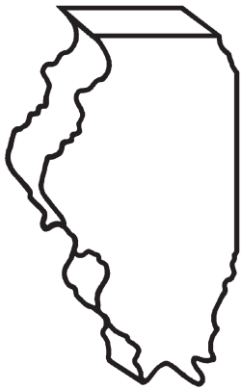

I – B Introduction to Commercial Assessment Practices

September 2014

PTAX-1B (R-09/14)

Printed by the authority of the State of Illinois.
(35 copies- 09/14-PO Number 2150050)

1-B Introduction to Commercial Assessment Practices

Course Outline

Glossary

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Answer Key

Review

*Exam 50 multiple choice questions

* A score of 70 percent (35 correct answers) is necessary to pass this course.

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.

> **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.

Comparables — recently sold properties that are 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.

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

Data bank — an area on the PRC-4 used to detail square feet, effective perimeter, cubic feet, square feet wall area, and wall ratio of a building.

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

Effective gross income (EGI) — potential gross income, less vacancy and credit loss, plus miscellaneous income.

Effective gross income multiplier (EGIM) — unit of comparison used in the sales comparison approach to value; sale price divided by EGI.

Effective perimeter (EP) — the linear measurement around a building.
2L + 2W = EP

Frame bay — the rectangle or square formed by support columns; used with the frame table of the CIP schedules for an adjustment factor

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 is capable of producing if 100 percent occupied for 100 percent of the time, based on market standards.

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.

Shape adjustment — adjustment used to factor for building shape when using IDOR Appraisal Publications; necessary to account for area/perimeter ratios.

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

Wall ratio — amount of wall construction in relation to the square feet area of the building. Square footage divided by EP.

Formulas

Income approach	$\frac{I}{R \bullet V}$
Net income	Effective gross income — Expenses
Effective gross income multiplier	$\frac{\text{Sales Price}}{\text{Effective gross income}}$
Unit price	$\frac{\text{Sales Price}}{\text{\# of Units}}$
Room price	$\frac{\text{Sales Price}}{\text{\# of Rooms}}$
Adjusted sales price	Sales price (+ or -) adjustments
Wall ratio	$\frac{\text{Square foot ground area}}{\text{Effective Perimeter}}$

DATA BANK	
SF Ground Area	
Eff. Perimeter LF	
CF of Bldg.	
SF Wall Area	
Wall Ratio	
Sty	**Schl**

SFGA — square feet of ground area — **L x W**
EP — effective perimeter — **L + W + L + W**
(Party walls are factored at 60 percent of the length of the wall.)
CF — cubic feet — **SFGA x H**
SFWA — square feet of wall area — **EP x H**
WR — wall ratio — **SFGA ÷ EP**

Link to Publication 126 Instructions for Commercial Schedules:
tax.illinois.gov/Publications/Pubs/Pub-126.pdf

Link to Publication 127 Instructions for Industrial Schedules:
http://tax.illinois.gov/Publications/Pubs/Pub-127.pdf

Abbreviations

A	Attic
AC	Air conditioning
AP	Appraiser or appraisal
Apt	Apartment
Asmt	Assessment
Att	Attached
Avg	Average
B	Basement
Blk	Block
BPA	Base price adjustment
BR	Building residual
Brk	Brick
Bsmt	Basement
BTU	British thermal unit
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
Cons't	Construction
Corr	Corrugated
C/P	Carport
CY	Cubic yards
DA	Door area
Depr	Depreciation
Dia	Diameter
DW	Drywall
EGI	Effective gross income
EIFS	Exterior Insulation Finished System
EMP	Enclosed masonry porch
Excl	Excellent
FA	Forced air
Fac	Factor
FF	Front foot
FP	Fireproof or fireplace
FPM	Feet per minute
Frm	Frame
Frp	Fireproof
Ftg	Footing
Galv	Galvanized
Gar	Garage
GIM	Gross income multiplier
GPD	Gallons per day
GRM	Gross rent multiplier
Hgt	Height
HVAC	Heating, ventilating, and air conditioning
I	Income
Impr	Improvement
Ind	Industrial
Infl	Influence
KVA	Thousand volt amperes
KW	Kilowatts
L/B	Load-bearing
L:B	Land-to-building ratio
L & B	Land and building
LF	Linear feet
LR	Land residual
MV	Market value
NH	Neighborhood
OC, O/C	On center

P & B	Post and beam
Pchs	Porches
Plstr	Plaster
PRC	Property record card
Pre-eng	Pre-engineered
PSF	Pounds per square feet
PVC	Polyvinylchloride
R	Rate
RCN	Replacement cost new
Rein	Reinforced
REL	Remaining economic life
Replc	Replacement
RFC	Reinforced concrete
Rnf	Reinforced
SA	Supervisor of assessments
SF	Square feet
SFDA	Square feet door area
SFFA	Square feet floor area
SFGA	Square feet ground area
SFRA	Square feet roof area
SFSA	Square feet serviced area
SFWA	Square feet wall area
SS	Stainless steel
Stl	Steel
Sty	Story
Sz	Size
Unfin	Unfinished
Unt	Unit
V	Value
VLF	Vertical linear feet

Unit 1
Three Approaches to Value

This unit covers the three approaches to value: the sales comparison, or market approach; the cost approach; and the income approach.

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 means 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, 2006 ed. (Washington, D.C.: Appraisal Foundation 2006) p. 194.

Principle of highest and best use

You 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.

The Dictionary of Real Estate Appraisal, Fourth Edition, (Chicago; Appraisal Institute, 2002)

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.

The sales comparison or market 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, or market approach, is dependent on the availability of sales of comparable properties and the validity of the appraisers' judgments made in regard to 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

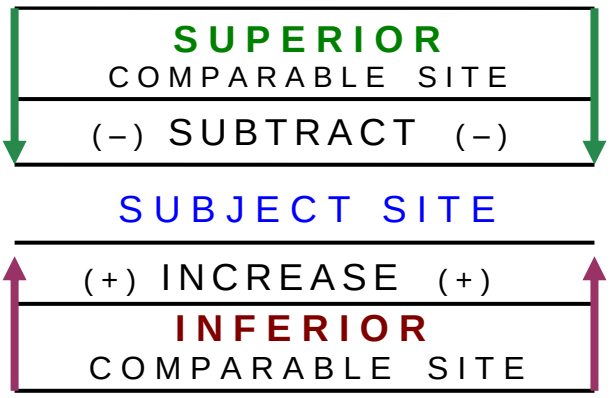
- location
- construction
- age
- physical features
- condition
- desirability, and usefulness or utility

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, or 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 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.



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.

Example of adjustments

An adjustment may be warranted if several comparable industrial warehouse 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** 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 a comparable sale is superior to the subject property because it has a railroad spur and the subject property does not.

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 formula for the cost approach is

Market value = land value + (RCN - depreciation)

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 RCN 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 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 of these methods can be used to develop a cost manual for a specific geographic area.

The component-in-place method is used by builders or 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.

The square foot method is another widely used method for calculating the RCN. This method is based on the floor area of the structure.

Depreciation

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.

The difference between RCN and the present value is **depreciation**, the l**oss 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.

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 and Economic Obsolescence

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. In other words, the structure becomes obsolete.

Functional obsolescence refers to obsolescence resulting from conditions within the property, such as imbalance in

construction features or inadequate design or arrangement that lessen its usefulness or utility.

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.

Examples of economic obsolescence, (usually incurable):

- **Location** — change in traffic pattern and noise and air pollution, detrimental property in immediate area.
- **Economic** — high interest rates and business closings.
- **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.

The Income Approach

Income-producing property, such as hotels, nursing homes, and offices are often valued on the basis of 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 actually anticipated by investors, it follows that the value of income-producing property can be derived from the income the property is capable of producing.

Capitalization

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

Capitalization is accomplished by dividing the net income of the property (I) by the capitalization rate (R).

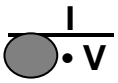
The result is an estimate of the market value (V) of the property.

Market value (V) = net income (I) ÷ capitalization rate (R)

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

To find the income of a property, cover up the "I" in the formula so you are left with R • V .

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



If you know the net income of a property and the value, to find the appropriate capitalization rate, cover up the “R” in the formula so you are left with 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 you are left with 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

Appraisal or valuation process consists of three approaches to value:

- the sales comparison, or market approach
- the cost approach, and
- the income approach

With availability of adequate data, it is possible to utilize these approaches on all properties being evaluated. Depending upon property type, one approach usually presents a better valuation indication with the other two supporting that value estimate.

The sales *c*omparison, or market approach, is dependent upon the availability of sales of comparable properties and the validity of judgments made in regard to 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 to the improvements.

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.

Unit 1
Review questions

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

_____	Sales comparison	**A**	$\frac{I}{R \bullet V}$
_____	Cost approach	**B**	Equity rate, effective tax rate, mortgage interest rate.
_____	Capitalization	**C**	Land value + (RCN - depreciation) = market value.
_____	Income approach	**D**	Approach that is most applicable when the improvement is new and is at its highest and best use.
_____	Economic Rent	**E**	Conversion of the net return produced by a property into an indication of value.
_____	Capitalization Rate	**F**	Adjust recent comparable sales to the subject.
		G	Rent that a property is normally expected to bring in an open market.

Unit 2
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, and
- identify the three types of depreciation and how they affect value.

Terms and concepts

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
Wall height adjustment factor
Shape adjustment factor

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* 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 our website under Publications at www.tax.illinois.gov.

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 job of the assessor

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, arriving 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 these 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 one 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 through the use of these schedules will be exact. However, it is expected that the value estimates produced 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

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

Cost factor

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 RCN value to reflect the local cost of labor and materials. You will not be required to develop a cost factor for this class.

Steps in calculating a cost factor:

1 Find arms-length sales of improved properties on which the improvements are one year old or less, which eliminates adjusting for depreciation.

2 Subtract the current land values from those sale prices to obtain the value of the improvement or building.

Sale Price – Land Value = Building value
$250,000 – $35,000 = $215,000

3 Determine the RCN for each building. **$208,900**

4 Divide each building value by the corresponding RCN to obtain a cost factor for each sale.

building value	÷	RCN	= Cost factor
$215,000	÷	$208,900	= 1.029

5 Rank the factors.

6 Select the median factor as the overall cost factor.

7 Apply the overall cost factor to the RCN of all commercial and industrial property within the jurisdiction.

The true RCN is equal to the IDOR RCN multiplied by the cost factor.

True RCN = IDOR RCN x cost factor

Quality grade

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

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.

The majority of 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.

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

Grade	Quality	Factor
AA	Superior quality	225 percent
A	Excellent quality	150 percent
B	Good quality	122 percent
C	Average quality	100 percent
D	Cheap quality	82 percent
E	Very cheap quality	50 percent

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 has the ability to 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 and should be established during construction if at all possible.

Since quality grade is originally established at the time of construction based upon the then current "normal or typical" materials, workmanship, and construction standards, the quality grade should be reviewed at least every few years.

Quality grade will always change based on the materials and construction standards used in cost schedule descriptions to establish base cost for the RCN. It is not uncommon 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 use extreme caution **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.

Design factor

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

The Appraisal Publications in the IDOR 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 such a 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 to individual buildings and should remain unchanged during the life of the structure.

To determine a design factor, the assessor has to determine the percentage increase, or decrease, in cost due to the design feature or features. The assessor should verify these costs through the contractor. The original contractor can provide a certified construction cost value. Several opinions from local contractors are also beneficial in verifying costs.

A design factor can be determined by the formula

$$\frac{\text{Contractor's costs}}{\text{IDOR PUB RCN}}$$

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

Appraiser factor

A jurisdiction may have more than one assessor or may employ field appraisers. Even though quality grades should be based upon data from which the Appraisal Publications are derived, and there should be an established standard, it is possible that quality grades may differ between appraisers in that jurisdiction.

An appraiser factor is required 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.

The appraiser factor is developed using a method similar to that used to obtain the cost factor.

Neighborhood factor

The neighborhood where the property is located has a direct effect on the value. 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 in order to estimate the future use and value.

Quality grade, cost, design, neighborhood, and appraiser factors are chain multiplied to arrive at one factor used to adjust the IDOR RCN value to reflect a true RCN of the improvement.

Quality grade factor X cost factor X design factor X neighborhood factor X appraiser factor = combined factor

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 a number of factors. Generally, 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.

Use of the Commercial REL Depreciation Table

Schedule A — This schedule takes into account 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 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.

REL = Economic Life – Effective Age

The CDU rating is assigned by the assessor to each property by comparing that 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 inefficient and impractical arrangement of rooms and super-adequacy or inadequacy that may be present.

The CDU rating 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					REL	
	E	G	A	P	U	Eff. 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

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.

Schedule A

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 "good," the effective age is "5."

Schedule B

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 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.

Unit 2 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.

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.

The **remaining economic life (REL)** factor is applied to the true RCN to arrive at a full market value, which then reflects the adjustment made for depreciation.

Unit 2 Review questions

Complete the following crossword puzzle.

Across

1 adjusts manual to current local actual labor and material rates

3 RCN = _____ + DEP

4 type of depreciation that is outside the property boundaries.

5 factor that uses improvements whose age is 1 year or less

7 type of depreciation that deals with the utility of the structure

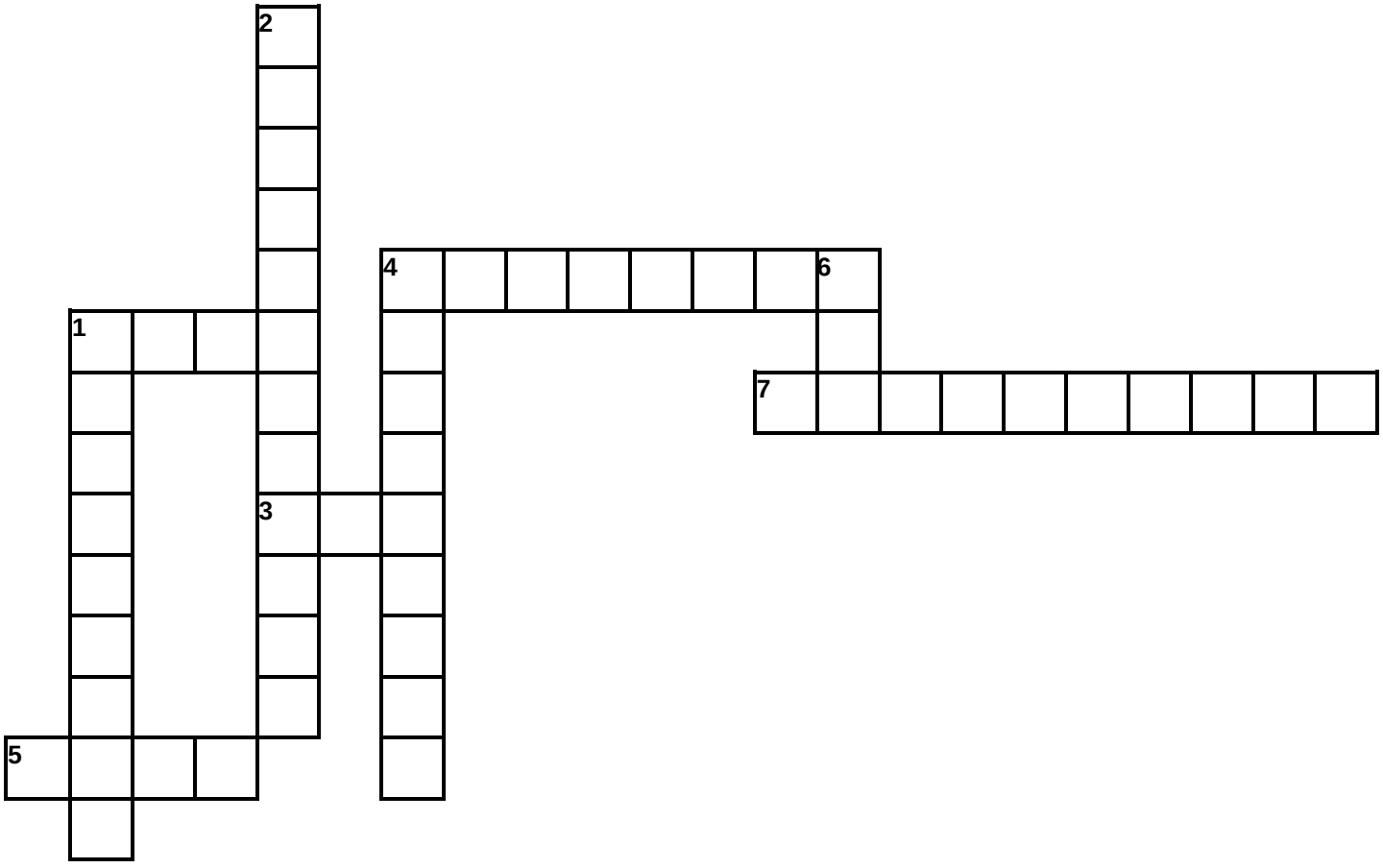
Down

1 physical depreciation refers to the _____of the structure

2 factor that may remain the same for the life of the improvement

4 quality grade of “A” is considered _____.

6 _____ratings are assigned in relation to other structures within the neighborhood



Unit 3

PRC and Data Bank

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

The purpose of this unit is to provide a basic understanding of how the values in the data bank are used to determine RCN values.

Learning objectives

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

- identify data bank components on the PRC-4,
- calculate values for each data bank component, and
- understand the relationship between data bank values and various cost values and adjustment factors.

Terms and concepts

Data bank
Square feet of ground area (SFGA)
Effective perimeter (EP)
Party wall
Cubic feet (CF)
Height (H)
Square feet of wall area (SFWA)
Wall ratio (WR)

Property Record — Commercial — Industrial

Construction Specifications

Foundation			
Sprd. Ftg.		Pile	
Caisson		Other	

Wall Framing	B	1	2	3	A
Wood					
Steel O/FP					
Reinf. Concrete					
Load Bearing					

Frame Bay - Bay Area ____ SF

Floors						
Wood						
Steel O/FP						
Reinf. Concrete						
Frame	Wood		Steel		Conc.	

Exterior Walls						
Siding						
Masonry Blk./Brk.						
Steel						
Glass						

Finish						
Unfinished						
Finished Open						
Finished Divd.						

Heat						
Cent. Wm. Air						
Ht. Wt/Steam						
Unit Heaters						
None						

Air Conditioning						
Central						
Unit						
None						

Roofing				
Composition		Shingle		
Slate		Metal		
Frame	Wood		Steel	Conc.

Plumbing Type			
1		2	
3		4	
	Sprinkler		

Use					
Store		Office		Vacant	
Apt.		WH		Abandoned	
Factory					

No. of Units

Avg. Unit Size

No. Rooms Per Unit

Prorated @ ____% with:

Data Bank	
SF Ground Area	
Eff. Perim LF	
CF of Bldg.	
SF Wall Area	
Wall Ratio	

Sty. Sched.

Size ____ x Shape ____ x Weight ____

S C M I Grade

C&D G NH A = FAC

Eff. Age	Eff. Age	CDU	Age

Depreciation =

Description	Computation
Flr. Price x Ht. Adj.	
WH	
Bsmt.	
1st Floor	
2nd Floor	
3rd Floor	
Base Price	
BPA	
Adj. Base Price	
Heat	
A/C	
Electrical Light	
Sprinkler	
SF Price	
SF	
Subtotal	
Plumbing	
Partitions	
Front	
Canopy	
Dock	
Total	
Replacement Cost New	
REL	
Full Value	

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by: Total full value other buildings

Date: Total full value all buildings

PRC-4 (R-6/99) (opposite PRC-3)

Commercial Property Record Card (PRC-4)

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

The assessor first lists the data regarding the physical construction of the building on PRC-4. Working with PRC-4 and appropriate Appraisal Publications, including the subsidiary schedules, and/or the component-in-place (CIP) schedules, the assessor has to cost out each floor of the improvement, adjust cost values when applicable, cost out various components found in the building, and arrive at a full value of the improvement.

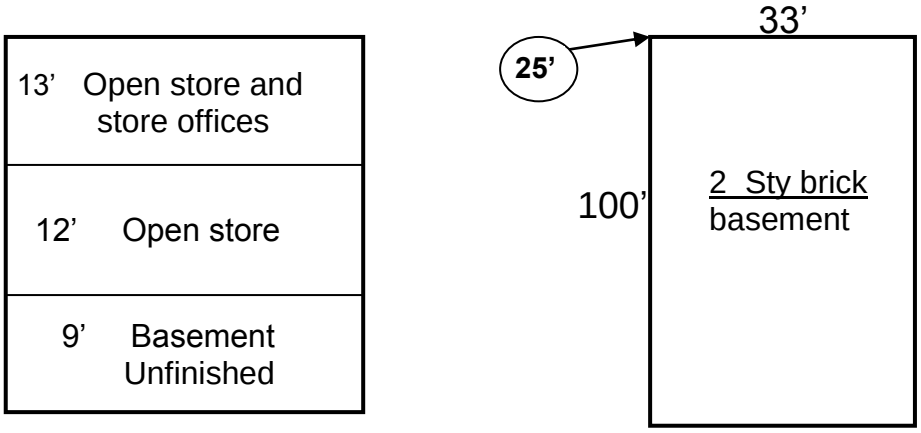
A thorough understanding of the relationship between the PRC-4 and the cost schedules is necessary for the assessor to calculate a valid RCN value.

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	
SF Ground Area	
Eff. Perim LF	
CF of Bldg.	
SF Wall Area	
Wall Ratio	

Building dimensions are found on the building and floor diagrams



Square feet of ground area (SFGA)

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.

In the example on the previous page, the structure is 33' x 100'. Apply the formula:

Length x width = square feet of ground area

to arrive at a SFGA of 3,300 square feet for the structure.

33' x 100' = 3,300 SFGA

Much of the cost is directly related to the SFGA.

Effective perimeter (EP)

The second component of the data bank is the effective perimeter (EP). This is the linear measurement around the outside boundaries of the ground floor.

EP = L + W + L +W

In the example, the structure is 33' x 100'. Apply the formula

length **+** width **+** length **+** width = effective perimeter

to arrive at a EP of 266’ for the structure.
(33' + 100' + 33'+ 100' = 266’)

There may be instances when the subject building shares a common wall or walls with another building. This type of wall is referred to as a **party wall**. Party walls are often found in older downtown commercial structures. Years ago, the first commercial structure was built with four walls. When the 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 building standard restrictions, this practice is no longer as widespread as it once was.

If a structure contains a party wall, the length of the shared wall is adjusted by 60 percent when calculating an EP. For example, if one of the 100' walls of the subject building was a shared or party wall, that wall would be factored at 60 percent of the 100’ or 60' instead of 100'.

To calculate the EP, add 100'+ 33' + 60' + 33’. This structure, if it had a party wall, would have an EP of 226' instead of 266'.

Cubic feet of building (CF)

The third component of the data bank is the **cubic feet** of the building (CF). This 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

In this example, the square feet of the ground area is 3,300 square feet. The height of the structure is 25' (12' first floor + 13’ second floor).

(CF = SFGA x H 3,300 x 25 = 82,500)

Square feet of wall area (SFWA) and Wall ratio (WR)

The **square feet of wall area (SFWA)** is the fourth component of the data bank. This value is found by multiplying the EP by the eave height (H).

SFWA = EP x H 266' x 25' = 6650

The final component of the data bank is the **wall ratio (WR**) found by dividing the SFGA of the structure by the EP.

WR = SFGA ÷ EP Carry this figure 2 decimal places.

In this example, the SFGA is 3,300 and the EP is 266’. The WR for the structure is 12.41. (3,300 ÷ 266).

The WR value is used in conjunction with the commercial cost schedule to determine the shape adjustment factor for the subject building.

