What is the net annual income? **$51,144**

   452,600 x 0.113= 51,144

4. An apartment building recently sold for $375,700. The net annual income for this building $53,428.
   What is the capitalization rate? **0.1422 = 14.22%**

   53,428/375,700= .1422

5. An apartment building has 20 units that rent for $350 per month. The allowable expenses are $25 per unit, per month. The capitalization rate is 12.54 percent.
   What is the value of this building? **$622,010**

   350 x 12 x 20 = $84,000
   25 x 12 x 20 = – 6,000
   78,000

   78,000 / 0.1254 = 622,010

6. An asphalt parking lot recently sold for $267,900. The mortgage interest rate is 9.25 percent, the recapture rate is 2.54 percent, and the effective tax rate is 2.00 percent.
   What is the parking lot's net annual income? **$36,943**

   $267,900 x 0.1379 = $36,943

Unit 6- Exercise 6-2 answers

Income analysis

Income Information	Allowed		Amount
Rents received	YES		**$113,845**
Vacancy and collection loss 3%	**Y**		**3,415**
Parking spaces	**Y**	2,400	**2,400**
Vending and laundry	**Y**	1,500	**1,500**
Effective gross income			**114,330**
	------	-----	-----
Expenses:	------	-----	-----
Management	**Y**	$4,500	**$4,500**
Administrative	**Y**	200	**200**
Fuel	**Y**	2,800	**2,800**
Electrical	**Y**	360	**360**
Water	**Y**	155	**155**
~~Income tax~~	**N**	~~13,000~~	**–**
Scavenger (trash removal)	**Y**	975	**975**
Paint and painting supplies	**Y**	800	**800**
~~Property tax~~	**N**	~~16,000~~	**–**
~~Fur coat for M.M.~~	**N**	~~4,525~~	**–**
Reserves for replacement	**Y**	6,250	**6,250**
Insurance	**Y**	500	**500**
~~Mortgage interest~~	**N**	~~7,250~~	**–**
Janitor	**Y**	3,600	**3,600**
Total allowable expenses	-----		**20,140**
Net operating income	-----		**94,190**

EGI = $114,330 – Allowed Expenses ($20,140) = NOI

NOI = Net operating income = $ 94,190

Overall capitalization rate = 14.3 percent

$$\frac{I}{R \times V}$$

Value of property = $\frac{\$94,190}{.143}$ = $ 658,671

Unit 6- Review answers

1. A 100-space paved parking lot rents for $30 a month per space. The effective tax rate is 2.54 percent, the mortgage interest rate is 9.35 percent, and the recapture rate is 3.00 percent. **$\frac{I}{R \times V} = \frac{36,000}{0.1489}$** **30 x 12 x 100 = $36,000**

   What is the value of the parking lot? $ **241,773**

2. A 2-story commercial building has a value of $960,000. The building provides its owner with a monthly net income of $6,000 per floor. This is well in line with similar properties. **$\frac{I}{R \times V} = \frac{144,000}{960,000}$** **Income = 6,000 x 2 x 12 = $144,000**

   What is the building capitalization rate? **15%**

3. Unimproved land used as a parking lot recently sold for $270,000. The recapture rate is 3.25 percent, the mortgage interest rate is 8.15 percent, and the effective tax rate is 2.50 percent. **$\frac{I}{R \times V}$** **R x V = 270,000 x .1065 = $28,755**

   What is the net income of this parking lot? $ **28,755**

4. A 12-unit apartment building has (6) 1-bedroom units, (4) 2-bedroom units, and (2) 3-bedroom units. The 3-bedroom units rent for $1200 a month, the 2-bedroom units rent for $875 a month, and the 1-bedroom units rent for $600 a month. Similar properties in the area have recorded their monthly income to be at $10,000 a month.

   What is the potential gross income of this apartment building? $ **120,000**

   Potential Gross Income = $10,000 x 12 months = $120,000/year.

5. An office building has a potential gross income of $152,176. The vacancy and collection loss is 4%.

   What is the dollar amount of the vacancy and collection loss? $ **6,087**

   $152,176 x .04 = $6,087

   What is the effective gross income? $ **146,089**

   $152,176 – 6,087 = $146,089

Unit 7- Exercise 7-1 answers

Parcel	Subject	Sale 1	Sale 2	Sale 3	Sale 4	Sale 5
Date of Sale	—	Similar	Inferior	Inferior	Inferior	Similar
Location	—	Inferior	Superior	Inferior	Superior	Similar
Condition	—	Inferior	Similar	Similar	Superior	Similar
Age	12 yrs. old	Similar	Similar	Superior	Superior	Similar
Construction Quality	Vinyl	Similar	Similar	Superior	Superior	Similar
# of Adjustments	—	**2**	**2**	**4**	**5**	**0**
Overall Rating	—	**Inferior**	**Similar**	**Similar**	**Superior**	**Similar**

Among the 5 sales, which unit of value, the unit price or the GIM is most consistent? This would be the basis for which unit of value to choose. _____**GIM**_____

Unit 7- Review answers

1. (T) or F — When using the sales comparison, or market approach, one never adjusts the subject.

2. T or (F) — The formula for the GIM is the gross rent divided by the sales price.

3. T or (F) — Make a minus adjustment to the comparable if it is inferior to the subject.

4. T or (F) — If the market is showing an annual increase of 3 percent, a sale occurring 2 years ago would have a minus adjustment of 6 percent.

5. T or (F) — The GIM is a unit of comparison in the income approach to value.

6. (T) or F — When valuing property using the sales comparison, or market approach, 3 to 5 sales is recommended.