Completing the Data Bank

This example shows how to complete the data bank portion for the structure shown at the top of the first column. Read through the first example and then complete the three remaining columns of the data bank for the structures listed at the top of each column.

The first structure has a length of 36', a width of 40', 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 **SFGA**, multiply the length of 36', by the width of 40', for a total of 1,440 square feet for the structure.

2 To compute the **EP**, add the length of 36', the width of 40', the length of 36', and the width of 40', for a total of 152' EP for the structure.

3 To compute the **CF**, chain multiply the length of 36', by the width of 40', by the eave H of 28', for a total of 40,320 CF for the structure.

4 To compute the **SFWA**, multiple the EP of 152', by the eave H of 28', for a total of 4,256 SFWA for the structure.

5 To compute the **WR**, divide the SFGA of 1,440 by the EP of 152 feet, for a WR of 9.47.

Exercise 3-1

Complete the remaining three columns.

	2-Story L36 W40 H28	2-Story L48 W50 H28	2-Story L44 W50 H28	3-Story L72 W48 H42
S/F ground area **(SFGA)**	**1,440**			
Eff. Perim L/F **(EP)**	**152**			
C/F of bldg. **(CF)**	**40,320**			
S/F wall area **(SFWA)**	**4,256**			
Wall Ratio **(WR)**	**9.47**			

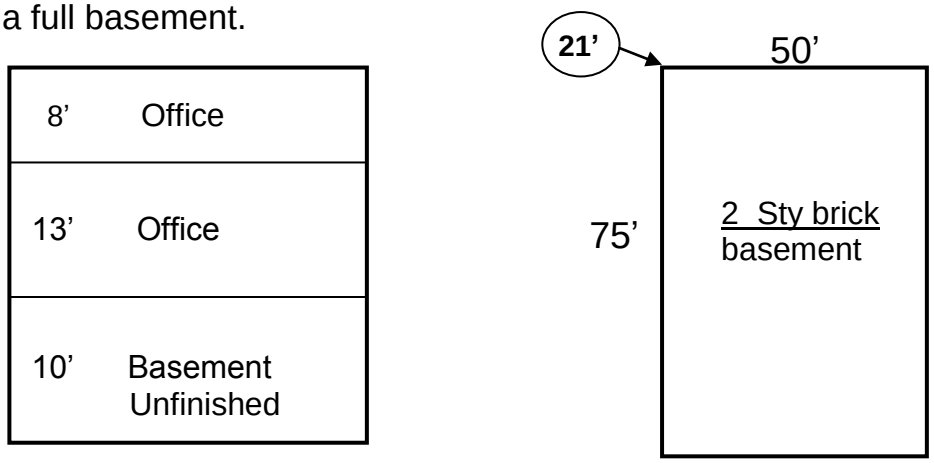
Unit 3 Summary

The collection of data is one of the most important steps. 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 formulas associated with the data bank below.

- Square feet of ground area SFGA = L x W
- Effective perimeter EP = L + W + L + W
  (party walls are factored at 60 percent)
- Cubic feet CF = SFGA x H
- Square feet of wall area SFWA = EP x H
- Wall ratio WR = SFGA ÷ EP

Unit 3 Review questions

Compute the following items in the data bank for this 2-story commercial building with a full basement.



1 Compute the EP if one of the 75' walls is a party wall. _____

2 Compute the EP if both of the 75' walls are party walls. _____

Unit 4

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 Schedules."

Note: Download or Print Publication 126 Instructions for Commercial Schedules: tax.illinois.gov/Publications/Pubs/Pub-126.pdf

Learning objectives

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

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 and shape adjustment factors,
- locate costs for plumbing, air conditioning, and sprinklers in the commercial supplemental cost schedules,
- identify pertinent construction specifications found on the PRC-4,
- determine the REL of a commercial improvement, and
- arrive at a correct estimate of market value using the commercial square foot schedules.

Terms and concepts

- Base price adjustment (BPA) factor
- Construction specifications
- Wall height adjustment factor
- Shape factor
- Base cost
- Remaining economic life (REL)

Commercial schedules

The commercial schedules in the 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 the Publication to reflect the values in various jurisdictions.

The Commercial Square Foot Schedule was developed for pricing the typical mercantile building (1-5 stories), office buildings (1 to 10 stories), and various other building types.

For large 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. Before using a schedule, read all of the information on the schedules.

IDOR Costing methods

The SF method presented is the primary method for valuing common commercial and industrial properties; while the component-in-place method is the best application for more complex structures or when requiring more detail in the pricing. The Commercial Square Foot Schedules' values provide SF costs for various typical buildings, together with modifiers for common deviations from the typical buildings. Component-in-place 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 Publications 126 and 127 buildings are classified by occupancy or use. The initial step in SF estimation is determination of correct occupancy or use.

The following is a list of commercial property uses valued in the SF method in Publication 126:

Offices	Apartments	Retail Store
Motel/Hotel	Discount store	Supermarket
Branch Bank	Convenience store	Fast food restaurant
Senior Housing/Assisted living		

The next step in costing is to identify building construction based upon framing and exterior wall cover. Below is a sample for the Office cost schedule. Notice the various kinds of construction.

Story	Wall height	Construction Type	Average Per Floor Area					
			2,000	3,000	5,000	7,500	10,000	12,500
Basement	9'	Unfinished storage	38.60	37.75	36.70	35.60	34.55	33.70
		Finished office	97.40	96.10	95.00	94.05	93.10	92.25
		Unfinished parking	48.60	46.15	45.50	44.95	44.30	43.70
First floor	14'	Brick veneer on wood studs	220.30	202.35	185.95	180.65	168.65	167.20
		Siding on wood frame	172.25	158.65	146.15	139.00	135.50	132.70
		Brick on conc. blk/wood	163.50	146.35	130.55	122.10	118.25	113.90
		EIFS/Stucco on studs	182.55	167.60	155.20	144.55	141.00	137.40
		Decorative conc. block	193.20	174.90	158.15	149.15	144.80	140.70
		Precast conc. on steel	280.15	257.10	233.30	212.85	198.60	187.90
		Precast conc. on rein conc.	275.00	251.20	227.40	207.10	193.05	182.35
		Glass and metal	338.95	289.70	248.65	222.90	209.35	203.20
		Brick on conc. blk/steel	227.10	219.65	203.85	195.55	189.15	186.25
		Common brick	270.95	248.85	226.85	220.27	205.75	204.00

It is important to use the appropriate schedule. As with any cost schedule, the assessor must be aware of items that are included in the base cost. Before using a schedule, read all of the information on the schedules.

Items included in the typical base cost

The **base cost** is the cost indicated in the schedules representing the cost of construction per square foot of the structure. The base cost schedules include:

- normal amounts for excavation, foundations, footings, framing,
- exterior wall construction,
- floor construction and roof construction,
- interior construction and finish including typical plumbing,
- insulation, heating, and lighting.
- Air conditioning, and sprinklers are included for most types of buildings, but not all.

Other features should be priced from the subsidiary schedules or the CIP schedules.

The information from the preceding paragraph is printed at the top of the various occupancy schedules. If you are not sure which items are included in the base price, you should refer to this information on the schedule. If a building has construction features other than those included in the base cost schedules, adjustments to the base cost must be made. Other additions may include such items as plumbing fixtures, air conditioning, and sprinkler systems. These costs are found in the supplemental schedules.

Retail Store Schedules

Base Costs
The base price includes amounts for excavation, foundation, footings, framing, exterior wall construction, floor construction, roof construction, interior construction and finish, insulation, heating/air conditioning, sprinkler system, and lighting. Typical, standard plumbing exists of water heater and one fixture for every 800 square feet. Other features are to be priced from the subsidiary schedules or the CIP schedules. A shape or size adjustment is necessary for store use class. The given price is to be adjusted by a factor from the building shape adjustment table.

Once you have determined the building's use and construction type, select the base square foot cost from the appropriate floor area column. Costs for buildings with floor areas other than those on the schedule should be interpolated between the costs shown to achieve the greatest accuracy. The procedures for interpolating will be discussed in the example following.

Square foot costs for a building with a floor to floor height 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** factor.

Shape Adjustment

An adjustment for shape is necessary to account for area/perimeter ratio variations. The **wall ratio factor** accounts for the amount of wall area to floor area in a building. Generally the more exterior wall to floor area in a building, the more the building costs. It is possible that the wall ratio factor is the only adjustment that may be made on a building.

A shape adjustment is necessary for supermarkets, discount stores, senior housing, retail stores, and offices. For all other

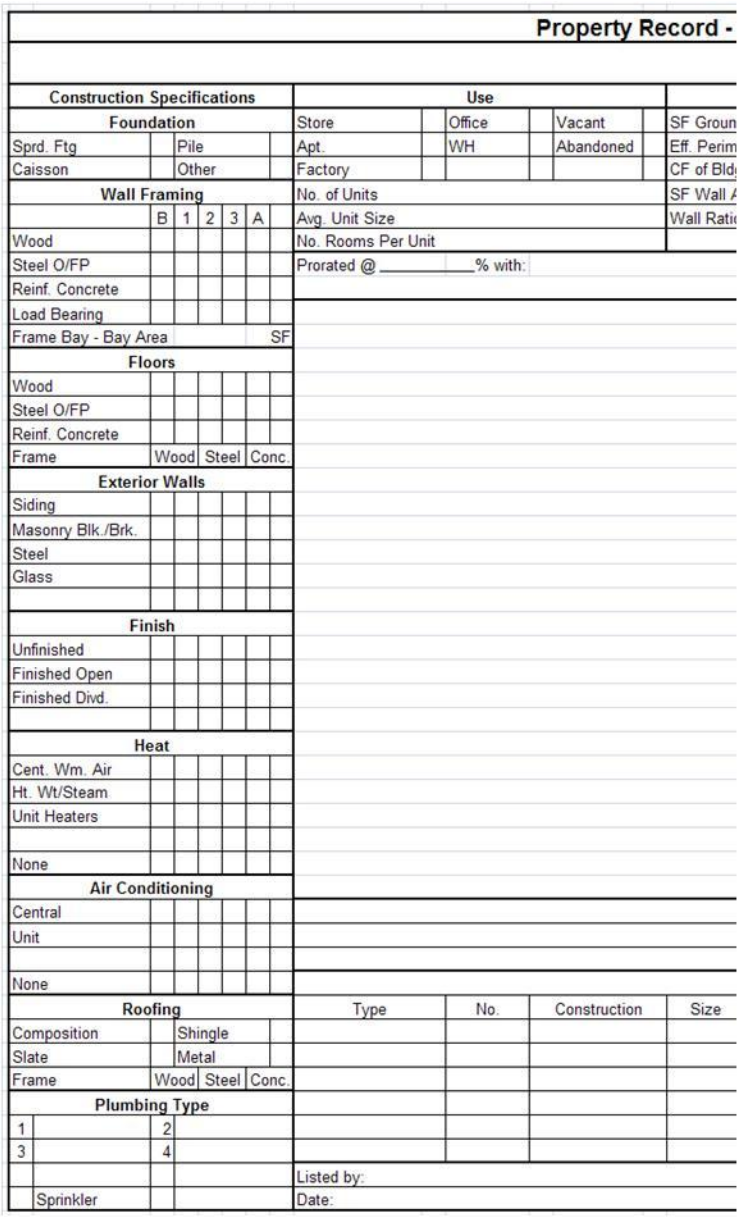
use classes such as apartments, hotels/ motels, branch banks, convenience stores, and fast food restaurants, a shape adjustment is not necessary.

Retail building shape adjustment table Wall ratio = avg. SFA ÷ avg. effective perimeter										
Wall ratio	**7**	**7.5**	**8**	**8.5**	**9**	**9.5**	**10**	**10.5**	**11**	**12**
Adjustment factor	1.350	1.322	1.283	1.256	1.239	1.211	1.183	1.166	1.148	1.115
Wall ratio	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**22**	**24**
Adjustment factor	1.083	1.060	1.042	1.025	1.000	0.992	0.981	0.969	0.950	0.931
Wall ratio	**26**	**28**	**30**	**32**	**34**	**36**	**38**	**40**		
Adjustment factor	0.917	0.901	0.892	0.883	0.874	0.866	0.860	0.854		

PRC-4

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

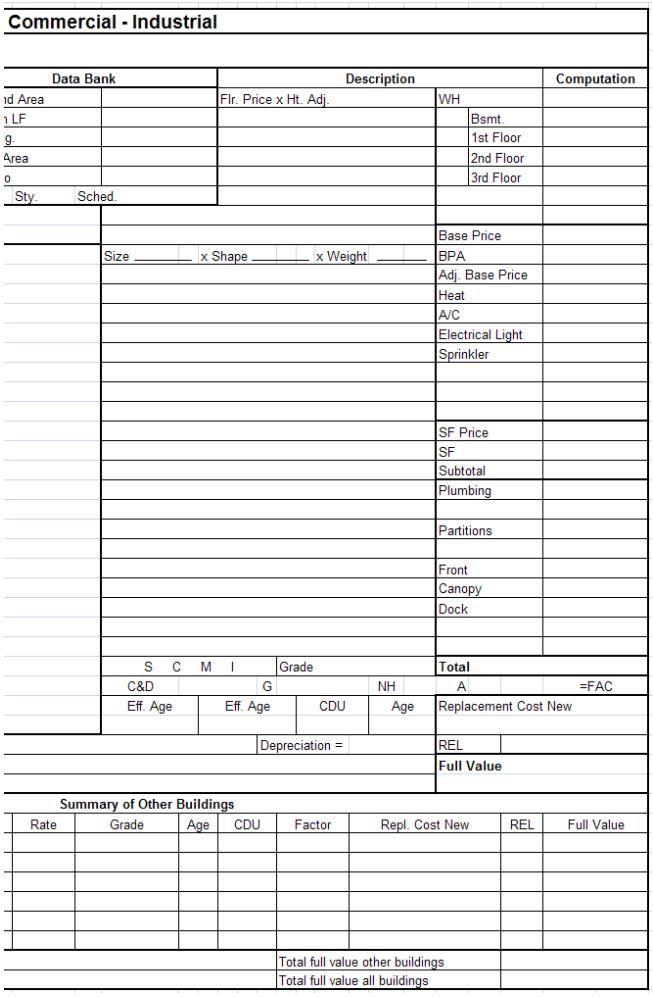
Construction specifications include foundation, framing, floors, exterior wall construction, interior finish, heat, air conditioning, roofing, and plumbing.



After completing the construction specification and use portion of the PRC-4, the next step in determining a RCN for the structure is to complete the information found in the data bank. The formulas for these calculations were covered in Unit 3.

DATA BANK	
SF Ground Area	
Eff. Perim LF	
CF of Bldg.	
SF Wall Area	
Wall Ratio	

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



Commercial - Industrial

Data Bank		Description		Computation
d Area		Flr. Price x Ht. Adj.	WH	
LF			Bsmt.	
g.			1st Floor	
Area			2nd Floor	
o			3rd Floor	
Sty.	Sched.			
			Base Price	
	Size _____ x Shape _____ x Weight _____		BPA	
			Adj. Base Price	
			Heat	
			A/C	
			Electrical Light	
			Sprinkler	
			SF Price	
			SF	
			Subtotal	
			Plumbing	
			Partitions	
			Front	
			Canopy	
			Dock	
	S C M I	Grade	Total	
	C&D G	NH	A	=FAC
	Eff. Age / Eff. Age / CDU / Age		Replacement Cost New	
		Depreciation =	REL	
			Full Value	

Summary of Other Buildings

Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value
				Total full value other buildings			
				Total full value all buildings			

After calculating the components of the data bank, the next step is to determine the base cost of the structure. The base cost of the structure is based on each floor's use in the structure, as well as the construction type and exterior finish of the structure. The schedule includes values for the basement, first floor, and upper floors. The construction type includes "wood joist,""wood stud," "steel frame," and

“concrete frame,” with exterior finishes of brick veneer, stone, siding, stucco, or concrete block.

A single square foot price for each story of the subject building is extracted from the schedule by correlating the story level and building use with the frame type and the exterior wall treatment.

Frame type and exterior wall type are found on the PRC-4 under Construction Specifications; building use is found under Use, and the story level is found under Description.

Example

The subject improvement is a 2-story commercial **retail building** with a **brick veneer exterior with wood studs and wood joists**. The building is 5 years old and in average condition. The desirability and utility are also average. It has a quality grade of “C” which is the average quality grade.

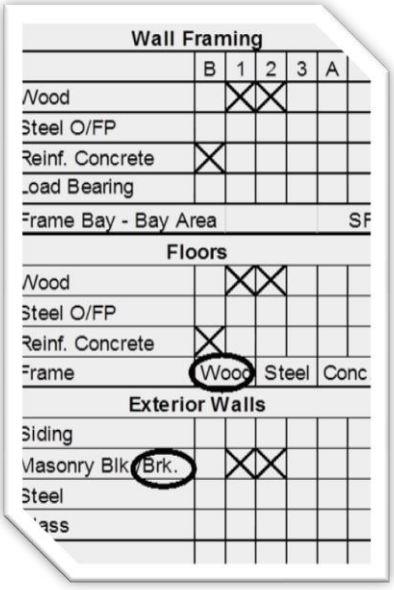
The basement (9' wall height) is unfinished; the first floor (12' wall height) is finished open and used as a store; the second story (13’ wall height) is used as a store with a small manager’s office. The base square footage is 3,420 (38 x 90)

Finished open refers to an open area that has finished floors, walls, and ceilings and has no partition walls.

There are 10 plumbing fixtures in the building.

There is a steel frame store front with aluminum trim along the entire front of the building and 10’ high.

Refer to the completed PRC-4 on the next page and the **Retail Store schedules** in Publication 126 pages 6 & 7.



The “Exterior Walls” are “Brk” (Brick) and the “Wall Framing” for the 1st and 2nd floors is marked as “Wood.” Also, the “Floors” section indicates “Wood” framing.

On the schedules we will use “Brick Veneer on Wood framing” for the construction type.

Property Record - Commercial - Industrial **RETAIL STORE**

Construction Specifications

Foundation			
Sprd. Ftg	X	Pile	
Caisson		Other	

Wall Framing	B	1	2	3	A
Wood		X	X		
Steel O/FP					
Reinf. Concrete					
Load Bearing					
Frame Bay - Bay Area SF					

Floors	B	1	2	3	A
Wood		X	X		
Steel O/FP					
Reinf. Concrete	X				
Frame (Wood) Steel Conc.					

Exterior Walls	B	1	2	3	A
Siding					
Masonry Blk (Brk.)		X	X		
Steel					
Glass					

Finish	B	1	2	3	A
Unfinished	X				
Finished Open		X	X		
Finished Divd.					

Heat	B	1	2	3	A
Cent. Wm. Air		X	X		
Ht. Wt/Steam					
Unit Heaters					
None	X				

Air Conditioning	B	1	2	3	A
Central					
Unit					
None					

Roofing			
Composition	X	Shingle	
Slate		Metal	
Frame	(Wood)	Steel	Conc.

Plumbing Type			
1		2	10
3		4	
Sprinkler			

Use

Store	X	Office		Vacant	
Apt.		WH		Abandoned	
Factory					
No. of Units					
Avg. Unit Size					
No. Rooms Per Unit					
Prorated @ ______ % with:					

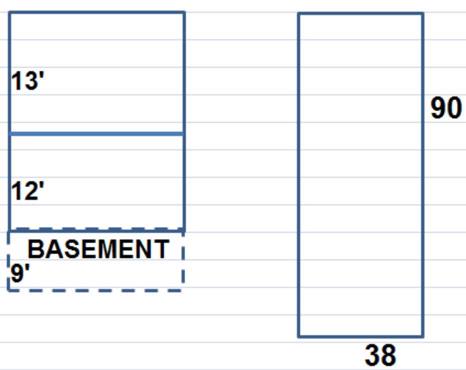
Data Bank

SF Ground Area	3,420
Eff. Perim LF	256
CF of Bldg.	85,500
SF Wall Area	6,400
Wall Ratio	13.36
2 Sty.	Sched. RETAIL

Description

Flr. Price x Ht. Adj.	WH		Computation
37.54 x 1.00	9	Bsmt.	37.54
118.08 x .96	12	1st Floor	113.36
92.98 x 1.02	13	2nd Floor	94.84
		3rd Floor	

Description		Computation
	Base Price	245.74
Size ______ x Shape ______ x Weight ______	BPA	1.083
1.083	Adj. Base Price	266.14
1st 2nd	Heat	
7.80 x .96 x 1.083= 8.11 ; 7.80 x 1.02 x 1.083 = 8.62	A/C	– 16.73
	Electrical Light	
3.85 x .96 x 1.083 = 4.00 ; 3.85 x 1.02 x 1.083 = 4.25	Sprinkler	– 8.25
	SF Price	241.16
	SF	3,420
	Subtotal	824,767
	Plumbing	
	Partitions	
256 x 12 = 3072 x .10 = 307 included	Front	3811
	Canopy	
	Dock	
S C M I Grade		828,578
C&D G NH	A	=FAC



Eff. Age	Eff. Age	CDU	Age	Replacement Cost New
5	5	Avg/Avg	5	828,578

Depreciation =	REL	0.90
	Full Value	745,720

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by:		Total full value other buildings	
Date:		Total full value all buildings	

Now that we have determined that the occupancy is Retail Store, the next step is completing the Data Bank found at the top of the PRC-4.

SFGA = length x width

From the field notes and diagram, note that the structure measures 38' x 90'. Write “3,420” in the “S/FGA cell.”

38' x 90' = 3,420 square feet

The next item in the data bank is the Eff perim L/F (Linear Feet). When calculating an EP, if there is a party wall, factor that dimension at 60 percent.

The formula for the EP is

EP = length + width + length + width

38’ + 90’ + 38’ + 90 = 256’ Effective Perimeter

The next item to calculate is the C/F of Bldg (CF). Multiply the SFGA times the height (H). Remember that the H does not include the basement.

CF = SFGA x H

3,420 x 25 = 85,500 cubic feet

The next item in the data bank is the S/F Wall Area (SFWA).

SFWA = EP x H

256' x 25' = 6,400 SFWA

The final item in the data bank is the Wall Ratio (WR).
WR = SFGA ÷ EP

3,420 ÷ 256 = 13.36

Wall ratios should be carried **two decimal places.**

Referencing the **Retail Store** schedule below, select the values from the "**brick veneer on wood studs**" row and correlate with the proper average floor size column.

Base Costs

The base price includes amounts for excavation, foundation, footings, framing, exterior wall construction, floor construction, roof construction, interior construction and finish, insulation, heating/air conditioning, sprinkler system, and lighting. Typical, standard plumbing exists of water heater and one fixture for every 800 square feet. Other features are to be priced from the subsidiary schedules or the CIP schedules. A shape or size adjustment is necessary for store use class. The given price is to be adjusted by a factor from the building shape adjustment table.

Story	Wall height	Construction type	Average per floor area					
			2,000	3,000	4,000	5,000	6,000	8,000
Basement	9'	Unfinished storage	38.60	37.75	37.25	36.70	36.25	35.40
		Finished store	73.20	72.10	71.70	71.25	70.85	70.55
First floor	14'	Brick veneer on wood studs	131.15	119.95	115.50	108.05	102.15	93.20
		Siding on wood frame	126.40	112.05	108.80	106.90	104.90	102.95
		Brick on conc. blk/ joists	161.10	148.45	143.35	138.25	133.15	127.50
		Stucco on concrete block	158.95	140.40	139.20	127.55	124.05	116.00
		Decorative or split face concrete block	179.45	155.75	143.30	137.60	131.90	115.10
		Precast or tilt-up conc.	147.05	140.30	134.15	128.35	122.55	110.95
		Painted reinforced concrete	142.25	135.60	129.65	124.00	118.35	107.05
		Common brick	160.00	146.35	140.90	131.80	124.60	113.70
Second floor	12'	Brick veneer on wood studs	103.25	94.45	90.95	85.10	80.43	73.40
		Siding on wood frame	99.55	88.25	85.65	84.15	82.60	81.05
		Brick on conc. blk /joists	126.85	116.90	112.85	108.85	104.85	100.40
		Stucco on concrete block	125.15	110.55	109.60	100.45	97.70	91.35
		Decorative or split face concrete block	141.30	122.65	112.85	108.35	103.85	90.65
		Precast or tilt-up concrete	115.80	110.45	105.65	101.05	96.50	87.35
		Painted reinforced concrete	112.00	106.75	102.10	97.65	93.20	84.30
		Common brick	125.00	114.25	110.95	103.80	98.10	89.55

The example retail store has 3,420 square feet. The schedule has columns for 3,000 square feet and for 4,000 square feet. To find a value for 3,420 square feet, we will have to use a process called "interpolation" to find the appropriate value. The value per square foot will be between $37.75 and $37.25. Notice that the value per square foot goes **down** as the square footage goes from 3,000 to 4,000. We will have to **subtract** from the $37.75 to find the appropriate value.

INTERPOLATION

Interpolation is the process of estimating a missing functional value by taking a weighted average of known functional values at neighboring points. (Calculating a more exact value than can be found directly from tables)

Note: If you already know how to interpolate using a different method, you may continue to use that method.

The steps are given in the left column and the numbers from the example retail store are in the right column.

Steps to Interpolate:

Do not clear your calculation until you have the final answer.

1.)	The square foot number given is between _____ and _____ on the schedules. Write the larger square footage on the left and the smaller square footage on the right.	**Example:** Find the base cost of a basement which is unfinished and used for storage. The SFGA is 3,420 SF .
2.)	Write the values that correspond to the square footages listed, above the square footages.	1.) 3,000 4,000
3.)	Subtract the values to find the difference between the dollar amounts. Keep the answer in your calculator.	2.) $\frac{37.25 - 37.75}{\mathbf{4{,}000 - 3{,}000}}$
4.)	On paper, subtract the square footages.	3.) 37.25 – 37.75 = **– .50**
5.)	Divide the difference between the values by the difference between the square footages. This is how much it costs per square foot in this range. Your result may be negative but just continue to step 6.	4.) 4,000 – 3,000 = **1,000**
6.)	On paper, find how many square feet you have in your number above the square feet for the smaller square footage.	5.) $\frac{-0.50}{1{,}000} = \mathbf{-0.0005}$
7.)	Multiply the answer in your calculator by the answer from step 6.	6.) 3,420 – 3,000 = **420**
8.)	**Add** your answer to the value associated with the **smaller** square footage.	7.) – .0005 x 420 = **–0.21**
		8.) – 0.21 + **37.75** = **37.54**

The unfinished basement used for storage has a base price of $**37.54.**
1st and 2nd floor base costs

Base Costs							
The base price includes amounts for excavation, foundation, footings, framing, exterior wall construction, floor construction, roof construction, interior construction and finish, insulation, heating/air conditioning, sprinkler system, and lighting. Typical, standard plumbing exists of water heater and one fixture for every 800 square feet. Other features are to be priced from the subsidiary schedules or the CIP schedules. A shape or size adjustment is necessary for store use class. The given price is to be adjusted by a factor from the building shape adjustment table.							
Story	**Wall height**	**Construction type**	**Average per floor area**				
			2,000	3,000	4,000	5,000	6,000	8,000
Basement	9'	Unfinished storage	38.60	37.75	37.25	36.70	36.25	35.40
		Finished store	73.20	72.10	71.70	71.25	70.85	70.55
First floor	14'	Brick veneer on wood studs	131.15	119.95	115.50	108.05	102.15	93.20
		Siding on wood frame	126.40	112.05	108.80	106.90	104.90	102.95
		Brick on conc. blk/ joists	161.10	148.45	143.35	138.25	133.15	127.50
		Stucco on concrete block	158.95	140.40	139.20	127.55	124.05	116.00
		Decorative or split face concrete block	179.45	155.75	143.30	137.60	131.90	115.10
		Precast or tilt-up conc.	147.05	140.30	134.15	128.35	122.55	110.95
		Painted reinforced concrete	142.25	135.60	129.65	124.00	118.35	107.05
		Common brick	160.00	146.35	140.90	131.80	124.60	113.70
Second floor	12'	Brick veneer on wood studs	103.25	94.45	90.95	85.10	80.43	73.40
		Siding on wood frame	99.55	88.25	85.65	84.15	82.60	81.05
		Brick on conc. blk /joists	126.85	116.90	112.85	108.85	104.85	100.40
		Stucco on concrete block	125.15	110.55	109.60	100.45	97.70	91.35
		Decorative or split face concrete block	141.30	122.65	112.85	108.35	103.85	90.65
		Precast or tilt-up concrete	115.80	110.45	105.65	101.05	96.50	87.35
		Painted reinforced concrete	112.00	106.75	102.10	97.65	93.20	84.30
		Common brick	125.00	114.25	110.95	103.80	98.10	89.55

Determine the base price for the first floor.

Fill in the blanks to determine the base price for the first floor which is also brick veneer on wood studs.

1) The square footage of 3,420 is between _____ SF and _____ SF.

2) through 5) $\frac{\text{\_\_\_\_\_} - \text{\_\_\_\_\_}}{4{,}000 - 3{,}000} = - \frac{\text{\_\_\_\_\_}}{1{,}000} = \text{\_\_\_\_\_}$

(There will be a minus sign in your calculator. Do not clear your calculator.)

6) On paper, find the difference between the square footage of the subject building and the **smaller** SF. _____

7) Multiply the number in your calculator by the difference in the square footage and round to the nearest penny.

8) **Add** your answer to the value that corresponds to the **smaller** SF.
– 1.87 + 119.95 = 118.08

The base price of the first floor is **$118.08**.

Story	Wall height	Construction type	Average per floor area					
			2,000	3,000	4,000	5,000	6,000	8,000
Basement	9’	Unfinished storage	38.60	37.75	37.25	36.70	36.25	35.40
		Finished store	73.20	72.10	71.70	71.25	70.85	70.55
First floor	14’	Brick veneer on wood studs	131.15	119.95	115.50	108.05	102.15	93.20
		Siding on wood frame	126.40	112.05	108.80	106.90	104.90	102.95
		Brick on conc. blk/ joists	161.10	148.45	143.35	138.25	133.15	127.50
		Stucco on concrete block	158.95	140.40	139.20	127.55	124.05	116.00
		Decorative or split face concrete block	179.45	155.75	143.30	137.60	131.90	115.10
		Precast or tilt-up conc.	147.05	140.30	134.15	128.35	122.55	110.95
		Painted reinforced concrete	142.25	135.60	129.65	124.00	118.35	107.05
		Common brick	160.00	146.35	140.90	131.80	124.60	113.70
Second floor	12’	Brick veneer on wood studs	103.25	94.45	90.95	85.10	80.43	73.40
		Siding on wood frame	99.55	88.25	85.65	84.15	82.60	81.05
		Brick on conc. blk /joists	126.85	116.90	112.85	108.85	104.85	100.40
		Stucco on concrete block	125.15	110.55	109.60	100.45	97.70	91.35
		Decorative or split face concrete block	141.30	122.65	112.85	108.35	103.85	90.65
		Precast or tilt-up concrete	115.80	110.45	105.65	101.05	96.50	87.35
		Painted reinforced concrete	112.00	106.75	102.10	97.65	93.20	84.30
		Common brick	125.00	114.25	110.95	103.80	98.10	89.55

Determine the base price for the second floor.

Use the schedule above and interpolation to find the base price of the second floor. _____

Upper floor finished into store and small offices has a base price of $92.98

These values are listed on the computation ladder and the individual values are subject to an adjustment for height variance, if necessary.

Description			Computation
	WH		
37.54	9	Basement	
118.08	12	1st floor	
92.98	13	2nd floor	
Total			

Wall height variation

A wall height adjustment may be necessary 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 before writing in the computation ladder of the PRC-4.

Story	Wall height	Construction type	Average per floor area					
			2,000	3,000	4,000	5,000	6,000	8,000
Basement	9'	Unfinished storage	38.60	37.75	37.25	36.70	36.25	35.40
		Finished store	73.20	72.10	71.70	71.25	70.85	70.55
First floor	14'	Brick veneer on wood studs	131.15	119.95	115.50	108.05	102.15	93.20
		Siding on wood frame	126.40	112.05	108.80	106.90	104.90	102.95
		Brick on conc. blk/ joists	161.10	148.45	143.35	138.25	133.15	127.50
		Stucco on concrete block	158.95	140.40	139.20	127.55	124.05	116.00
		Decorative or split face concrete block	179.45	155.75	143.30	137.60	131.90	115.10
		Precast or tilt-up conc.	147.05	140.30	134.15	128.35	122.55	110.95
		Painted reinforced concrete	142.25	135.60	129.65	124.00	118.35	107.05
		Common brick	160.00	146.35	140.90	131.80	124.60	113.70
Second floor	12'	Brick veneer on wood studs	103.25	94.45	90.95	85.10	80.43	73.40
		Siding on wood frame	99.55	88.25	85.65	84.15	82.60	81.05
		Brick on conc. blk /joists	126.85	116.90	112.85	108.85	104.85	100.40
		Stucco on concrete block	125.15	110.55	109.60	100.45	97.70	91.35
		Decorative or split face concrete block	141.30	122.65	112.85	108.35	103.85	90.65
		Precast or tilt-up concrete	115.80	110.45	105.65	101.05	96.50	87.35
		Painted reinforced concrete	112.00	106.75	102.10	97.65	93.20	84.30
		Common brick	125.00	114.25	110.95	103.80	98.10	89.55
Story Ht. adj., add or deduct per 1 foot			2%	2%	2%	2%		

The amount of this adjustment is 2 percent per foot of wall height variation for buildings up to 8,000 SF per floor, and 1 percent for buildings larger than 8,000 SF per floor. The standard "wall height" information column is located next to the "story" column on the retail store schedule.

If the wall height of the floor is greater than the wall height indicated on the schedules, you must make a plus adjustment and raise the values because additional construction materials are used.

If the wall height of the floor is less than the wall height indicated on the schedules, you must make a minus adjustment and lower the values to account for the decrease in price for materials not needed.

This information is located about two-thirds of the way down on the first page of the commercial square foot schedules.

The base costs listed in the schedule are based on a basement with a height of 9'. Since the subject property has a basement height of 9', **no adjustment** is necessary. Therefore, the base price would be factored at 100 percent of the base price noted in the schedule. The base cost is **$37.54**.

The base costs listed in the schedule are based on a 1st story wall height of 14'. Since the subject property has a wall height of 12', a **minus** adjustment of 4 percent is necessary.
(2 percent per foot x difference of 2 feet = 4 percent)
Therefore, the base price would be adjusted by 96 percent (100 percent – 4 percent = 96 percent = 0.96).

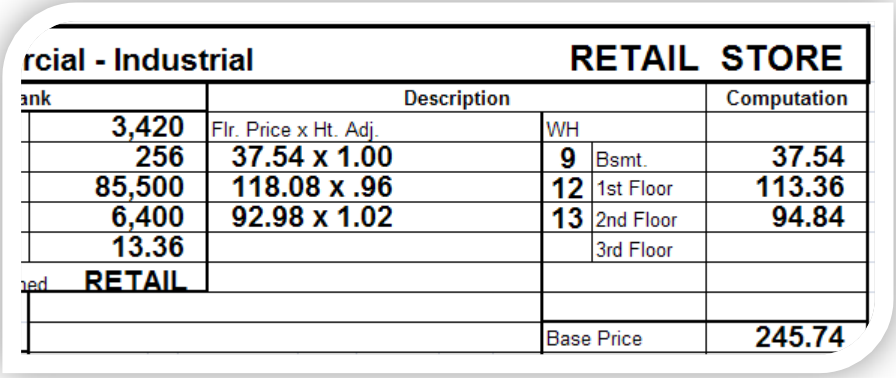
$118.08 x 96% (.96) = $113.36

The base costs listed in the schedule are based on an upper story wall height of 12'. Since the subject property has a wall height of 13', a **plus** adjustment of 2 percent is necessary. Therefore, the base price would be adjusted by 102 percent.

$92.98 x 102% (1.02) = $94.84

The **total base cost** is the sum of the base costs after adjustment for wall height variation.

The total base cost is 37.54 + 113.36 + 94.84 = $245.74



rcial - Industrial — RETAIL STORE

ank	Description			Computation
3,420	Flr. Price x Ht. Adj.	WH		
256	37.54 x 1.00	9	Bsmt.	37.54
85,500	118.08 x .96	12	1st Floor	113.36
6,400	92.98 x 1.02	13	2nd Floor	94.84
13.36			3rd Floor	
RETAIL				
		Base Price		245.74

Story	Wall height	Construction type	Average per floor area			
			2,000	3,000	4,000	5,000
Basement	9’	Unfinished storage	38.60	37.75	37.25	36.70
		Finished store	73.20	72.10	71.70	71.25
First floor	14’	Brick veneer on wood studs	131.15	119.95	115.50	108.05
		Siding on wood frame	126.40	112.05	108.80	106.90
		Brick on conc. blk/ joists	161.10	148.45	143.35	138.25
		Stucco on concrete block	158.95	140.40	139.20	127.55
		Decorative or split face concrete block	179.45	155.75	143.30	137.60
		Precast or tilt-up conc.	147.05	140.30	134.15	128.35
		Painted reinforced concrete	142.25	135.60	129.65	124.00
		Common brick	160.00	146.35	140.90	131.80
Second floor	12’	Brick veneer on wood studs	103.25	94.45	90.95	85.10
		Siding on wood frame	99.55	88.25	85.65	84.15
		Brick on conc. blk /joists	126.85	116.90	112.85	108.85
		Stucco on concrete block	125.15	110.55	109.60	100.45
		Decorative or split face concrete block	141.30	122.65	112.85	108.35
		Precast or tilt-up concrete	115.80	110.45	105.65	101.05
		Painted reinforced concrete	112.00	106.75	102.10	97.65
		Common brick	125.00	114.25	110.95	103.80
Third floor	12’	Brick veneer on wood studs	97.05	88.75	85.45	79.95
		Brick on conc. blk/steel joists	119.20	109.85	106.10	102.30
		Stucco on concrete block	117.60	103.90	103.00	94.40
		Decorative or split face concrete block	132.80	115.25	106.05	101.80
		Precast concrete	108.80	103.80	99.25	95.00
		Common brick	118.40	108.30	104.00	97.90
Story Ht. adj., add or deduct per 1 foot			2%	2%	2%	2%

Reference the appropriate story and wall height schedule from the retail store schedule above. Apply the appropriate adjustment factors to determine the correct adjusted floor prices for the following items.

Base price of floor x factor = adjusted floor price

Basement is 10’ high $37.25 x _____ = $_____

First floor is 12’ high $115.50 x _____ = $_____

Second floor is 16’ high $90.95 x _____ = $_____

Third floor is 8’ high $85.45 x _____ = $ _____

Shape factor

An adjustment for shape is necessary to account for area/ perimeter ratio variations. It costs less to build a square box than a rectangular box of the same area because the rectangular box has a greater wall area.

The building shape table is provided to adjust the base price for these variations in floor to wall area ratio.

The shape adjustment factor is based on the wall ratio that you calculated in the data bank. To compute the wall ratio, divide the square feet of the structure by the lineal feet of the effective perimeter.

The table for the shape adjustment factor is located at the bottom of the second page of the retail store square foot schedules.

Retail building shape adjustment table
Wall ratio = avg. SFA ÷ avg. effective perimeter

Wall ratio	7	7.5	8	8.5	9	9.5	10	10.5	11	12
Adjustment factor	1.350	1.322	1.283	1.256	1.239	1.211	1.183	1.166	1.148	1.115
Wall ratio	13	14	15	16	17	18	19	20	22	24
Adjustment factor	1.083	1.060	1.042	1.025	1.000	0.992	0.981	0.969	0.950	0.931
Wall ratio	26	28	30	32	34	36	38	40		
Adjustment factor	0.917	0.901	0.892	0.883	0.874	0.866	0.860	0.854		

Wall ratio calculation examples

For example, our subject had a square footage of 3,420 and an effective perimeter of 256. The **wall ratio is 13.36**; the **factor** would be **1.083.**

If the specific wall ratio is not shown, use the factor for the wall ratio that is closest. Referring to the shape adjustment table, indicate the appropriate shape adjustment factor for the following wall ratios.

8	_____	22.00	_____
10.5	_____	20.75	_____
35.80	_____	14.6	_____

Base price adjustment (BPA) factor

The shape adjustment factor becomes the base price adjustment (BPA) factor. Multiply the BPA by the total base price (which has already been adjusted for height variances) to arrive at an adjusted base price.

In our example, the total base price, after factoring in height variance, was $245.74. Multiply this by the BPA of 1.083 to arrive at an adjusted base price of $266.14.

ecord - Commercial - Industrial					RETAIL STORE
Data Bank		Description			Computation
SF Ground Area	3,420	Flr. Price x Ht. Adj.	WH		
Eff. Perim LF	256	37.54 x 1.00	9	Bsmt.	37.54
CF of Bldg.	85,500	118.08 x .96	12	1st Floor	113.36
SF Wall Area	6,400	92.98 x 1.02	13	2nd Floor	94.84
Wall Ratio	13.36			3rd Floor	
2 Sty. Sched.	RETAIL				
				Base Price	245.74
	Size ____ x Shape 1.083 x Weight ____			BPA	1.083
				Adj. Base Price	266.14

Commercial subsidiary schedules

Additions or subtractions to the base price, now the adjusted base price, may be necessary if the building has features that are not included in the base cost from the schedule or if items are included in the schedule base cost that the building does not have.

The next item in the computation ladder is heat. Heating is included in the base price. The structure is heated so no adjustment is necessary.

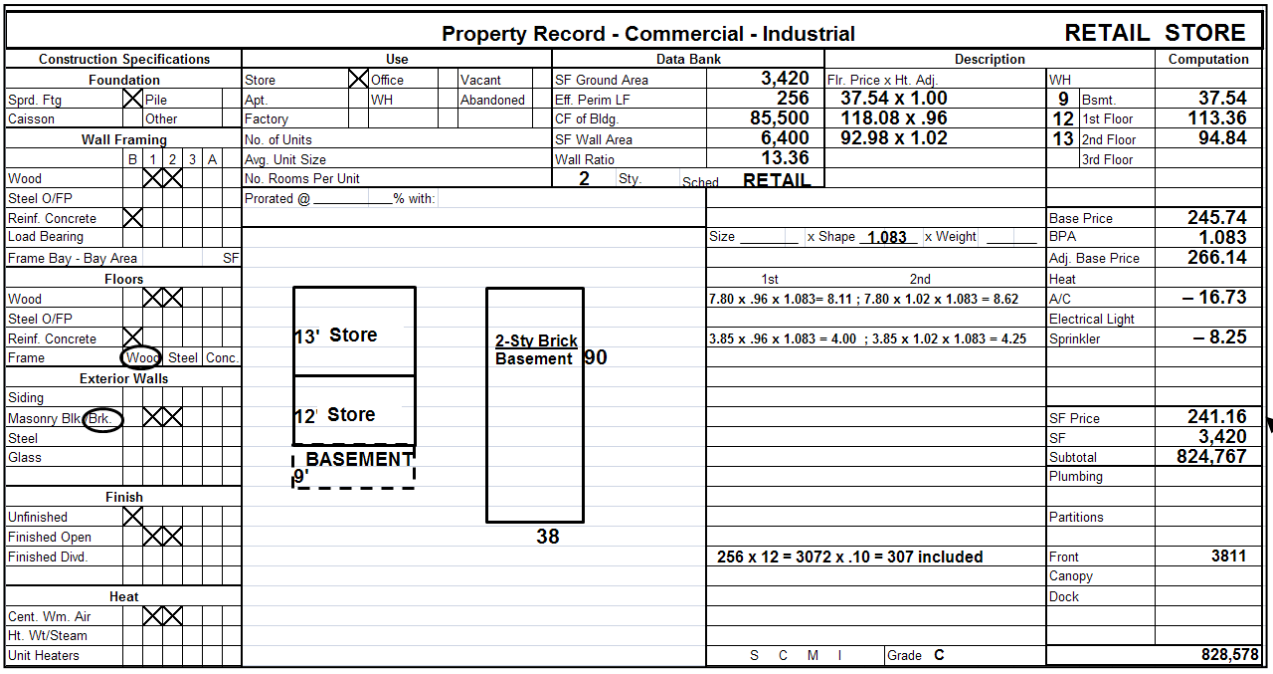
Many of these items are found in the subsidiary schedules. If an item is not found there, the assessor has to refer to CIP schedules in IDOR Publication 127 Instructions for Industrial Schedules to obtain a cost value.

These values are then entered in the appropriate area on the computation ladder and added to or subtracted from the adjusted base cost.

Some features are priced based on the square feet of the floor area, such as sprinklers and air conditioning (A/C). The values are entered on the computation ladder, above the S/F price line, and represent a cost per square foot of ground area. The cost of

each of these features added to, or subtracted from, the adjusted base prices provide a total square foot price for the building.

The square foot price is then multiplied by the SFGA. This value is entered on the subtotal line of the computation ladder.



Property Record - Commercial - Industrial — **RETAIL STORE**

Construction Specifications	Use	Data Bank		Description		Computation
Foundation: Sprd. Ftg ☒ Pile; Caisson ☐ Other	Store ☒ Office ☐ Vacant; Apt. ☐ WH ☐ Abandoned; Factory ☐	SF Ground Area	3,420	Flr. Price x Ht. Adj.	WH	
		Eff. Perim LF	256	37.54 x 1.00	9 Bsmt.	37.54
		CF of Bldg.	85,500	118.08 x .96	12 1st Floor	113.36
Wall Framing: B 1 2 3 A	No. of Units	SF Wall Area	6,400	92.98 x 1.02	13 2nd Floor	94.84
Wood ☒	Avg. Unit Size	Wall Ratio	13.36		3rd Floor	
Steel O/FP ☐	No. Rooms Per Unit	2 Sty. Sched.	RETAIL			
Reinf. Concrete ☒	Prorated @ ____% with:				Base Price	245.74
Load Bearing ☐		Size ____ x Shape 1.083 x Weight ____			BPA	1.083
Frame Bay - Bay Area ____ SF					Adj. Base Price	266.14
Floors		1st	2nd		Heat	
Wood ☒	13' Store	7.80 x .96 x 1.083= 8.11	7.80 x 1.02 x 1.083 = 8.62		A/C	– 16.73
Steel O/FP ☐	12' Store				Electrical Light	
Reinf. Concrete ☒	BASEMENT 9'	3.85 x .96 x 1.083 = 4.00	3.85 x 1.02 x 1.083 = 4.25		Sprinkler	– 8.25
Frame: (Wood) Steel Conc.	2-Sty Brick Basement 90					
Exterior Walls	38					
Siding ☐						
Masonry Blk (Brk.) ☒					SF Price	241.16
Steel ☐					SF	3,420
Glass ☐					Subtotal	824,767
					Plumbing	
Finish						
Unfinished ☒					Partitions	
Finished Open ☐						
Finished Divd. ☐		256 x 12 = 3072 x .10 = 307 included			Front	3811
					Canopy	
Heat					Dock	
Cent. Wm. Air ☒						
Ht. Wt/Steam ☐						
Unit Heaters ☐		S C M I	Grade C			828,578

Total SF price

Subsidiary items, not priced based on the building's SFFA or SFGA, such as plumbing and loading docks, are entered on the computation ladder below the subtotal line.

The following subsidiary schedules are included in the commercial square foot schedules.

Air conditioning (per SF service area)	
Apartments*	$ 17.35
Retail store	7.80
Office	16.50

Air conditioning (A/C) — Air conditioning is priced in all building uses in IDOR Publication 126. If air conditioning does not exist in the subject building being valued, then a **deduction** must be made based on the use of the floor.

First obtain a cost for each floor that is **not** air conditioned based on its use. Then, add the values for each floor to get a total cost. This amount, after adjustments, is entered on the computation ladder under A/C as a deduction.

Air Conditioning adjustment examples

If the subject has air conditioning, which is included in the base cost, no adjustment would be necessary.

However, since the retail store example does **not** have air conditioning, a deduction per SF would have to be made.

Do not consider air conditioning for the basement.

First floor used as a store	$7.80
Second floor used as a store	$7.80
Computation ladder	-$15.60 *

* If you adjusted the base cost by a shape and/or wall height adjustment, that factor must be applied to the subtraction of those items from the base cost.

In our example we made both height adjustments and shape (BPA) adjustments, so we have to consider both these adjustments in subtracting out air conditioning from the base cost.

Since the height adjustments for the first and second floors are different we must account for that difference by factoring the two floors separately:

First floor: $7.80 X 0.96 X 1.083 = $8.11
Second floor: $7.80 X 1.02 X 1.083 = $8.62

Adjustment applied to the air conditioning base cost:
$8.11 + $8.62 = $16.73 The deduction would be — $16.73

IMPORTANT TIP ! ! ! **If you adjusted the base cost by a wall height adjustment and/or a Base Price Adjustment factor, that same factor must be applied to any subtractions.**

Do not apply the wall height adjustment and/or BPA to additions to the computation ladder.

Sprinkler system — The sprinkler cost is also based on the use of the floor. Refer to the sprinkler schedule to determine a square foot cost for each floor sprinkled.

Sprinkler system (per SF service area)	
Apartments	$ 3.00
Office	3.90
Retail Store	3.85
Supermarket	3.40
Discount Store	2.70

The base cost section of the retail store schedule includes a sprinkling system. Since the retail store example does **not** have a sprinkling system, a deduction will have to be made. Do not consider the basement for sprinkler adjustments.

Base Costs

The base price includes amounts for excavation, foundation, footings, framing, exterior wall construction, floor construction, roof construction, interior construction and finish, insulation, heating/air conditioning, sprinkler system, and lighting. Typical, standard plumbing exists of water heater and one fixture for every 800 square feet. Other features are to be priced from the subsidiary schedules or the CIP schedules. A shape or size adjustment is necessary for store use class. The given price is to be adjusted by a factor from the building shape adjustment table.

First floor used as a retail store = $ 3.85
Second floor used as a retail store = $ 3.85

Now adjust these values individually for wall height and BPA adjustments.

First floor 3.85 x 0.96 x 1.083 = $ 4.00
Second floor 3.85 x 1.02 x 1.083 = $ 4.25

Total **deduction** on the computation ladder: – $ 8.25

Computation ladder

Beginning with the total adjusted base price ($266.14), add or subtract to find the total price per square foot.

Multiply the total square foot price ($241.16) by the SFGA of 3,420 from the data bank to get the subtotal of $824,767.

Items added below the subtotal will not be per square foot, but will be the total value of the item.

rcial - Industrial		RETAIL STORE		
ank	Description			Computation
3,420	Flr. Price x Ht. Adj.	WH		
256	37.54 x 1.00	9	Bsmt.	37.54
85,500	118.08 x .96	12	1st Floor	113.36
6,400	92.98 x 1.02	13	2nd Floor	94.84
13.36			3rd Floor	
ned RETAIL				
		Base Price		245.74
Size	x Shape 1.083 x Weight	BPA		1.083
		Adj. Base Price		266.14
1st	2nd	Heat		
7.80 x .96 x 1.083= 8.11 ; 7.80 x 1.02 x 1.083 = 8.62		A/C		– 16.73
		Electrical Light		
3.85 x .96 x 1.083 = 4.00 ; 3.85 x 1.02 x 1.083 = 4.25		Sprinkler		– 8.25
		SF Price		241.16
		SF		3,420
		Subtotal		824,767

Plumbing — Plumbing costs are based on the number of existing fixtures and the type of fixtures. These costs include the piping, installation, etc.

Additions	
Item	**Cost**
Plumbing (per each existing fixture)	
Residential (type 1)	$ 1,795
Commercial (type 2)	2,600
Special (refer to CIP Schedule Pub. 127)	

Typical plumbing by occupancy or use is included in the base cost. Plumbing must be adjusted if the number of fixtures in the building being valued varies from that included in the base cost.

There are two types of fixtures listed in the schedule, “residential type 1” and “commercial type 2.” Commercial fixtures are of better construction than residential fixtures.

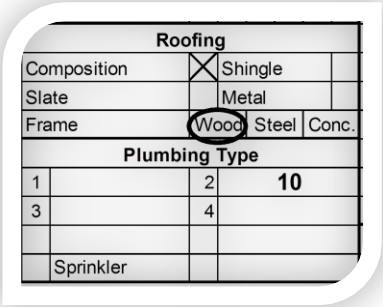
Refer to the base cost schedule for the occupancy or use to determine the number of plumbing fixtures included in the base cost. This will vary depending on what is typical for a specific building type.

If the subject property had 12 more “type 2” fixtures than what was included in the base cost, you would calculate the value by multiplying 12 by $2,600 for a total plumbing value of $31,200. This amount is entered on the computation ladder under “Plumbing.”

Retail Store

Base Costs
The base price includes amounts for excavation, foundation, footings, framing, exterior wall construction, floor construction, roof construction, interior construction and finish, insulation, heating/air conditioning, sprinkler system, and lighting. Typical, standard plumbing exists of water heater and one fixture for every 800 square feet. Other features are to be priced from the subsidiary schedules or the CIP schedules. A shape or size adjustment is necessary for store use class. The given price is to be adjusted by a factor from the building shape adjustment table.

The retail store base cost schedule includes “a water heater and one fixture for every 800 square feet.” The retail store example has 6,840 square feet (3,420 x 2). Do not include the basement when calculating total square footage. 6,840 ÷ 800 = 8.55. Since plumbing fixtures are whole units, **always round up** to the nearest whole number. The base cost includes **9** fixtures + 1 water heater or a total of **10** plumbing fixtures for this building.



Roofing				
Composition	X	Shingle		
Slate		Metal		
Frame		Wood	Steel	Conc.
Plumbing Type				
1		2	**10**	
3		4		
	Sprinkler			

The plumbing portion of the PRC is found in the lower left corner. The retail store example has 10 type 2 plumbing fixtures. Since the base cost also includes 10 fixtures, no plumbing adjustment is necessary.

If the base cost schedule includes “typical plumbing,” do not adjust for plumbing. Assume the number of fixtures in the building is typical.

Store front

Commercial structures are often constructed with glass store fronts. Refer to the base cost portion of the schedule for the occupancy to determine whether a store front is included in the base cost. If an adjustment is necessary, refer to the Store Front section of the Commercial Subsidiary Schedule.

The basic retail store square foot price includes basic store front and entrance accounting for 10% of the entire store wall area.

This is calculated by multiplying the effective perimeter of the first floor by the height of the **first floor**.

Use this table for any **additional** store front area over the 10%.

In calculating the total display area include surface area of all glass, sign, and bulkhead areas, including entranceway, islands, etc.

Store Fronts	
Type	**Per SF Display Area**
Wood framed glass & trim with:	
Wood siding	$ 32.65
Brick	41.25
Ceramic	43.60
Marble or granite	79.25
Steel framed glass & aluminum trim with:	
Brick	52.20
Ceramic	55.95
Marble or granite	91.60
Steel framed glass & stainless steel trim with:	
Brick	73.70
Ceramic	76.10
Marble or granite	111.70
The basic retail store square foot price includes a basic store front and entrance accounting for 10% of the entire store wall area. Use this table for any additional store front area over the 10%. In calculating the total display area include surface area of all glass, sign, and bulkhead areas, including entranceway, islands, etc.	

The retail store example has an effective perimeter of 256 feet and the **first floor** is 12' high. Use the **effective** perimeter of the first floor. Multiply the effective perimeter by the height of the first floor.

256 x 12 = 3,072 SF

Now multiply the total SFWA of the first floor by 10%.

3072 x 0.10 (10%) = 307 SF

The store front schedule includes 307 SF of store front for this retail store.

The store front is **steel frame with aluminum trim** along the entire front of the building and 10' high. The retail store has 380 SF of store front. **38' frontage x 10' high = 380 SF**

The difference between the actual store front and what is allowed in the base cost schedule is (380 – 307) **73 SF**.

From the store front schedule on the preceding page, there are several choices for the steel framed glass and aluminum trim: brick, ceramic, and marble or granite. To determine which of these is appropriate, look at the left column of the PRC-4 in the Exterior Wall section. The exterior walls are **brick**. The price per square foot is $52.20. Since this addition occurs **after** the total square foot price, multiply the 73 SF of store front area, which is more than what is included in the schedule, by the $52.20.

52.20 x 73 = $ 3,811

Since this is an **addition** to the computation ladder, do **not** adjust for wall height or BPA. Enter $3,811 in the computation ladder.

You do not have to make any adjustments for canopy or docks.

Note: The CIP schedules should be consulted for all other items not included in the commercial square foot schedules.

Beginning with the Subtotal, add the numbers in the computation ladder (824,767 + 3,811) to yield the **Total of $828,578.**

Factors

Cost, Design, Quality grade, Neighborhood, and Appraiser factors are chain-multiplied to determine a single factor placed in the computation ladder. See the discussion in Unit 2.

The building has a quality grade of “C,” due to the average materials and workmanship used in its construction. Look at the schedule for “Quality Grade,” in Publication 127 Instructions for Industrial Schedules page 8 at the end of the unit. The factor for a “C” grade is 100 percent. Multiply the total of $828,578 x 100 percent (1.00) to arrive at a RCN of $828,578.

Commercial REL Depreciation Tables

The Commercial REL Depreciation Table is used to determine the subject’s Remaining Economic Life or REL factor. As discussed earlier, the condition, desirability, and utility of the property are

considered by using various CDU ratings. Structures can be rated excellent, good, average, poor, or unsound (undesirable).

Unlike the Residential REL Depreciation Table, the age column of the Commercial REL Depreciation Table represents the assigned age given by the assessor to the subject improvement, based on its physical condition in comparison to the physical condition of like commercial buildings having the same chronological age as the subject property. In this class the condition is always “Average” so the first effective age will be the same as the actual age.

The age based on the condition (C) is the first effective age; the desirability (D), and the utility (U) rating produces the second effective age of a property that determines the REL factor, which is applied to the RCN of a structure to adjust for depreciation.

REL + Depreciation = 100% of the RCN value

The Commercial REL Table is used to determine the REL factor. After the effective age considering condition has been assigned, a second effective age is determined based upon the desirability and utility of the subject property in comparison to other buildings within the neighborhood. This effective age is then used in Schedule B to determine the REL factor to be used on the PRC-4.

Looking at Schedule A, the left column reflects the age of the structure based on condition. Once you have located the age, move to the appropriate column to the right and find the effective age based on the desirability and utility (DU) rating assigned to the property.

Schedule A						Schedule B	
Age* considering physical condition	Effective age considering desirability and utility					REL	
	E	G	A	P	U	Eff. 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

Structures can be rated as excellent (E), good (G), average (A), poor (P), or unsound (undesirable) (U). The condition refers to physical depreciation, such as wear and tear and action of the elements that has taken place. The 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. The utility refers to functional obsolescence, such as inefficient and impractical arrangement of rooms and any super-adequacy or inadequacy that may be present. The effective age is determined based upon the condition, desirability and utility of the subject property in comparison to other similar buildings within the jurisdiction.

Once you have determined the effective age, move over to Schedule B. The left column of Schedule B lists the effective age and the number next to it is the REL factor that will be used to adjust the value in the computation ladder on PRC-4.

The example for our subject property has an actual age of five and the condition, desirability and utility are all "average" resulting in an effective age of five. Schedule B indicates an REL factor for a building with a five year effective age of **90 percent (0.90)**.

Multiply the replacement cost new (RCN) by 0.90 for a Full Value of $745,720.

828,578 x 0.90 = 745,720

S C M I	Grade **C**			**Total**	**828,578**
C&D	G	1.00	NH	A	=FAC
Eff. Age	Eff. Age	CDU	Age	Replacement Cost New	
5	**5**	**A / A**	**5**		**828,578**
	Depreciation =			REL	**0.90**
				Full Value	
					745,720

There are no other buildings, so it is not necessary to fill out the Summary of Other Buildings portion of the PRC-4.

The following schedules show how the values were obtained.

Retail Store Schedules

Base Costs

The base price includes amounts for excavation, foundation, footings, framing, exterior wall construction, floor construction, roof construction, interior construction and finish, insulation, heating/air conditioning, sprinkler system, and lighting. Typical, standard plumbing exists of water heater and one fixture for every 800 square feet. Other features are to be priced from the subsidiary schedules or the CIP schedules. A shape or size adjustment is necessary for store use class. The given price is to be adjusted by a factor from the building shape adjustment table.

Story	Wall height	Construction type	Average per floor area					
			2,000	3,000	4,000	5,000	6,000	8,000
Basement	9'	Unfinished storage	38.60	37.75	37.25	36.70	36.25	35.40
		Finished store	73.20	72.10	71.70	71.25	70.85	70.55
First floor	14'	Brick veneer on wood studs	131.15	119.95	115.50	108.05	102.15	93.20
		Siding on wood frame	126.40	112.05	108.80	106.90	104.90	102.95
		Brick on conc. blk/ joists	161.10	148.45	143.35	138.25	133.15	127.50
		Stucco on concrete block	158.95	140.40	139.20	127.55	124.05	116.00
		Decorative or split face concrete block	179.45	155.75	143.30	137.60	131.90	115.10
		Precast or tilt-up conc.	147.05	140.30	134.15	128.35	122.55	110.95
		Painted reinforced concrete	142.25	135.60	129.65	124.00	118.35	107.05
		Common brick	160.00	146.35	140.90	131.80	124.60	113.70
Second floor	12'	Brick veneer on wood studs	103.25	94.45	90.95	85.10	80.43	73.40
		Siding on wood frame	99.55	88.25	85.65	84.15	82.60	81.05
		Brick on conc. blk /joists	126.85	116.90	112.85	108.85	104.85	100.40
		Stucco on concrete block	125.15	110.55	109.60	100.45	97.70	91.35
		Decorative or split face concrete block	141.30	122.65	112.85	108.35	103.85	90.65
		Precast or tilt-up concrete	115.80	110.45	105.65	101.05	96.50	87.35
		Painted reinforced concrete	112.00	106.75	102.10	97.65	93.20	84.30
		Common brick	125.00	114.25	110.95	103.80	98.10	89.55
Third floor	12'	Brick veneer on wood studs	97.05	88.75	85.45	79.95	75.60	68.95
		Brick on conc. blk/steel joists	119.20	109.85	106.10	102.30	98.55	94.35
		Stucco on concrete block	117.60	103.90	103.00	94.40	91.95	85.85
		Decorative or split face concrete block	132.80	115.25	106.05	101.80	97.60	85.15
		Precast concrete	108.80	103.80	99.25	95.00	90.70	82.10
		Common brick	118.40	108.30	104.00	97.90	92.25	84.10
Upper floors 4 & 5	12'	Brick on conc. blk/steel joists	118.00	108.75	105.00	101.30	97.55	93.40
		Precast concrete on steel	107.75	108.75	105.00	101.30	97.55	93.40
		Common brick	116.00	107.50	103.70	100.00	96.90	92.10
Story Ht. adj., add or deduct per 1 foot			2%	2%	2%	2%	2%	2%

Retail Store Schedules

Story	Wall height	Construction type	Average floor area				
			10,000	12,000	15,000	18,000	20,000
Basement	9’	Unfinished storage	34.55	33.75	33.05	32.55	32.45
		Finished store	69.85	69.20	68.70	68.45	68.30
First floor	14’	Brick veneer on wood studs	86.20	84.55	83.60	83.45	83.35
		Siding on wood frame	101.00	100.00	98.55	97.65	97.05
		Brick on conc. blk/joists	124.65	121.80	117.50	112.50	107.20
		Stucco on concrete block	111.40	105.30	100.00	97.70	92.50
		Decorative or split face concrete block	114.00	109.65	105.45	102.80	101.10
		Precast or tilt-up concrete	106.30	101.60	99.60	97.55	96.65
		Painted reinforced concrete	102.65	98.25	96.40	94.50	93.05
		Common brick	105.15	103.15	102.00	101.75	101.60
Second floor	12’	Brick veneer on wood studs	67.85	66.55	65.85	65.70	65.65
		Siding on wood frame	79.55	78.75	77.60	76.90	76.40
		Brick on conc.blk/joists	98.15	95.90	92.50	88.60	84.40
		Stucco on concrete block	87.70	82.90	78.75	76.95	72.85
		Decorative or split face concrete block	89.75	86.35	83.20	80.95	79.60
		Precast or tilt-up concrete	83.70	80.00	78.45	76.80	76.05
		Painted reinforced concrete	80.85	77.35	75.90	74.40	73.25
		Common brick	82.75	81.20	80.35	80.15	80.10
Third floor	12’	Brick veneer on wood studs	63.80	62.55	61.82	61.75	61.70
		Brick on conc. blk/steel joists	92.25	90.15	86.95	83.25	79.35
		Stucco on concrete block	82.45	77.90	74.00	72.30	68.45
		Decorative or split face concrete block	84.35	81.15	78.05	76.05	74.80
		Precast concrete	78.65	75.20	73.70	72.20	71.50
		Common brick	77.85	76.30	75.45	75.25	75.20
Upper floors 4 & 5	12’	Brick on conc. blk/steel joists	91.30	89.25	86.10	82.40	78.55
		Precast concrete on steel	77.90	74.45	72.95	71.45	70.80
		Common brick	91.15	89.10	85.85	82.00	78.40
Wall Ht. adj., add or deduct per 1 foot.			1%	1%	1%	1%	1%

Retail building shape adjustment table Wall ratio = avg. SFA ÷ avg. effective perimeter										
Wall ratio	7	7.5	8	8.5	9	9.5	10	10.5	11	12
Adjustment factor	1.350	1.322	1.283	1.256	1.239	1.211	1.183	1.166	1.148	1.115
Wall ratio	13	14	15	16	17	18	19	20	22	24
Adjustment factor	1.083	1.060	1.042	1.025	1.000	0.992	0.981	0.969	0.950	0.931
Wall ratio	26	28	30	32	34	36	38	40		
Adjustment factor	0.917	0.901	0.892	0.883	0.874	0.866	0.860	0.854		

Commercial Subsidiary Schedules

Additions

Item	Cost
Plumbing (per each existing fixture)	
Residential (type 1)	$ 1,795
Commercial (type 2)	2,600
Special (refer to CIP Schedule Pub. 127)	
Air conditioning (per SF service area)	
Apartments*	$ 17.35
Retail store	7.80
Office	16.50
*For buildings and heating systems that do not require ducts, add 40%	
Sprinkler system (per SF service area)	
Apartments	$ 3.00
Office	3.90
Retail Store	3.85
Supermarket	3.40
Discount Store	2.70

Mezzanines (cost per SF floor area)

Mezzanine costs include the framing support, the floor system, stairways, and lighting. Where applicable, typical partitioning, floor, wall, and ceiling finishes are also included. A height adjustment is not applicable to the mezzanine cost.

Mezzanine finish	Construction	
	Steel framed	Wood framed
Unfinished/storage	$ 38.10	$ 24.75
Store display (finished open)	64.00	41.65
Office (finished divided)	85.85	55.80

Yard paving (per SFGA)	
Asphalt	$ 4.35
Concrete parking	5.50
Concrete truck drive	6.60
Crushed stone	3.60

Store Fronts

Type	Per SF Display Area
Wood framed glass & trim with:	
Wood siding	$ 32.65
Brick	41.25
Ceramic	43.60
Marble or granite	79.25
Steel framed glass & aluminum trim with:	
Brick	52.20
Ceramic	55.95
Marble or granite	91.60
Steel framed glass & stainless steel trim with:	
Brick	73.70
Ceramic	76.10
Marble or granite	111.70

The basic retail store square foot price includes a basic store front and entrance accounting for 10% of the entire store wall area. Use this table for any additional store front area over the 10%. In calculating the total display area include surface area of all glass, sign, and bulkhead areas, including entranceway, islands, etc.

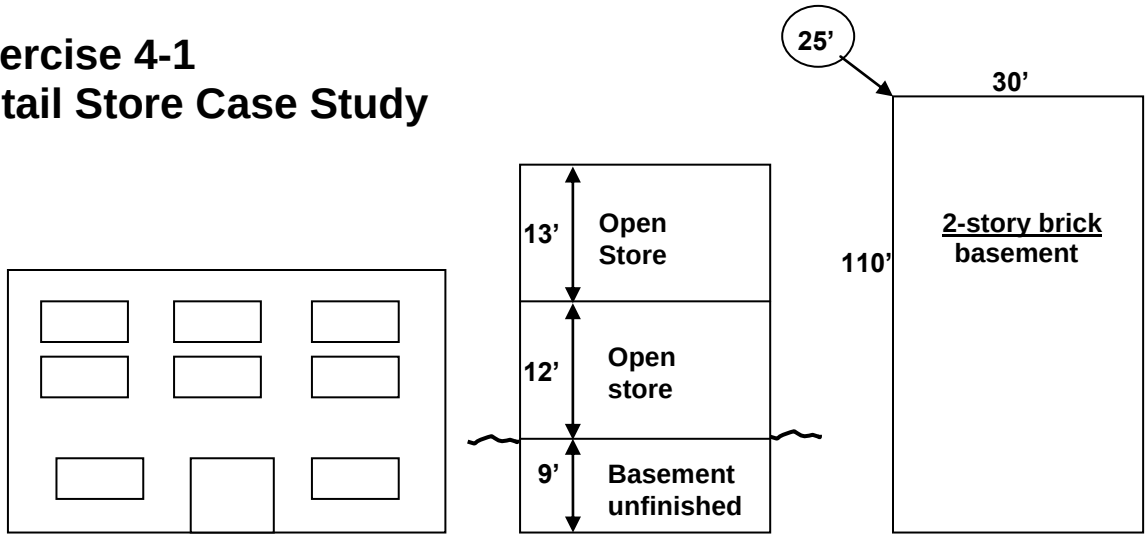
Additions to store fronts

Display platforms (per SF)	$ 8.10
Display ceiling (per SF)	4.90
Display back (per SF)	8.50
Entrance doors	
Revolving door, each	$ 41,100
Hinged aluminum & glass, each	1,600
Hinged stainless steel or bronze, each	3,400
Add for automatic door opener (per door)	6,050
Sliding automatic glass & stainless steel	16,750
Security gates (per SF of gate area)	
Scissor type folding gate steel	$ 21.50
Roll-up grille, aluminum, manual	38.15
Add for motorized operation, each	1,525
Marquees (cost per SF)	
Metal, ornamental steel framed	$ 45.05
Metal, plain, steel framed	35.00
Metal, plain, wood framed	32.60
Wood or stucco, wood framed	28.35
Sign, illuminated plastic, single face	93.95

Download or Print the Publication 126 Instructions for Commercial Schedules and turn to pages 6, 7, 10, and 12 in the Publication for values necessary for the following exercises.

The link to this publication is on the first page of Unit 4.

Exercise 4-1
Retail Store Case Study



PIN: **02-20-200-001**

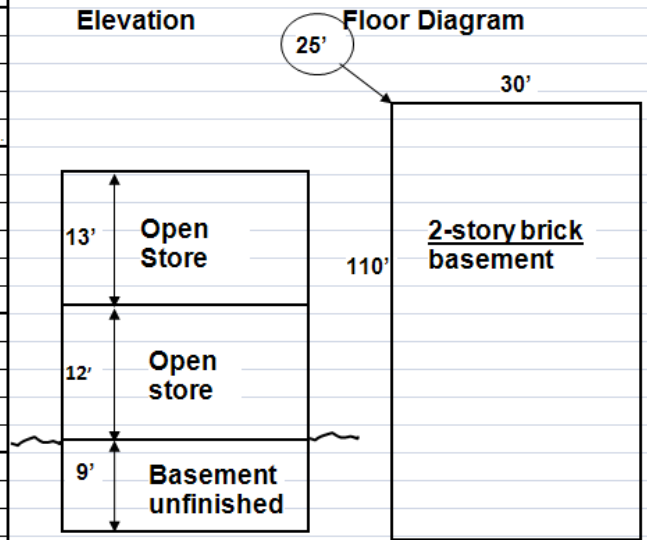
The subject property is a 2-story brick retail store building. The first floor is used as a clothing store and the second floor is used as a shoe store. The building is 12 years old, has a quality grade of "C," its physical condition is average; the desirability and utility are also average. There is an unfinished basement used for storage.

Foundation	concrete spread footing and masonry foundation
Wall framing	wood frame
Floors	wood joist and wood sub-floor with typical, average grade finish
Exterior walls	4" brick veneer
Interior finish	typical, average grade according to use
Heating/central A/C	first and second floors have a central warm air heat and air-conditioning system
Roof	wood frame with wood deck and built-up composition cover
Plumbing/sprinkler	14 plumbing fixtures, type 2; the first and second stories are sprinkled with a wet pipe system
Store front	Steel framed glass & stainless steel trim with brick 9' x 30'
Quality Grade	C

Complete the PRC-4 on the opposite page.

Exercise 4-1 **02-20-200-001** **Property Record - Commercial - Industrial**

Construction Specifications							Use							Data Bank		Description			Computation
Foundation							Store	1	Office	2	Vacant	B		SF Ground Area		Flr. Price x Ht. Adj.	WH		
Sprd. Ftg	✓	Pile					Apt.		WH		Abandoned			Eff. Perim LF				Bsmt.	
Caisson		Other					Factory							CF of Bldg.				1st Floor	
Wall Framing							No. of Units							SF Wall Area				2nd Floor	
	B	1	2	3	A		Avg. Unit Size							Wall Ratio				3rd Floor	
Wood		✓	✓				No. Rooms Per Unit							2 Sty. **Brk** Sched. **Retail Store**					
Steel O/FP							Prorated @ _____% with:												
Reinf. Concrete																			
Load Bearing	✓	✓	✓														Base Price		
Frame Bay - Bay Area						SF									Size _____ x Shape _____ x Weight _____		BPA		
Floors							**Elevation**				**Floor Diagram**						Adj. Base Price		
Wood		✓	✓														Heat		
Steel O/FP																	A/C		
Reinf. Concrete	✓																Electrical Light		
Frame	Wood	Steel	Conc.														Sprinkler		
Exterior Walls																			
Siding																			
Masonry Blk/Brk.		✓	✓														SF Price		
Steel																	SF		
Glass																	Subtotal		
																	Plumbing		
Finish																			
Unfinished	✓																Partitions		
Finished Open		✓																	
Finished Divd.			✓														Front		
																	Canopy		
Heat																	Dock		
Cent. Wm. Air		✓	✓																
Ht. Wt/Steam																			
Unit Heaters																			
None	✓																		
Air Conditioning																			
Central		✓	✓																
Unit																			
None	✓																		
Roofing																			
Composition	✓	Shingle																	
Slate		Metal																	
Frame	Wood	Steel	Conc.																
Plumbing Type																			
1		2	**14**																
3		4																	
	Sprinkler	✓	**1st & 2nd**																



S	C	M	I	Grade	C
C&D			G	1.00	NH	A	=FAC
Eff. Age	Eff. Age	CDU	Age	Replacement Cost New
		Avg/Avg	12	

Depreciation = | REL | | **Full Value**

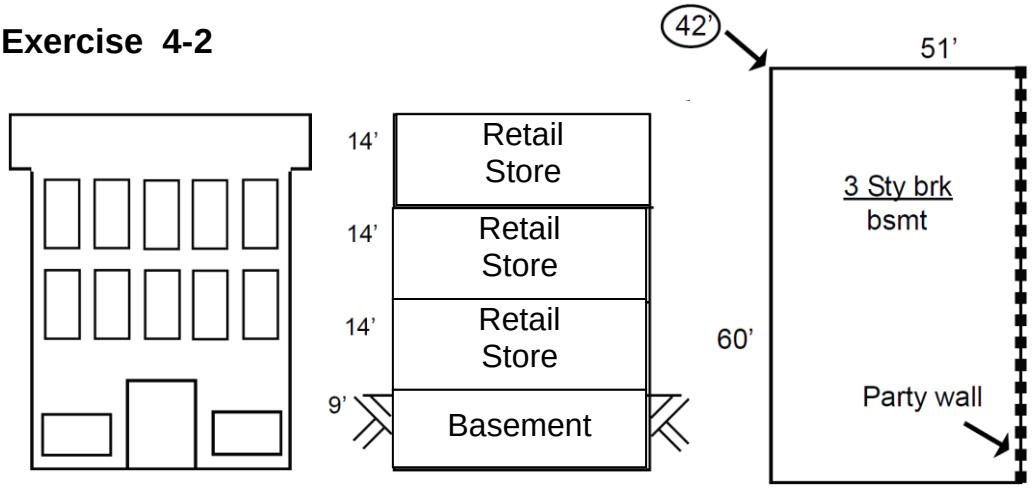
Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by: | Total full value other buildings

Date: | Total full value all buildings

Exercise 4-2



PIN: 02-20-200-002

The subject property is a 3-story retail store with a full basement. There is a party wall found on the east side of the building that extends from the basement floor up to the eaves. The first floor is a toy and game store, the second floor is an antique shop, and the third floor is a thrift store. The structure is 30 years old, has a quality grade of "C," its physical condition is average; the desirability and utility are poor. The cost factor derived from the market study for this jurisdiction is 1.10.

Foundation	concrete spread footing and brick foundation
Wall framing	load bearing with some interior supports
Floors	wood joists and wood sub-floor
Exterior walls	12" common brick
Interior finish	typical with average grade finish
Heating/ AC	all floors above grade are centrally heated with forced warm air; only the first floor has central air conditioning
Roof	roof structure is wood deck and frame with built-up composition cover
Plumbing	6 plumbing fixtures, type 2; all three floors above grade are equipped with a wet pipe sprinkler system (ordinary hazard)
Miscellaneous	7' x 40' of steel frame glass and aluminum trim store front surrounded by brick

Complete the PRC-4 on the opposite page.

Exercise 4-2 **Property Record - Commercial - Industrial**

Construction Specifications

Foundation

Sprd. Ftg	X	Pile
Caisson		Other BK X

Wall Framing

	B	1	2	3	A
(Wood) (circled)		X	X		
Steel O/FP					
Reinf. Concrete					
Load Bearing	X	X	X		
Frame Bay - Bay Area SF					

Floors

	B	1	2	3	A
Wood					
Steel O/FP					
Reinf. Concrete	X				
Frame	Wood	Steel	Conc.		

Exterior Walls

	B	1	2	3	A
Siding					
Masonry Blk./Brk.		X	X		
Steel					
Glass					

Finish

	B	1	2	3	A
Unfinished	X				
Finished Open		X	X		
Finished Divd.					

Heat

	B	1	2	3	A
Cent. Wm. Air		X	X	X	
Ht. Wt/Steam					
Unit Heaters					
None	X				

Air Conditioning

	B	1	2	3	A
Central		X			
Unit					
None	X				

Roofing

Composition	X	Shingle
Slate		Metal
Frame	Wood	Steel Conc.

Plumbing Type

1	2	**6**
3	4	
Sprinkler	X	**1, 2, 3**

Use

Store	X	Office		Vacant	**B**
Apt.		WH		Abandoned	
Factory					

No. of Units

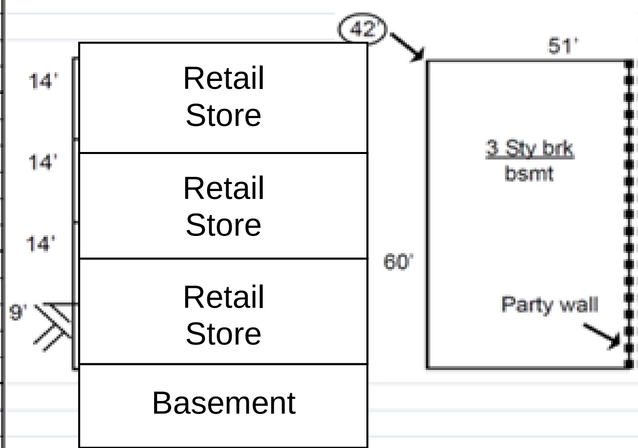
Avg. Unit Size

No. Rooms Per Unit

Prorated @ ________ % with:

Data Bank

SF Ground Area	
Eff. Perim LF	
CF of Bldg.	
SF Wall Area	
Wall Ratio	
Sty.	Sched.



Size ______ x Shape ______ x Weight ______

Description / Computation

Description	Computation
Flr. Price x Ht. Adj.	WH
	Bsmt.
	1st Floor
	2nd Floor
	3rd Floor
	Base Price
	BPA
	Adj. Base Price
	Heat
	A/C
	Electrical Light
	Sprinkler
	SF Price
	SF
	Subtotal
	Plumbing
	Partitions
	Front
	Canopy
	Dock
	Total

S	C	M	I	Grade
C&D		G		NH

Eff. Age	Eff. Age	CDU	Age
			30

A =FAC

Replacement Cost New

Depreciation =

REL

Full Value

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by:

Date:

Total full value other buildings

Total full value all buildings

Example: Convenience store case study

63’

49’ Mini-mart with gasoline 3,087 SF

Subject property consists of a 4-year old national chain gasoline outlet with **3,087 SF** store located in Boonetown, Illinois that offers limited groceries, snack foods, beverages and paper and personal products. The check-out area services both gas and store customers. Interior partitions are made of concrete block and separate the store into storage and office areas, security area, typical public restroom area and an area for a national chain “express” fast food preparation. All food served in the “express” fast food area is prepared by microwave and there are no fryers or stoves. The fast food area occupies about 15 percent of interior, and has a drive-up window at the back of the store. Ceiling is acoustic suspended tile and flooring is ceramic tile. Good lighting throughout the store and there is a complete HVAC system.

This write-up is summarized on the next page with an explanation of how to value this convenience store on the following pages.

Download or Print the Publication 126 Instructions for Commercial Schedules and turn to pages 12, 30, and 32 in the Publication for values necessary for the following exercises.

The link to this publication is on the first page of Unit 4.

Store type: **Convenience Store**

Bldg Size: SFGA 3,087 SF, Height: 16', Perimeter 224 lineal ft

CDU: When comparing it to other structures in the area its condition was comparable to other 4 year old convenience store structures, so its physical condition was rated as "average. The building's desirability and utility are also "average"

Ceiling; acoustic suspended tile

Exterior: Good load bearing concrete block with stucco ornamentation on the front.

Features: **Add to the computation ladder**

1) two prefabricated, walk-in refrigerators. The units are 7'6" high and measure 10' by 10'. Each unit is rated for 30º to 40º.
2) drive-up window at the back of the store.

Add the following to the Summary of Other Buildings

3) average quality 29' by 125' by 16' steel frame canopy with a preformed steel corrugated roof over the gasoline pump area
4) eight triple-hose electronic gasoline dispensers which dispense three types of products each
5) one double-sided single hose electronic dispenser for diesel fuel.
6) four double-wall submerged fiberglass tanks:
   a) two with 10,000 gallon capacity
   b) one with 5,000 gallon capacity
   c) one with 4,000 gallon capacity
7) paving, 20,000 SF, 6" concrete
8) sidewalks, 700 SF, 4" concrete

Flooring: ceramic tile

Lot: 26,000 SF; 20,000 SF, average quality, 6" concrete paving; 700 SF of 4"concrete sidewalks

Plumbing: typical public restroom area; entire building is fire protected by a wet sprinkler system; complete HVAC system (HVAC: Heating, Ventilation, and Air Conditioning)

Quality Grade: C due to typical or average materials and workmanship used in construction.

Store Front: metal and glass with a double door entry

The explanation for valuing begins following the appropriate schedules and the PRC follows.

The completed PRC is in the Answer Section of the manual.

Property Record — Commercial — Industrial

Construction Specifications

Foundation

Sprd. Ftg.		Pile	
Caisson		Other	

Wall Framing

	B	1	2	3	A	
Wood						
Steel O/FP						
Reinf. Concrete						
Load Bearing						

Frame Bay - Bay Area ____ SF

Floors

Wood						
Steel O/FP						
Reinf. Concrete						

Frame Wood Steel Conc.

Exterior Walls

Siding						
Masonry Blk./Brk.						
Steel						
Glass						

Finish

Unfinished						
Finished Open						
Finished Divd.						

Heat

Cent. Wm. Air						
Ht. Wt/Steam						
Unit Heaters						
None						

Air Conditioning

Central						
Unit						
None						

Roofing

Composition		Shingle	
Slate		Metal	

Frame Wood Steel Conc.

Plumbing Type

1		2	
3		4	
	Sprinkler		

Use

Store		Office		Vacant	
Apt.		WH		Abandoned	
Factory					

No. of Units

Avg. Unit Size

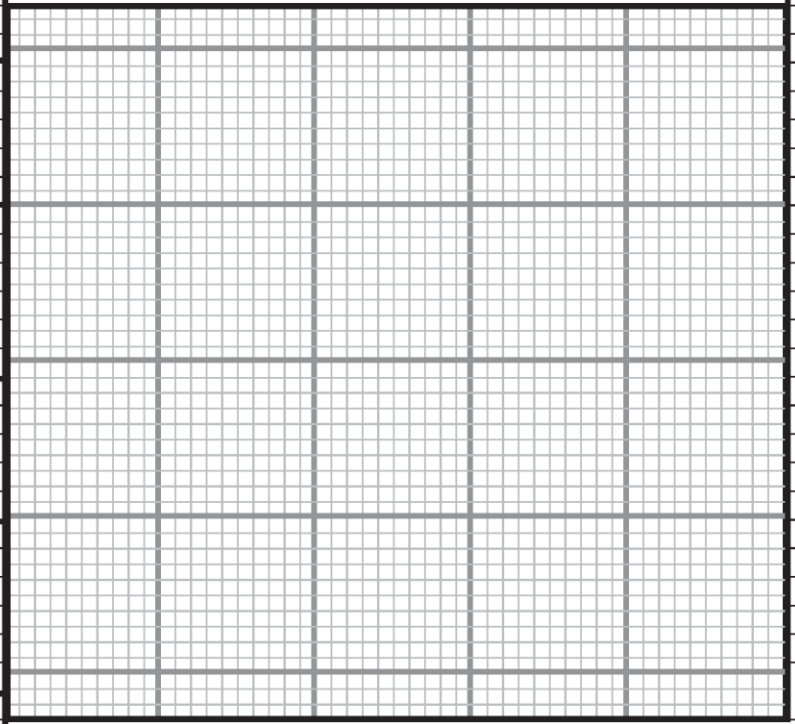
No. Rooms Per Unit

Data Bank

SF Ground Area	
Eff. Perim LF	
CF of Bldg.	
SF Wall Area	
Wall Ratio	

Sty. Sched.

Prorated @ ____% with:



Description

Flr. Price x Ht. Adj.

Size ____ x Shape ____ x Weight ____

S C M I Grade

C&D G NH

Eff. Age | Eff. Age | CDU | Age

Depreciation =

Computation

WH	
Bsmt.	
1st Floor	
2nd Floor	
3rd Floor	
Base Price	
BPA	
Adj. Base Price	
Heat	
A/C	
Electrical Light	
Sprinkler	
SF Price	
SF	
Subtotal	
Plumbing	
Partitions	
Front	
Canopy	
Dock	
Total	
A = FAC	
Replacement Cost New	
REL	
Full Value	

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by:

Date:

Total full value other buildings

Total full value all buildings

Convenience Store/Mini Mart with Gas Schedules

The base square foot costs include the following components: Foundations, floor, wall, and roof structures. Interior partitions, floor, wall, and ceiling finishes. Exterior wall finish and roof cover. All glass and glazing. Basic electrical systems, and lighting fixtures, and security lighting system. Finish plumbing commensurate with typical convenience stores. Also included is complete heating and air conditioning system. Ordinary hazard sprinkler system. Not included are drive-up windows, walk-in refrigerators/freezers, and exterior improvements such as paving and signs.

Base cost per square foot of floor area (based on 12' story height)

Exterior wall	SF area	1,000	2,000	3,000	4,000	6,000	8,000	10,000	12,000	15,000
Stucco on concrete	Load bearing	156.60	137.10	128.25	123.10	116.95	113.25	110.75	108.85	106.80
Decorative concrete	Load bearing	162.75	146.40	139.95	133.75	127.00	119.60	112.30	106.80	97.30
Precast concrete	Steel frame	206.30	173.65	158.90	150.10	139.70	133.55	129.30	126.15	122.70
Stucco on concrete	Steel frame	161.30	142.10	133.30	128.15	121.95	118.25	115.70	113.85	111.80
Insulated metal panels	Steel frame	177.75	153.85	143.00	136.60	128.00	124.45	121.40	119.05	116.55
Wood siding	Wood frame	135.65	121.65	115.30	111.60	107.10	104.45	102.65	101.25	99.85
Brick veneer	Wood frame	167.50	143.45	132.60	126.20	118.50	114.00	110.90	108.65	106.05
Stucco	Wood frame	158.60	139.10	130.25	126.60	119.95	115.85	112.25	110.85	107.30
Story ht. adj. add or deduct	Per 1 ft.	2%	2%	2%	2%	2%	1%	1%	1%	1%

Supplementary costs: cost not included in base cost should be added if necessary

Canopy (cost per SF)
Steel with illuminated plastic signs on sides

	less than 500 SF		500 - 1,000 SF
Painted steel	38.65		36.50
Porcelain & steel	41.10		38.35
Over 1,000 SF	30.10	porcelain	35.80

Gas pumps and dispensers
Standard electronic

1 product 1 hose	10,470
2 products 1 hose	15,635
3 products (blended)	19,450
+ for double-sided operation	5,230
Old style mechanical, deduct	40%

Interpolate to find the base cost for 3,087 square feet of stucco on concrete:

Base cost per square foot of floor area (based on 12' story height)

Exterior wall	SF area	1,000	2,000	3,000	4,000	6,000	8,000	10,000	12,000	15,000
Stucco on concrete	Load bearing	156.60	137.10	128.25	123.10	116.95	113.25	110.75	108.85	106.80

$$\frac{\$\ 123.10 - \$\ 128.25}{4{,}000\ SF - 3{,}000\ SF} = \frac{-5.15}{1{,}000} = -.00515 \times 87\ SF = -.45$$

128.25 + (– 0.45) = 127.80

The standard wall height for a convenience store is found immediately above the schedule. Since a convenience store is always 1 story, there is only one standard wall height – 12'.

The example convenience store is 16' so there is a 4' difference. Each foot of difference is a 2% change as noted at the bottom of the schedule.

127.80 X 1.08 = 138.02 adjusted for wall height
This is also the total since the building is one story.

Since there is no schedule for convenience stores for shape adjustment, a shape adjustment is not necessary. The BPA, or base price adjustment factor, is 1.00. The adjusted base price is also $138.02.

The next item in computation ladder is heat. A complete heating and A/C system is included in base price. The structure has a complete HVAC system so no adjustment is necessary.

The base price includes normal electrical lighting, so no adjustment necessary.

The next item is for the sprinkler system. The cost from the schedule includes an "ordinary hazard" sprinkler system which this building also has so no adjustment is necessary.

There are no other items to cost out on a per square foot price. The next step is to determine the total SF price. Since there were no adjustments to the adjusted base price, the square foot price, in this

case, is the same as the adjusted base price. Now multiply the SF price by the SFGA (refer to the data bank) to arrive at a subtotal. $138.02 x 3,087 SF = $426,068

Since the base cost schedule includes “Finish plumbing commensurate with typical fast food restaurants,” there is no need for a plumbing adjustment.

The only additional value to add to the building structure itself is for the drive-up window and the two walk-in refrigerators. In general, items that are in or on the building are included in the computation ladder. Items that are outside of the building are placed in the Summary of Other Buildings section at the bottom of the property record card. The value for the drive-up window and for the refrigerators can be found in Fast Food and Convenience Store Subsidiary schedules in Publication 126 on page 32.

There is one drive-up window valued at $11,500.

The two refrigerators are both rated at 30^{o} to 40^{o}, and each is 100 SF. So they are valued at $151 per SF.

$151 X 100 SF = $15,100 X 2 units = $30,200

Add the drive-up window adjustment of $11,500 and the refrigerator adjustment of $30,200 to the base price of $426,068 to arrive at total of $467,768.

The building has quality grade of “C,” due to typical or average materials and workmanship used in construction. Look at the schedule for “Quality,” below, found on page 8 of Publication 127 Instructions for Industrial Schedules.

Note the factor for a “C” grade is 100 %.

Quality

	+50	338%	C		100%
	+25	281%		-5	95%
	+10	248%		±10	90%
AA		225%		+5	86%
	+40	210%	D		82%
	+30	195%		-5	78%
	+20	180%		-10	74%
	+10	165%		-20	66%
	+5	158%		-30	57%
A		150%	E		50%
	-5	143%		-10	45%
	±10	135%		-20	40%
	+5	128%		-30	35%
B		122%		-40	30%
	-5	116%		-50	25%
	±10	110%			
	+5	105%			

Multiply the total of $467,768 x 100 percent (1.00) to arrive at a RCN of $467,768 which represents what it would cost to construct this structure today.

Since the structure was built 4 years ago, you must factor in depreciation.

When comparing it to other structures in the area its condition was comparable to other 4 year old convenience store structures, so its physical condition was rated as "average." Therefore, the first effective age considering condition is also 4.

Studies have shown that convenience stores age faster than most other commercial buildings. An Age Adjustment Table found on the Subsidiary Schedule adjusts for the difference in the rates of depreciation for convenience stores. Find the age considering condition, the first effective age, of 4 in the Age Adjustment Table which gives an adjusted age of 6. Use this adjusted age of 6 in Schedule A of the REL table to find the second effective age of 6 since the building's desirability and utility are also "average."

On Schedule B structures with an effective age equal to 6 have an REL factor of 88 percent. Take 88 percent of the RCN of $467,768 for a full value for the structure of $411,636

Add the following to the Summary of Other Buildings
(refer to write-up on page 80)

3) average quality 29' by 125' by 16' steel frame canopy with a preformed steel corrugated roof over the gasoline pump area
4) eight triple-hose electronic gasoline dispensers which dispense three types of products each
5) one double-sided single hose electronic dispenser for diesel fuel.
6) four double-wall submerged fiberglass tanks:
   a) two with 10,000 gallon capacity
   b) one with 5,000 gallon capacity
   c) one with 4,000 gallon capacity
7) paving, 20,000 SF, 6" concrete
8) sidewalks, 700 SF, 4" concrete

Canopy — steel frame canopy with a preformed steel corrugated roof – 3,625 SF

3625 x 30.10 = 109,113 x .88 (REL) = 96,019

Supplementary costs: cost not included in base cost should be added if necessary

Canopy (cost per SF)
Steel with illuminated plastic signs on sides

	less than 500 SF	500 - 1,000 SF
Painted steel	38.65	36.50
Porcelain & steel	41.10	38.35
Over 1,000 SF	30.10	porcelain 35.80

Gas pumps and dispensers
Standard electronic

1 product 1 hose	10,470
2 products 1 hose	15,635
3 products (blended)	19,450
+ for double-sided operation	5,230
Old style mechanical, deduct	40%

Gasoline Dispensers (Triple hose)
19,450 x 8 = 155,600 x .88 (REL) = 136,928

Gasoline Dispensers (Single hose- double sided)
(10,470+5230)= 15,700 x .88 = 13,816

Gasoline Fiberglass Tanks:
Double wall

(Subsidiary Schedule page 32)

10,000 gallon (2)
28,540 x 1.50 x 2 = **85,620**

5,000 gallon (1)
(16,350 + 21,600)/2 x 1.50 = **28,463**

4,000 gallon (1)
16,350 x 1.50 = **24,525**

Total RCN for tanks : 138,608

Underground fuel storage tanks

Gallon capacity	Fiberglass	Steel
550	$ 8,270	$ 6,400
1,000	10,175	8,430
2,000	12,930	10,950
4,000	16,350	14,390
6,000	21,600	19,475
10,000	28,540	26,500
12,000	32,000	29,950
15,000	39,100	36,570
20,000	51,000	47,500
30,000	75,400	69,750

Costs include excavation, setting in place, and all backfill. Construction is for single wall. **Add 50% for double wall construction.**

Paving 20,000 SF, 6” concrete

Parking/paving 6” concrete	$7.50 SF
Heavy traffic asphalt	4.50 SF
Gravel or stone	1.25 SF

Sidewalks 700 SF, 4” concrete

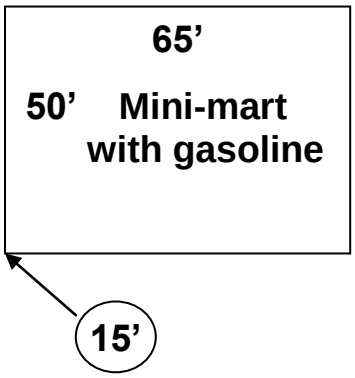
Sidewalks are listed in Schedule 59 which is on page 36 of Publication 127.

700 x 4.65 = 3,255.

See completed PRC in the Answer Section

59 Sidewalks	Per SFGA
Asphalt on ground	
2”	1.30
2 1/2”	1.55
Concrete on ground	
4”	4.65
5”	5.65
6”	6.30
Add for exposed aggregate	1.00
Prepared base (for above walks) 4”	1.35
8”	2.50

Exercise 4-3: Convenience store case study



Store type: **Convenience Store**

Age:	15
CDU:	physical condition: average; desirability and utility: poor
Ceiling;	acoustic suspended tile
Exterior:	Insulated metal panels on a steel frame
Features:	1) one 10' by 10' prefabricated, walk-in refrigerator rated for 30º to 40º 2) average quality 31' by 100' by 16' steel frame canopy with a preformed steel corrugated roof over the gasoline pump area 3) six triple-hose electronic gasoline dispensers which dispense three types of products each 4) one single-sided single hose electronic dispenser for diesel fuel. 5) three double-wall submerged fiberglass tanks: a) two with 10,000 gallon capacity b) one with 4,000 gallon capacity 6) paving, 19,000 SF, 6" concrete 7) sidewalks, 700 SF, 4" concrete
Flooring:	ceramic tile
Lot:	24,000 SF; 19,000 SF average quality 6" concrete paving; 700 SF of 4"concrete sidewalks
Plumbing:	typical public restroom area; entire building is fire protected by a wet sprinkler system; complete HVAC system (HVAC: Heating, Ventilation, Air Conditioning)
Quality Grade:	C due to typical or average materials and workmanship used in construction.
Store Front:	metal and glass with a double door entry

The completed PRC is in the Answer Section of the manual.

Exercise 4-3

Property Record — Commercial — Industrial CONVENIENCE STORE

Construction Specifications

Foundation

Sprd. Ftg.		Pile	
Caisson		Other	

Wall Framing

	B	1	2	3	A	
Wood						
Steel O/FP						
Reinf. Concrete						
Load Bearing						

Frame Bay - Bay Area ____ SF

Floors

Wood						
Steel O/FP						
Reinf. Concrete						

Frame: Wood | Steel | Conc.

Exterior Walls

Siding						
Masonry Blk./Brk.						
Steel						
Glass						

Finish

Unfinished						
Finished Open						
Finished Divd.						

Heat

Cent. Wm. Air						
Ht. Wt/Steam						
Unit Heaters						
None						

Air Conditioning

Central						
Unit						
None						

Roofing

Composition		Shingle	
Slate		Metal	

Frame: Wood | Steel | Conc.

Plumbing Type

1		2	
3		4	
	Sprinkler		

Use

Store		Office		Vacant	
Apt.		WH		Abandoned	
Factory					

No. of Units

Avg. Unit Size

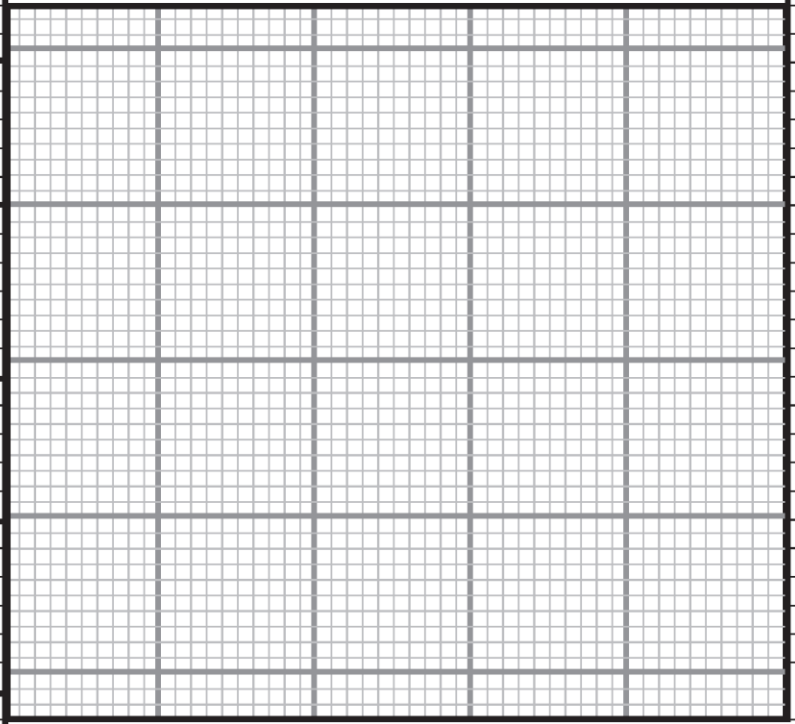
No. Rooms Per Unit

Data Bank

SF Ground Area	
Eff. Perim LF	
CF of Bldg.	
SF Wall Area	
Wall Ratio	

Sty. Sched.

Prorated @ ____% with:



Size ____ x Shape ____ x Weight ____

S C M I Grade

C&D G NH A = FAC

Eff. Age | Eff. Age | CDU | Age

Depreciation =

Description

Flr. Price x Ht. Adj.	WH	
	Bsmt.	
	1st Floor	
	2nd Floor	
	3rd Floor	

Computation

Base Price	
BPA	
Adj. Base Price	
Heat	
A/C	
Electrical Light	
Sprinkler	
SF Price	
SF	
Subtotal	
Plumbing	
Partitions	
Front	
Canopy	
Dock	
Total	
Replacement Cost New	
REL	
Full Value	

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by:

Date:

Total full value other buildings

Total full value all buildings

Unit 4
Summary

The Appraisal Publications is 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 the Appraisal Publications to reflect the values in various jurisdictions.

The Commercial Square Foot Schedules have been developed for pricing the typical mercantile building, office buildings, apartment buildings, supermarkets, discount centers, as well as convenience stores with gas stations, fast food restaurants, assisted living facilities, branch banks, etc. For buildings larger than what the schedules allow, the component-in-place (CIP) method should be used.

The base cost is the cost indicated in the schedules representing the cost of construction per square foot of the structure. Other features not included in the base cost should be priced from the subsidiary schedules or the CIP schedules. The base price must be adjusted by a factor from the shape adjustment tables where applicable.

The commercial schedules are used in conjunction with the commercial property record cards (PRC's). PRC-4 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 4
Review questions

Use Publication 126 Instructions for Commercial Schedules to answer the following questions.

1. T or F An office building is 70’ x 100’. The first floor has a wall height of 16’. The wall height adjustment would be .98.

2. T or F A 2-story retail building with a full basement has a width of 40’ and a length of 80’. The first floor wall height is 16’, basement height is 9’, and the second story wall height is 14'. The square feet of wall area would be 9,360.

3. T or F Using the building specifications above, the wall ratio would be 13.33.

4. T or F Always adjust your square feet of ground area (SFGA) by the eave height to arrive at the cubic foot.

5. An office building with a width of 100' and a length of 200' and an overall height of 12’ would have

    a. shape adjustment of .925
    b. wall height adjustment of 1.00
    c. a wall ratio of 33.33
    d. a size adjustment of 1.05

6. A 2-story retail building on a slab with a length of 70’ and a width of 50’ is fully sprinkled. What is the sprinkler adjustment?

    a. sprinkler costs are included in base price
    b. sprinkler cost of $26,950
    c. sprinkler cost of $3.90 per square foot
    d. sprinkler cost of $7.70 per square foot
    e. they were too expensive and the landlord could not afford to install them

7. Using the same dimensions above, what would be the air conditioning adjustment amount placed in the computation ladder if building did **not** have air conditioning? The two stories are each at the standard height.

    a. –$7.80 per square foot
    b. not included in the base price
    c. –$16.26 per square foot
    d. $15.60 per square foot
    e. $56,910

Unit 5

Component-in-Place (CIP) Schedules

This unit briefly explains the use of the component-in-place (CIP) cost schedules that are found in the IDOR Publication 127 Instructions for Industrial Schedules.

Note: Download or Print Publication 127 Instructions for Industrial Schedules: http://tax.illinois.gov/Publications/Pubs/Pub-127.pdf

Learning objectives

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

- recognize when the use of the CIP schedules is warranted,
- calculate various cost values using CIP schedules.

Component-in-place schedules

The component-in-place (CIP) schedules in Publication 127 Instructions for Industrial Schedules have been developed to give the assessor a more supportable estimate of RCN values for commercial and industrial buildings.

Because square foot schedules have building size limitations, the CIP schedules can be used for improvements that are outside those limits.

Also, when excessive adjustments are necessary to the square foot schedules, the CIP schedules can be used.

The CIP schedules should be used for large mercantile installations, high rise office complexes, commercial properties over the square footage priced in the commercial or industrial Appraisal Publications.

Pre-engineered steel buildings are priced using the pre-engineered building schedules.

The cost figures found in the CIP schedules are typical unit costs. They were derived from an analysis of actual project costs and from a multitude of cost service publications.

The CIP method is the most accurate and the most supportable method for establishing RCN values, but it is also the most time-consuming.

The CIP schedules in Publication 127 are numbered 1 through 70 and there is an index on page 21 of Publication 127 prior to the schedules to make it easier to locate items in the schedules.

When valuing property using the CIP schedules, the assessor values each component in the construction of the structure to arrive at its value.

The component-in-place method computes total cost by adding the costs of components in the building using the component dimension or number of units.

For example:

Component-in-Place

Field Description	Cost
Mineral fiber tile with suspension 2,000 SF @ $2.25 + $2.25 = $ 4.50	9,000
Concrete floor unfinished with stairs and safety railing 2,000 SF	85,000
Nylon carpet with pad – economy grade 656 SF @ $6.65 + $1.30	5,215
Vinyl tile 1,344 SF @ $3.70	4,973
Average service rigid conduit in Office 2,000 SF @ $15.70	31,400
Average service rigid conduit in Industrial 17,568 SF @ $6.40	112,435
6 Type 2 fixtures @ $ 2,600 each and 7 Type 3 fixtures @ $ 3,410 each	42,880
Industrial 17,568 SF @ ($1.55 x 1.06 height adjustment) = $ 1.64	28,812
Office 2,000 SF @ $ 18.65 (zoned hot and cold air)	37,300

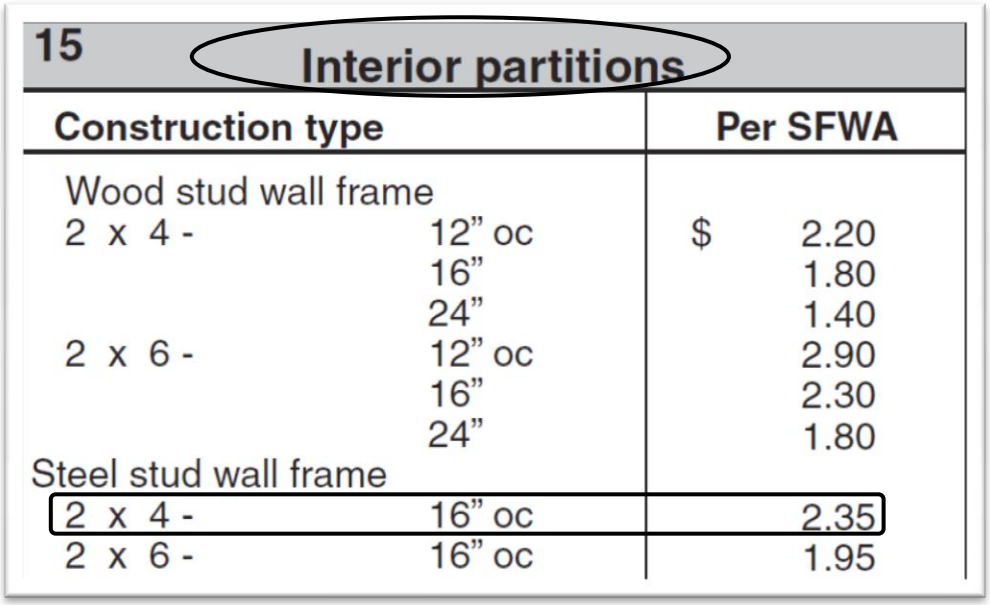
This method is specific and very detail oriented

Component-in-place schedules

In this example you are to compute a value for wall construction.

The 120’ x 10’ SF interior wall is constructed of 2” x 4” steel studs (16” oc) covered by drywall that has paint on one side and good wall-paper on the other side. When the individual components are valued, add them together to get a square foot value for the entire wall.

Look at schedule 15 — Interior partitions, construction types, note the value per SFWA is **$2.35.**



15 Interior partitions

Construction type		Per SFWA
Wood stud wall frame		
2 x 4 -	12" oc	$ 2.20
	16"	1.80
	24"	1.40
2 x 6 -	12" oc	2.90
	16"	2.30
	24"	1.80
Steel stud wall frame		
2 x 4 -	16" oc	2.35
2 x 6 -	16" oc	1.95

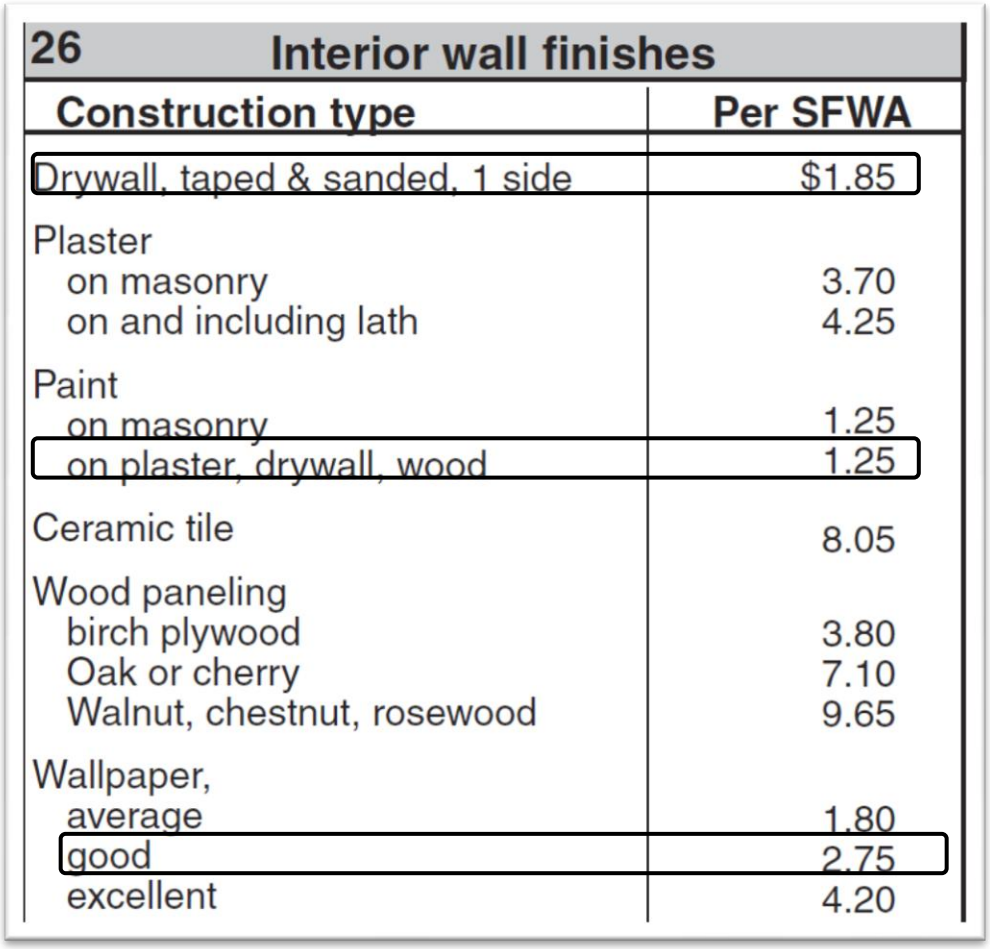
The next item is drywall and paint - one side.

Look at schedule 26 —

Interior wall finishes, note that the value per SFWA for one side is **$1.85** for the drywall and **$1.25** for the paint.

The last item is drywall and good wallpaper - one side. Add **$1.85** for the drywall and **$2.75** for the good wallpaper.

Once you determine values for the individual components, add them together to arrive at a total price per SFWA. The components total **$10.05** per SFWA. The information also indicates a wall area of 120' x 10', for a SFWA of 1200 SF. Multiply the **$10.05** per SFWA value by 1200 SF to give a project value of **$12,060**.



26 Interior wall finishes

Construction type	Per SFWA
Drywall, taped & sanded, 1 side	$1.85
Plaster	
on masonry	3.70
on and including lath	4.25
Paint	
on masonry	1.25
on plaster, drywall, wood	1.25
Ceramic tile	8.05
Wood paneling	
birch plywood	3.80
Oak or cherry	7.10
Walnut, chestnut, rosewood	9.65
Wallpaper,	
average	1.80
good	2.75
excellent	4.20

2” x 4” steel studs	=	**$2.35**
drywall, one side.	=	**$1.85**
paint, one side	=	**$1.25**
drywall - one side	=	**$1.85**
good wallpaper	=	**$2.75**
Total	=	**10.05 / SFWA**

Wall area 120' x 10' = 1200 SF x $10.05 = **$12,060**.

Exercise 5-1
Component-in-place schedules

Complete the following exercise. The appropriate schedules are noted.

6 - 8' x 8' steel roll-up doors

2 have electric operators

(Schedule 12 Pub 127 page 25)

Ceilings, Acoustical tile mineral fiber panels with insulation, in suspension system
Ceiling area 20' x 40'

(Schedule 27 on Publication 127 page 27)

Floor area 60' x 125'

1/2 finished with good grade carpet and pad

1/2 finished with vinyl tile

(Schedule 28 on Publication 127 page 28)

Exercise 5-2
Replacement cost new

Compute the replacement cost new of the following.

10’ high, 20’ long, **4-wall partition**
wood stud frame, 2 x 4 — 16” on center,
drywall — taped and sanded,
painted on three walls
good wallpaper on the other.

20 x 20 foot tile ceiling,
mineral fiber tile
suspension system
insulation 20 x 20

20 x 20 floor
good grade carpet
pad

Unit 5 Summary

Component-in-place (CIP) schedules are used when the building improvements exceed the size of the square foot cost schedules.

This method, although the most time-consuming, offers the assessor the most accurate and supportable values.

Unit 5
Review questions

1 List three reasons why you would use CIP schedules.

_____

_____

_____

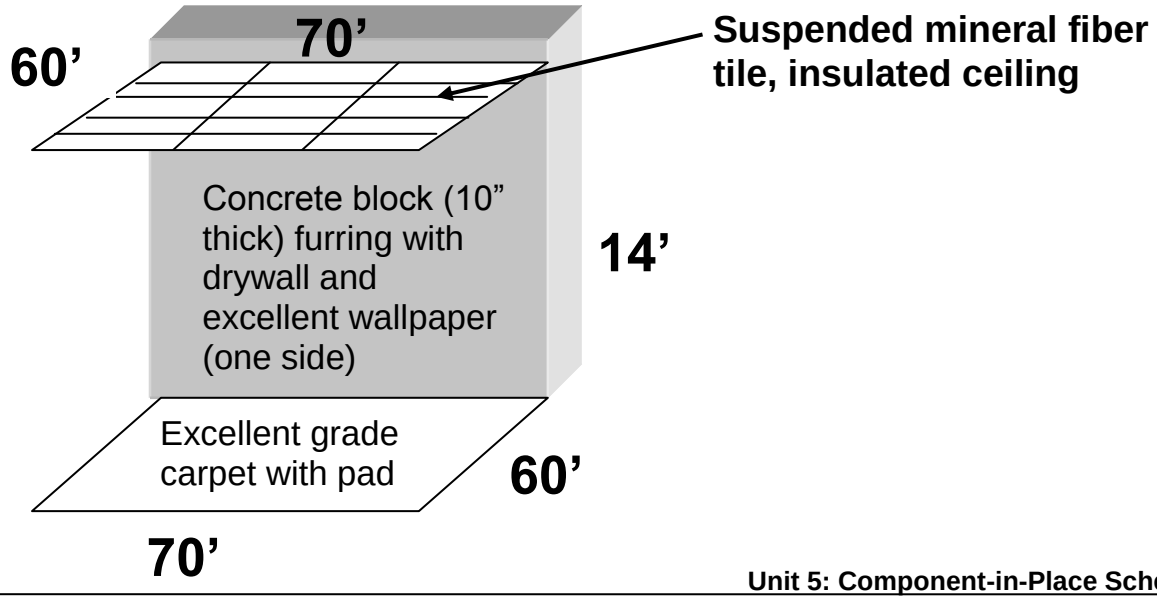
2 T or F CIP is the easiest and fastest way of establishing RCN.

3 Price out the following items. Refer to the illustration below.

Block wall _____ (See Schedule 15 and Schedule 26.)

Ceiling _____ (See Schedule 27)

Carpet _____ (See Schedule 28)



Unit 6

Industrial Buildings

The purpose of this unit is to provide instructions for calculating a full market value for an industrial improvement using the PRC-4, the appropriate industrial square foot and CIP schedules, and calculating the appropriate adjustment factors and determining the appropriate REL factor.

Learning objectives

After completing the assigned readings, you should be able to

- refer to the appropriate cost schedules,
- calculate a base cost for the first story,
- calculate a BPA factor,
- calculate an adjusted base price,
- calculate costs for those items not included in the base price,
- calculate a RCN value,
- apply an REL factor, and
- calculate a full value for the improvement.

The square foot schedules found in IDOR Publication 127 are categorized by the building use for manufacturing, warehouse, and mini-warehouse facilities.

A single SF cost for a subject building is extracted from the schedules by correlating the total building square footage and the construction type (frame and exterior wall treatment).

The base cost figures for the manufacturing facility are for one story and multi-story buildings. The first story wall height is 20' to the eaves. The upper story wall height is 12'.

In each cost category, the costs include excavation, footings and foundations, floor construction and finish, framing, roof structure and cover, exterior wall construction, heating and

cooling, electricity and lighting, interior walls commensurate with 4 to 7 percent of office space, doors, typical plumbing, and sprinklers.

Adjustments to the base price may be necessary for building shape and wall height variations, just as were made for the commercial structures in Publication 126.

Other refinements to the base cost may be necessary, such as lack of air conditioning, sprinklers, plumbing, and office area. Some of these items may be priced from the subsidiary schedules or it may be necessary to refer to the CIP schedules.

Industrial Square Foot Schedules

The schedule for manufacturing plants includes buildings from 1 to 3 stories. The schedule below is abbreviated to the first story.

Manufacturing/Plant Buildings (cost per SF)

Story	Wall ht.	Exterior wall	Framing	6,500	10,000	15,000	20,000	25,000	30,000	40,000	50,000	60,000
First Story	20'	Face brick common brick backup	Steel frame	197.55	175.15	165.90	156.30	151.35	146.40	141.60	139.20	135.80
			Conc. frame	186.46	164.10	155.25	142.30	138.85	135.40	132.05	129.95	126.05
		Face brick conc. block backup	Steel frame	194.60	173.05	164.60	155.40	150.45	145.45	143.55	139.00	136.05
			Conc. frame	183.20	161.65	153.20	144.00	139.00	134.00	131.60	129.60	126.30
			Load bearing	179.75	160.60	152.30	142.95	138.85	134.25	132.05	127.90	125.10
		Stucco on conc. block	Steel frame	183.20	161.20	156.95	148.95	144.75	140.50	136.40	133.80	131.55
			Conc. frame	171.60	152.85	145.50	137.50	133.30	129.05	125.20	122.80	121.00
		Concrete block	Steel frame	125.50	123.65	120.20	116.95	113.70	109.40	106.75	104.95	103.15
			Load bearing	123.85	120.30	116.85	113.60	110.35	106.05	103.45	101.70	99.90
		Precast conc. panels	Steel frame	133.85	130.25	126.75	122.75	118.75	113.60	110.15	108.15	106.15
		Insulated mtl panels	Steel frame	130.60	126.30	122.15	118.95	115.75	110.10	108.25	106.30	104.35
		Tilt-up conc. panels	Steel frame	132.70	128.30	124.50	120.90	117.30	112.30	109.40	107.35	105.30

Cost schedules for both a warehouse facility and a mini-warehouse structure are for one story buildings and based on the total square footage.

Warehouse buildings (cost per SF of floor)

Exterior wall	Framing	10,000	15,000	20,000	25,000	30,000	35,000	40,000	50,000	60,000
Tilt-up conc. panels	Steel frame	121.80	111.80	106.30	101.35	98.55	96.75	95.35	93.55	90.80
Brick with block backup	Bearing walls	137.25	122.75	116.20	109.00	105.05	102.55	100.70	98.05	93.15
Concrete block	Steel frame	116.60	108.75	105.15	101.35	99.25	97.90	96.95	95.50	93.45
	Bearing walls	112.35	104.40	100.75	96.90	94.75	93.40	92.40	90.95	88.85
Galvanized steel siding	Steel frame	126.10	117.55	113.70	109.50	107.15	105.75	104.55	103.10	100.70
Metal sandwich panels	Steel frame	126.80	117.05	112.60	106.75	105.05	103.35	102.15	99.35	97.55
Story ht. adj. add or deduct	Per 1 foot	1%	1%	1%	1%	1%	1%	1%	1%	1%
For unfinished basement add $28.45 per SF of basement area.										

Mini warehouse buildings (cost per SF of floor)										
Exterior wall	**Framing**	**2,000**	**3,000**	**5,000**	**8,000**	**12,000**	**20,000**	**30,000**	**50,000**	**100,000**
Concrete block	Steel	181.85	159.00	140.80	130.45	124.75	120.15	117.95	116.00	114.75
	Load bearing	158.85	144.95	133.95	127.65	124.25	121.50	120.05	118.95	118.10
Metal sandwich panel	Steel	156.25	141.00	128.85	122.00	118.20	115.15	113.70	112.80	111.50
Tilt-up concrete panel	R/concrete	170.60	155.75	143.95	137.25	133.55	130.65	129.10	127.95	127.05
Precast concrete panel	Steel	158.90	143.05	130.45	123.30	119.30	116.15	114.80	113.35	112.35
	Concrete	180.65	163.75	150.25	142.60	138.45	135.05	133.75	132.00	130.95
Metal siding	Wood pole	116.45	104.65	96.20	91.55	89.05	87.10	85.85	85.15	84.40
Story ht. adj. add or deduct	Per 1 ft.	2%	2%	1%	1%	1%	1%	1%	1%	1%

It is very important that the assessors familiarize themselves with the features valued in each structure's base cost. This is especially true with the mini-warehouse schedule as the typical "model" utilized in the schedule is a modern structure that contains several characteristics that were not included in buildings built just a few years ago.

Included in the mini-warehouse base cost, in addition to the shell structure and interior partitions, are features such as heat, water service, and even restroom facilities currently being built in the newer, larger commercial facilities.

Industrial REL depreciation tables

As with commercial properties, the condition, desirability, and utility of industrial properties are factored in by using various CDU ratings.

Structures can either be rated excellent, good, average, poor, or unsound and undesirable.

Like the Commercial REL Depreciation Table, the age column of the Industrial REL Depreciation Table represents the assigned age given by the assessor to the subject improvement, based on its physical condition compared to the physical condition of like industrial buildings having the same age as the subject. This is the first effective age on the PRC.

The age based on the condition (C), the desirability (D), and the utility (U) rating produces the effective age of a property (the second effective age). The effective age of the property determines the REL, which is applied to the RCN of the structure to adjust for depreciation.

The Industrial REL Depreciation Tables are used to determine the REL factor. After the age has been assigned, an effective age is determined based upon the desirability and utility of the subject, compared to other buildings within the neighborhood. This effective age is then used in Schedule B to determine the REL factor to be used on the PRC-4.

Look at Schedule A, the left column reflects the age of the structure based on its condition.

Once you locate the age, move to the appropriate column at the right and find the effective age based on the DU rating assigned to the property.

Move over to Schedule B. The left column of Schedule B lists the effective age and the number next to it is the REL factor that will be used to adjust the value in the computation ladder on the PRC-4.

Industrial REL Table

Schedule A						Schedule B	
Age* considering physical condition	Effective age considering desirability and utility					REL	
	E	G	A	P	U	Eff. age	REL
1	1	1	1	5	9	1	97.5
2	1	1	2	6	10	2	95
3	1	1	3	7	11	3	92.5
4	1	1	4	8	12	4	90
5	1	1	5	9	13	5	87.5
6	1	2	6	10	14	6	85
7	1	3	7	11	15	7	82.5
8	1	4	8	12	16	8	80
9	1	5	9	13	17	9	77.5
10	2	6	10	14	18	10	75
11	3	7	11	15	19	11	72.5
12	4	8	12	16	20	12	70
13	5	9	13	17	21	13	67.5
14	6	10	14	18	22	14	65
15	7	11	15	19	23	15	62.5

Mini-warehouse cost example

As practice using the square foot costing procedures from Publication 127 *Instructions for Industrial Schedules*, calculate a replacement cost new for a mini-warehouse structure.

Building Size:	40 feet wide by 100 feet long; eave height is 9 feet
Actual Age:	13 years
Foundation:	4” reinforced concrete slab poured monolithically.
Construction:	steel framed stud walls 2” X 4” 16” o.c. with 26 gauge metal exterior walls; use “metal sandwich panel”.
Roof:	26 gauge Galvalume PBR prefabricated panels.
Insulation	Both walls and roof panels are fully insulated with interior wall cover.
Features:	1) 208 lineal feet of aluminum gutters 2) 54 lineal feet of downspouts 3) Doors: (20) 9’ X 7’ steel roll up doors; (8) 3’ X 7’ steel rollup
Units:	28 units, ranging in size from 5’ X 10’ to 10’ X 20’. Each unit has incandescent lighting
Interior Partitions:	29 gauge metal on metal stud framing and cover 4,480 SFWA.
Electrical:	Scant
Heat/ AC:	No heat or air conditioning
Plumbing:	No plumbing or water service
Sprinklers:	None
CDU:	average physical condition; desirability and utility average.
Quality Grade:	C

Complete the PRC-4 on the next page.

Property Record - Commercial - Industrial

Mini-warehouse

Construction Specifications								Use						Data Bank			Description			Computation
Foundation								Store		Office		Vacant		SF Ground Area			Flr. Price x Ht. Adj.	WH		
Sprd. Ftg		Pile						Apt.		WH		Abandoned		Eff. Perim LF					Bsmt.	
Caisson		Other						Factory						CF of Bldg.					1st Floor	
Wall Framing								No. of Units						SF Wall Area					2nd Floor	
	B	1	2	3	A			Avg. Unit Size						Wall Ratio					3rd Floor	
Wood								No. Rooms Per Unit							Sty.	Sched. **Mini-Warehs**				
Steel O/FP								Prorated @ _____% with:												
Reinf. Concrete																		Base Price		
Load Bearing														Size _____	x Shape _____	x Weight _____		BPA		
Frame Bay - Bay Area						SF												Adj. Base Price		
Floors																		Heat		
Wood																		A/C		
Steel O/FP																		Electrical Light		
Reinf. Concrete																		Sprinkler		
Frame	Wood		Steel		Conc.															
Exterior Walls																				
Siding																				
Masonry Blk./Brk.																		SF Price		
Steel																		SF		
Glass																		Subtotal		
																		Plumbing		
Finish																				
Unfinished																		Partitions		
Finished Open																				
Finished Divd.																		Front		
																		Canopy		
Heat																		Dock		
Cent. Wm. Air																				
Ht. Wt/Steam																				
Unit Heaters														S C M I		Grade		**Total**		
														C&D		G	NH	A		=FAC
None														Eff. Age	Eff. Age	CDU	Age	Replacement Cost New		
Air Conditioning																				
Central																Depreciation =		REL		
Unit																		**Full Value**		
None																				

Roofing								Plumbing Type			
Composition		Shingle						1		2	
Slate		Metal						3		4	
Frame	Wood		Steel		Conc.						
									Sprinkler		

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by:

Date:

Total full value other buildings

Total full value all buildings

ildings

Use the information on the description page to complete the PRC.
First, complete the data bank on the property record card.
Referencing the Mini-warehouse cost schedule, select the base cost from the "metal sandwich panel" row and correlate with the proper floor size column.

Mini warehouse buildings (cost per SF of floor)								
Exterior wall	**Framing**	**2,000**	**3,000**	**5,000**	**8,000**	**12,000**	**20,000**	**30,000**
Concrete block	Steel	181.85	159.00	140.80	130.45	124.75	120.15	117.95
	Load bearing	158.85	144.95	133.95	127.65	124.25	121.50	120.05
Metal sandwich panel	Steel	156.25	141.00	128.85	122.00	118.20	115.15	113.70
Tilt-up concrete panel	R/concrete	170.60	155.75	143.95	137.25	133.55	130.65	129.10
Precast concrete panel	Steel	158.90	143.05	130.45	123.30	119.30	116.15	114.80
	Concrete	180.65	163.75	150.25	142.60	138.45	135.05	133.75
Metal siding	Wood pole	116.45	104.65	96.20	91.55	89.05	87.10	85.85
Story ht. adj. add or deduct	Per 1 ft.	2%	2%	1%	1%	1%	1%	1%

The subject has 4,000 square feet, so we have to interpolate the base cost from between the 3,000 and 5,000 square feet tables.

Since 4,000 is exactly between 3,000 and 5,000, average the values.

3,000 SF cost 141.00
Plus 5,000 SF cost 128.85
269.85 / 2 = 134.93

Wall height adjustment

The standard wall height is given in the description for the base costs listed in the Mini-warehouse schedule as 12'. Since the subject property has an eave height of 9', a wall height adjustment is necessary.

The adjustment for 3,000 square feet would be 2% for each foot of variance from 12'. However, the adjustment for 5,000 square feet only requires an adjustment of 1% per foot. Interpolate the wall height adjustment factor to find an adjustment of 1.5% for each foot of variance. Interpolation of wall height adjustment factors is only considered when the square footage for the structure is exactly between two factors (% adjustment). Otherwise, use the closest one. Therefore, the base price would be adjusted by 4.5% (1.5% X 3 feet). **$134.93 X .955 = $128.86**

An adjustment for shape is necessary to account for area/ perimeter ratio variations.

The shape adjustment factor is based on the wall ratio that you calculated in the data bank. Our subject had a square footage of 4,000 and an effective perimeter of 280. The wall ratio is 14.29. Since this is below the smallest wall ratio in the table of 15, we use the factor for the wall ratio that is closest. Thus our adjustment factor is 1.31.

Mini warehouse building shape adjustment table											
Wall ratio	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Adjustment	1.31	1.28	1.23	1.21	1.20	1.10	1.05	1.02	1.00	1.00	.99
Wall ratio	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**36**	**38**
Adjustment	.99	.99	.98	.97	.96	.95	.95	.94	.93	.93	.92

Factoring the height adjusted base price of $128.86 by the shape adjustment factor of 1.31 yields an adjusted base price of **$168.81**

Mini-warehouse Schedules

The cost figures shown are for a 1-story mini warehouse or self storage industrial building. The wall height is 12' to eaves. In each cost category, the cost includes evacuation, footage and foundation, floor construction, and finish, framing, roof structure and cover, exterior wall construction unit heaters, electrical service, water heater, toilet, and wash basin, sprinkler systems, and interior partitions separating rental units. Add for all other features such as climate control or air conditioning, office enclosure, etc., from subsidiary schedules or from CIP schedules. Adjustments for wall height and building shape are applicable to base costs selected from this schedule. Also, a quality grade assignment and factor is necessary and applicable to the total cost estimate derived from the use of this schedule.

The base cost is derived by correlating the framing type with the visible exterior wall treatment with the correct size.

The building is not heated. Since the base cost includes unit heaters, a deduction from the adjusted base cost must be taken to reflect no heat. Heat costs are found in the CIP Schedule 32.

32 Heating — ventilation air conditioning (HVAC) (per SFFA)

Prices for HVAC are provided below according to finish or use of the building (or area within the building). The prices were developed on the basis of heating, ventilation, or air conditioning cubic area and then converted to SF costs for the convenience of the assessor. Because of this, it may be necessary to adjust the costs for height. The base height is 14' and 3% of the cost indicated should be added or deducted for each foot of height variation in your subject building.

Type	Comm.	Ind.	Ofc.
Electric baseboard	$4.40	$4.15	$7.00
Electric wall/floor heaters	2.05	2.05	2.85
Heat pump, heat and cool	9.45	7.45	14.55
Forced warm air, central system	4.65	3.50	7.75
Ventilation only w/ducts	1.40	1.05	2.15
Hot water baseboard	8.25	5.80	12.35
radiant floor	7.95	5.80	12.10
Steam radiators			
w/boiler	7.20	5.40	11.50
w/o boiler	5.90	4.45	9.75
Suspended unit heaters			
gas fired	1.90	1.55	2.30
w/steam or hot water coil	3.40	1.75	—
Zoned hot & cold water	19.65	15.00	29.35
Zoned hot & cold air	11.80	8.75	18.65
A/C central forced air	8.50	6.55	11.00

Since unit heaters are a **deduction**, the price must be multiplied by any wall height or shape adjustments that were made to the base cost. In addition Schedule 32 indicates the necessity of using a wall height adjustment for the price listed in the schedule.

The base cost (134.93) was multiplied by a wall height adjustment of .955 to account for the difference in costs to build to 9' instead of the standard 12'. Since we already adjusted for 12' to 9', we only need to make a wall height adjustment for 14' to 12'. The adjustment factor should account for 2' x 3 % per ft or – 6%.

The factor will be .94 (100% - 6%) for wall height.

To find the adjustment for no heat:

1.55 x .94 (wall height adj) x 1.31 (shape adj) = — 1.91

35 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 those 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	$ 8.45	$11.20
1,001 - 2,000	8.65	10.85
2,001 - 5,000	5.70	8.60
5,001 - 10,000	5.30	7.90
over	4.75	7.95

The next item for adjustment is sprinklers. The sprinkler schedule for industrial properties is based on the total square footage that is sprinkled (or in this case, is a deduction for not having sprinklers). The base cost includes a cost for ordinary hazard sprinklers. The subject property does **not** have sprinklers, thus a **deduction** from the adjusted base cost is required. Ordinary hazard sprinklers are valued at $5.70 per square foot.

However, we must factor that value by the base cost adjustment made for wall height (.955) and shape at 1.31 to account for the correct ratio of heat cost to overall cost.

$5.70 X .955 x 1.31 = — $7.13 per square foot deduction for the sprinkler system.

There are no other items to cost out based on a square foot price. The next step is to determine the square foot (SF) price. Start with the adjusted base price of $168.81, subtract 1.91 for no heat, and subtract 7.13 for no sprinklers, to get a total square foot price of $159. 77. Then multiply the SF price by the SFGA (refer to the data bank) to arrive at a subtotal. **$159.77 x 4,000 SF = $639,080**

The next item on the computation ladder is an adjustment for plumbing fixtures. Mini-warehouse base costs include a water heater, a toilet, and a wash basin, a total of three plumbing fixtures of commercial quality. A **deduction** for these fixtures is necessary since the subject has no plumbing or water service. **2,600 x .955 x 1.31 = 3,253 x 3 fixtures = — 9,759**

Now add for the gutters and the downspouts. Since there is no line for the gutters and the downspouts, write each on its own line on a blank line.

Costs for gutters and downspouts can be found in Publication 127 in the Components-in-place schedules. Schedule 8 page 23 indicates a cost for Aluminum gutters at $10.20 per LF and a cost for downspouts at $7.15 per lineal foot. Since these are **additions**, no adjustments are necessary for wall height or for shape.

Gutters = 10.20 x 208 lineal feet = 2,122
Downspouts = 7.15 x 54 lineal feet = 386

Deduct the plumbing adjustment of $9,759 from the subtotal cost of $639,080 and add $2,122 for gutters and $386 for downspouts to arrive at a total of $631,829.

The building has a quality grade of “C,” due to the typical or average materials and workmanship used in its construction.

Look at the Industrial Subsidiary Schedules on page 8 of Publication 127 for **"Quality."** Note that the factor for a "C" grade is 100 percent. Multiply the total of $631,829 x 100 percent (1.00) to arrive at a RCN of $631,829.

This represents what it would cost to construct this structure today. Since the structure was built 13 years ago, depreciation must be considered.

Look at the **Industrial REL Depreciation Table** on page 11 of Publication 127**.** The left column is "age considering physical condition."

When comparing the building to other structures in the area, its condition was comparable to other 13 year old mini-warehouse structures, so its physical condition was rated as "average." Since the building's desirability and utility are also "average," the effective age for this improvement is also "13."

Look at Schedule B for structures with an effective age of 13. The REL factor is 67.5 percent. Multiplying $631,829 by 67.5 percent gives the full depreciated value for the structure of $426,485.

The completed PRC is in the answer section.

Unit 6 Summary

The industrial square foot schedule was designed from the CIP schedules found in Unit 5. This was accomplished by constructing hypothetical model buildings of a variety of wall types, combined with a variety of structural frames.

Adjustments to the base price may be necessary for wall height variations and area/perimeter adjustments based on the building's shape.

Other additions to the base price, such as plumbing fixtures, air conditioning, sprinkler systems, office enclosures, mezzanines, power wiring, extensive partitioning, basement construction, docks, yards, and outside improvements may be necessary.

Some of these items may be priced from the subsidiary schedules that follow the base price schedules. It may also be necessary to refer to the CIP schedules to price the rest of these items.

Notes

Unit 6
Review questions

1. When using the industrial square foot schedules, one must use a _____ adjustment to adjust for the ratio of the wall area to the floor area of the subject building.

2. What would be used from the data bank to determine the adjustment in Question 1? _____

3. A mini-warehouse is constructed of tilt-up concrete panels with reinforced concrete. The length of the building is 150' and the width is 100'. The eave height is 16'.

   a. What is the shape adjustment? _____

   b. What is the base cost from the mini-warehouse schedule for this 1-story building of 16'? _____

   c. This improvement was built 18 years ago and its physical condition is "average" and the desirability, as well as the utility, are "poor." What is the REL factor? _____

   d. What is the depreciation? _____

   e. What is the height adjustment? _____

Unit 7

Land Valuation

This unit covers land valuation using the front foot method, the square foot method, and the site method.

The purpose of this unit is to provide a basic understanding of calculating land values using the square foot method.

Learning objectives

After completing the assigned readings, you should be able to

- explain the basic methods for valuing land,
- define the front foot method of valuing land, and
- define the square foot method of valuing land.

Terms and concepts

Front foot value
Square foot value
Site value
“65-35 Rule”
Unit value

Land Valuation

The assessor is responsible for placing a value on both land and improvements for each parcel of property located in the jurisdiction.

A number of principles are involved in land valuation.

Land is valued as 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 complies with zoning laws, not unlawful, etc.

Probable or physically possible — Use is reasonable, not speculative.

Economically feasible — Use is in demand, profitable.

Land and site have different meanings. Land is considered to be raw land without amenities such as streets and utilities. Site is defined as a parcel that has been made ready for its intended purpose.

There are three significant factors in valuing land:

1) **Front foot value** — In the front foot method the amount of frontage is the most significant factor in determining value.

2) **Square foot value —** The size is a significant factor in determining value and is also used to value irregular shaped lots.

3) **Site value** — The location is the most significant factor in determining value.

The assessor must analyze the market to support the unit of value to be used. **Unit value** is determined by dividing the selling price of vacant land by the number of units.

For example, the selling price for a lot is $24,000. The lot is 80’ x 150’. For lot dimensions, the first number always refers to the width of the lot. The second number refers to the depth of the lot. Since the frontage (width) of the lot is 80’ and the depth of the lot is 150’, the lot contains 12,000 square feet.

$\frac{\$24,000}{80'} = \$300/FF$ $\frac{\$24,000}{12,000} = \$2/SF$ $\frac{\$24,000}{1} =$ site value

The market determines how lots are being purchased.

Adjustments to the basic unit value **must be** supported by the market.

Adjustments may be required for time, specific physical characteristics, *e.g.,* trees, landscaping, topography, and location (whether a corner or interior lot).

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 front a street, lake, *etc.*, and run the entire depth of the lot have the same value.

Irregular lot adjustments are also made when the front foot value is the unit of comparison.

These adjustments are based on the assumption that the utility of the lot may be affected by its shape.

Other types of irregularly shaped lots may have to be measured and valued as though they are separate lots, with each value being combined into a final lot value. The most common methods would incorporate the use of rectangles and triangles.

When size is the dominant factor in determining value, the square foot unit of value is used. The value of the lot is found by multiplying the number of square feet by the $/SF value.

For a rectangular lot, the formula is: **Area = length x width**

For example, a lot is 80' x 100' and the unit value is $.90/SF. The lot has a value of $7,200. (80' x 100' = 8,000 SF x $.90.)

Keep in mind that if a triangular-shaped lot is being valued, the number of square feet contained in the lot is determined by:

$$\text{Area} = \frac{\text{base x height}}{2}$$

Exercise 7-1
Commercial lots

The purpose of this exercise is to familiarize you with the valuation of lots with various shapes.

The lots in this exercise are numbered for identification purposes only. The square foot value derived from the market is $1/SF.

Value the lots using the formulas below.

Lot value = number of SF X $ per SF

Use the worksheet on page 121 as an example to work the similar exercise on page 122.

1. Lot 004 To compute the lot value using the square foot value as the unit value, multiply the frontage 100‘ by the depth of 100’ by the square foot value ($1/SF). **100’ x 100’ x $1/SF = $10,000**

2. Lot 005 To compute the $/SF value, simply multiply the frontage of 75’ by the depth of 70’. **75’ x 70’ x $1/SF = $5,250**

3. Lot 006 To compute the $/SF value, the first step is to determine the square footage of the triangular shaped lot. Multiply the base by the height and divide by 2. The square footage is then multiplied by the $/SF.

$$\frac{75' \times 100'}{2} = 3{,}750 \text{ SF} \times \$1/\text{SF} = \$3{,}750$$

4. Lot 007 Follow the same process for lot 007 as you did for lot 006.

$$\frac{75' \times 100'}{2} = 3{,}750 \text{ SF} \times \$1/\text{SF} = \$3{,}750$$

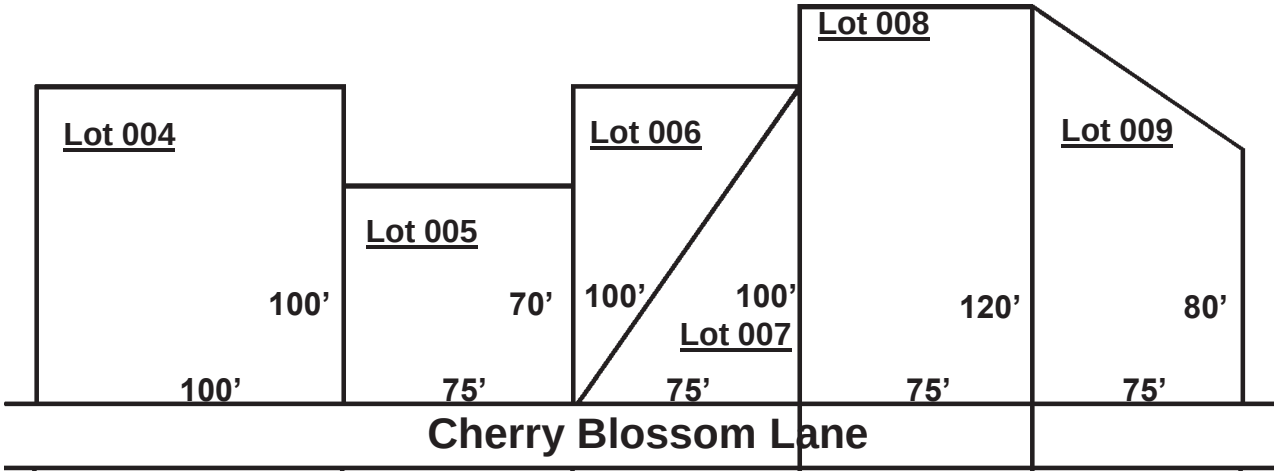
5. Lot 008 To compute the lot value using square foot, chain multiply the 75' of frontage by the depth of 120’ and then by the $/SF.
75’ x 120’ x $1/SF = $9,000

6. Lot 009 When using $/SF as the unit value, this lot will be divided into a triangular-shaped portion (40’ x 75’) containing 1,500 SF, and a rectangular-shaped portion (75’ x 80’) containing 6,000 SF. Adding the 1,500 SF and the 6,000 SF gives a total of 7,500 SF for the entire

lot. This lot contains **7,500 SF x $1/SF = $7,500.**

Exercise 7-1 worksheet
Commercial lots

$ 1/SF



Square foot

Lot 004 100’ x 100’ x $1/SF = $10,000

Lot 005 75’ x 70’ x $1/SF = $5,250

Lot 006 75’ x 100’ ÷ 2 = 3,750 SF x $1/SF = $3,750

Lot 007 75’ x 100’ ÷ 2 = 3,750 SF x $1/SF = $3,750

Lot 008 75’ x 120’ x $1/SF = $9,000

Lot 009 75’ x 80’ x $1/SF = $6,000

40’ x 75’ ÷ 2 = 1,500 SF x $1/SF = $1,500

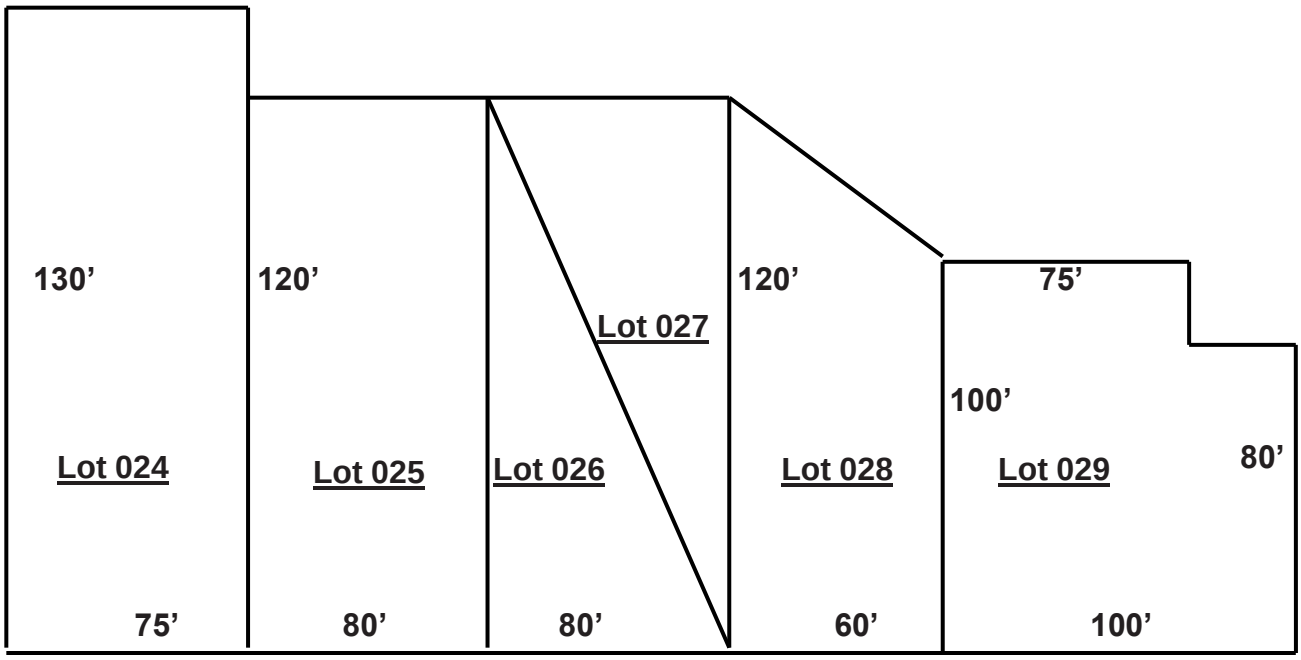
$ 6,000 + $ 1,500 = $7,500

Exercise 7-2
Calculating SF values

Calculate the SF values for lots 024 through 029.

The SF value is $.80/SF

Lot 024	SF value = _____	Lot 027	SF value = _____
Lot 025	SF value = _____	Lot 028	SF value = _____
Lot 026	SF value = _____	Lot 029	SF value = _____



Unit 7
Summary

The assessor is responsible for determining the value of both the land and the improvement for all properties located in his or her jurisdiction.

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

Several principles may be used to value land. The three most common units of value are the **front foot value**, **square foot value, and site value**.

A **front foot** is a strip of land 1 foot wide running from the front to the rear of the lot. Adjustments may be necessary when using the front foot (FF) method.

An irregular lot adjustment is also made when the front foot value is the unit of comparison. These adjustments are based on the assumption that the utility of the lot may be affected by its shape.

The square foot unit of value is used when size is the dominant factor in determining value. The value of the lot is found by multiplying the number of square feet by the $/SF value.

The area of a triangular-shaped lot is found by multiplying the base by the height and dividing by 2.

Unit 7

Review questions

Match these terms with the correct definition.

_____	Front foot	**A**	as vacant and at its highest and best use.
_____	Land is valued	**B**	area of a triangular-shaped lot.
_____	$\frac{b \times h}{2}$	**C**	a strip of land 1 foot wide running from the front to the rear of the lot.
_____	$\frac{SP}{\text{\# of units}}$	**D**	unit value
_____	Square foot	**E**	method used to value land when size is the dominant factor affecting value

.

Unit 8

Using the Income Approach to Arrive at Value

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.

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

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
Allowable expenses

The Income Approach

Income-producing property, such as hotels, nursing homes, apartments, and offices are often valued on the basis of 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 actually anticipated by investors, it follows that the value of income-producing property can be derived from the income the property is capable of producing.

Capitalization

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

Capitalization is accomplished by dividing the net income of the property (I) by the capitalization rate (R).

The result is an estimate of market value (V) of the property.

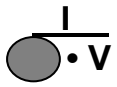
Market value (V) = net income (I) ÷ capitalization rate (R)

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

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

"I" = net operating income.
"R" = capitalization rate
"V" = value

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



If you know the net income of a property and the value, to find the appropriate capitalization rate, cover up the "R" in the formula so you are left with I divided by V.

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

Net operating income

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

Potential gross income (PGI)
— Vacancy and collection losses
+ Miscellaneous income
Effective gross income (EGI)
— Allowable expenses
— Reserves for replacements (RR)

Net operating income (NOI)

The **potential gross income (PGI)** is the economic rent for a property at 100 percent occupancy.

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.

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 losses" is allowed.

The amount of the deduction is based on market standards, or the vacancy rate typical for the area.

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.

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

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, **property taxes and debt service (mortgage and interest) are not allowable expenses.** They are taken into consideration in the capitalization rate.

Other items not considered allowable expenses are income taxes, depreciation, capital improvements, and the 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.

Capitalization Rate

"**R**" in the IRV formula refers to the capitalization rate that consists of percentages for the equity rate, the mortgage interest rate, and the effective tax rate. When dealing with capitalization rates, the land capitalization rate and the building capitalization rate both include all three rates.

Both Land and Building capitalization rates are comprised of

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

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

In order to arrive at a value, you need 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 = $\frac{\text{I}}{\text{R x}\bigcirc}$ $\frac{81{,}000}{.1025}$ = $790,244

   The value of the property is $790,244.

Exercise 8-1 IRV Formulas

Using the IRV formula, complete the following questions.

1. A parking lot recently sold for $300,000. The parking lot has 100 parking spaces, each renting for $25 per month. Allowable expenses are $6,000 annually.

   What is the capitalization rate? _____

2. A parking lot 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 parking lot? _____

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. A gravel parking lot recently sold for $267,900. The mortgage interest rate is 9.25 percent, the equity rate is 2.54 percent, and the effective tax rate is 2.00 percent.

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

Exercise 8-2 Income Analysis

In this exercise, you will prepare an income statement to arrive at a value for the property. The subject property is a 3-story, commercial office building, measuring 68 feet by 102 feet. The building was constructed 40 years ago.

The formula for arriving at a net operating income is:

Potential gross income (PGI)
— Vacancy and collection losses
+ Miscellaneous income
Effective gross income (EGI)
— Allowable expenses
— Reserves for replacements (RR)
Net operating income (NOI)

The amounts listed in this exercise represent the income and expense information for the subject property. All of the information was verified in the market place and determined to be reasonable. This is a very simplified example for demonstration purposes.

There are several steps to follow in preparing an income statement. First, select a potential gross income (PGI) and enter it on the first line. PGI is the economic rent for a property at 100 percent occupancy. When estimating the PGI, it is important to base it on economic, or market, rent which may not be the same as contract rent.

The next step is to determine the vacancy and collection losses.

For the purpose of this exercise, it was determined that a 3 percent vacancy and credit rate is typical for the area. Take 3 percent of the PGI and enter that amount on the second line.

The effective gross income is derived by subtracting the vacancy and collection losses from the PGI and adding in any miscellaneous income.

Miscellaneous income is any income other than rent, and it may come from several sources. It is also known as “service income”

because it is derived from sources such as parking, a coin-operated laundry, etc.

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. Taxes and interest are used in the capitalization rate. For this exercise, go through the 11 categories listed under “Expenses,” select the appropriate amounts, and write them on the appropriate lines. You must 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.

Once you determine the net income, use the IRV formula to arrive at the value of the property.

Exercise 8-2 Income and analysis statement

Evaluate the income and expense statement below to develop the current net annual income.

Income analysis

Income information source:				**Adjusted**
Rents obtained from owner				
& management company				**$113,845**
Vacancy and credit loss @ 3%				_____
Effective gross income				_____
Expenses:				
Management			**$4,500**	**$4,500**
Administrative			**200**	
Fuel			**2,800**	
Electrical			**360**	
Water			**155**	
Janitor			**3,600**	
Scavenger (trash removal)			**975**	
Decorating			**800**	
Reserves for replacement			**6,250**	
Insurance			**500**	
Mortgage interest			**7,250**	
Total allowable expenses				_____
Net operating income				_____

Net operating income = $ _____

Overall capitalization rate = 14.3 percent

Value of property = $ _____

Unit 8
Summary

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

I = Net income
R = Capitalization rate
V = Market value

Potential gross income (PGI)
— Vacancy and collection losses
+ Miscellaneous income
Effective gross income (EGI)
— Allowable expenses
— Reserves for replacements (RR)

Net operating income (NOI)

Unit 8
Review questions

1. A 100 space 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 equity 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. Land used as a parking lot recently sold for $270,000. The equity 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 $400 a month, the 2-bedroom units rent for $350 a month, and the 1-bedroom units rent for $275 a month. Similar properties in the area have recorded their monthly income to be at $3500 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 vacancy and collection loss? _____
   What is the effective gross income? _____

Unit 9

Using the Sales Comparison, or Market Approach, to Arrive at Value

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, the unit price, and the room price for a property,
- make the necessary adjustments, adjust the sales price, unit price, and room price for each sale,
- select the property that is most comparable to the subject property, and
- identify three indications of value and select the best one for the subject property.

Terms and concepts

Unit price
Room price
Gross income multiplier (GIM)
Gross rent
Sales price Units
Overall rate
Adjusted sales price
Adjusted unit price
Adjusted room price

Sales comparison or market approach

The sales comparison approach is dependent on the availability of sales of comparable properties and the validity of the appraisers' judgments made in regard to their similarities and differences.

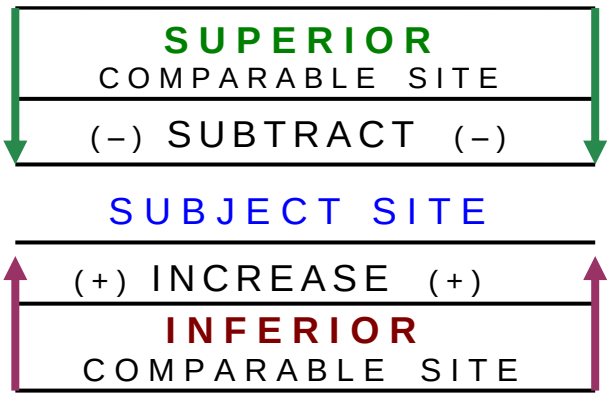
Consideration must be given to all the tangible and intangible factors influencing value:

- location
- construction
- age
- physical features
- condition
- desirability, and usefulness
- 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.



3 to 5 sales are necessary

Choose the sale with the least number of adjustments

Example of upward adjustment

An adjustment may be warranted if several comparable industrial warehouse 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** would be required before the inferior sales can be used to estimate the value of the subject property located next to the interstate.

Example of downward adjustment

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

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

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 fluctuates over time with changing economic conditions and property conditions.

Exercise 9-1 Sales comparison

In this exercise, you will determine a value for the property based on **a unit price and a gross income multiplier (GIM)**.

The first step in the sales comparison approach is to gather information on comparable properties that have sold. Once the information is gathered, the appraiser should study the properties to determine if any adjustments are needed.

The following 5 sales presented in the analysis grid were selected as the most comparable to the subject property. All of the sales are located in the subject's jurisdiction.

You must first determine what units of comparison to use to arrive at a value for the subject property.

In this exercise, you will use two units of comparison: the unit value and a GIM to estimate the market value of the subject property. To determine a unit price, divide the sale price by the number of units.

To arrive at a GIM, divide the sales price by the gross rent.

GIM = Sales Price ÷ Gross Rent

To calculate an overall 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 efficiency 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.

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 considered to be 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 build 12 years ago of vinyl siding on a wood frame, sold one year ago. The location is considered to be superior to the subject property.

Sale 3
806 Capitol

The property at 806 Capitol, build 8 years ago, sold two years ago. The location of sale 3 is considered to be inferior to the subject property. However, the construction quality of 806 Capitol is considered to be superior to the subject property.

Sale 4
355 Pine

The property at 355 Pine was built 9 years ago. The condition and location of 355 Pine are considered to be 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 considered to be similar to the subject property.

Additional market data is listed on the chart on the next page.

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
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	28	24	20	22	22
Unit price					
Unit breakdown	28 eff	12 eff 12 1-bed	8 eff 12 1-bed	22 1-bed	10 eff 12 1-bed
Monthly Unit Gross income					

Check your answers on the grid below.

Now that you have completed the data on comparables, use market data to make the necessary qualitative adjustments.

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
Gross rent	$110,700	$111,840	$99,960	$113,280	$108,240
GIM	**5.80**	**5.60**	**5.10**	**5.40**	**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 %**	**13.76 %**	**15.08 %**	**14.25 %**	**14.27 %**
Units	28	24	20	22	22
Unit price	**$22,929**	**$26,083**	**$25,500**	**$27,818**	**$26,545**
Unit breakdown	28 eff	12 eff 12 1-bed	8 eff 12 1-bed	22 1-bed	10 eff 12 1-bed
Monthly Unit Gross income	$329.46	$388.33	$416.50	$429.09	$410.00

Each sale will be examined to determine if any adjustment is necessary. Once you have reviewed the data, you will come up with a total ranking for each property.

After making all of 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 page 140 and the previous grid to fill in the grid below with "Inferior," "Similar," or "Superior." If there is nothing written for the characteristic, it is similar. Sale 1 has already been completed for you. Check the Answer section for the other sales.

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 considered to be inferior to the subject property.

The **subjec**t property is in a **better** location than the property at 107 Capitol. Since the subject property is in a better location that sale 1, then sale 1 is i**nferior** to the subject property. Remember to **always adjust the comparable property**.

From the grid, we see that sale 1 has 28 efficiency apartments which is not as desirable (inferior to) as the subject which also has 1-bedroom apartments.

Looking at the Sale 1 column, there are as many "Inferior" as "Similar" Sale 1 is somewhat inferior to the subject which would indicate a value higher than $22,929 per unit for the subject.

Now 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				
Unit Breakdown	11 eff 13 1-bed	Inferior				
Overall Rating	—	Inferior				

You should have selected sale 5 as the property most comparable to the subject because it required the least number of adjustments

Dollar per apartment unit:

Since sale 1 overall is inferior to the subject, a value higher than the sale price of $22,929 per unit for the subject is indicated.

Since sales 3 and 4 were both superior, the value estimate for the subject property should be less than the sale price of $25,500 for sale 3. (Sale 4 was valued even higher than Sale 3.)

The subject is most similar (least number of adjustments) to sale 5 which sold for $26,545. Since our value is an estimate, we will round this estimate to $26,500 per apartment unit.

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. We will value them at $26,500 per unit as we discovered from the market.

26,500 x 24 = $636,000.

GIM

For the gross income multiplier, we will again choose sale 5 as the sale with the least number of adjustments, but this time we will 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. Subject property has a gross rent of $113,845.

5.40 x $113,845 = $ 614,763

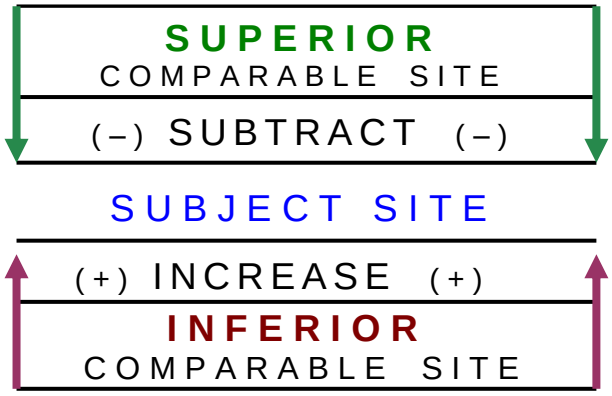
Among the 5 sales, which unit of value, the unit price or the GIM is most consistent? This would be the basis for which unit of value to choose. _____

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**.

Unit 9 Summary

The sales comparison, or market, approach to value arrives at a value for the subject property by comparing it to comparable 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, 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.



3 to 5 sales are necessary

Choose the sale with the least number of adjustments

Unit 9
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 your comparable if it is inferior to your 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.

Unit 10

Supplemental Exercises

Following are exercises, including data banks, and determining air conditioning and sprinkling costs.

Work as many exercises as you prefer. The answer keys are at the end of the Answer section.

Exercise 10-1
Data banks

Calculate the data bank for the following structures.

	2-Story L52 W36 H26	3-Story L40 W50 H42	2-Story L150 W75 H28
S/F ground area			
Eff. perim			
C/F of bldg			
S/F wall area			
Wall ratio			

	2-Story L40 W40 H26	3-Story L40 W40 H42	2-Story L50 W40 H28
S/F ground area			
Eff. perim			
C/F of bldg			
S/F wall area			
Wall ratio			

Calculate the data bank for the following structures, assuming that **1 wall of the length is a party wall.**

	2-Story L40 W40 H26	3-Story L40 W40 H42	2-Story L50 W40 H28
S/F ground area			
Eff. perim			
C/F of bldg			
S/F wall area			
Wall ratio			

Exercise 10-2 Air Conditioning and Sprinkling System

Calculate the square foot of serviced area (SFSA) adjustment for air conditioning and for a sprinkler system, assuming that the **entire building** is **not** cooled or protected by an ordinary hazard sprinkler system. Consult the commercial square foot schedules for values.

			Air conditioning	Sprinkler
2-Story L40 W40 H26 1st floor store (14') 2nd floor store (12')	WH BPA	2 % 1.183	_____	_____
3-Story L40 W40 H44 1st floor office (14') 2nd floor office (14') 3rd floor office (16')	WH BPA	2% 1.105	_____	_____
2-Story L50 W40 H28 1st floor store (14') 2nd floor store (14')	WH BPA	2 % 1.148	_____	_____
1-Story L52 W36 H13 1st floor store	WH BPA	2 % 1.166	_____	_____
3-Story L150 W75 H36 1st floor store (14') 2nd floor store (13') 3rd floor apartment	WH BPA	1 % .917	_____	_____
3-Story L100 W 60 H40 1st floor store (12') 2nd floor store (14') 3rd floor office (14')	WH BPA	2 % .981	_____	_____

Answer key

Units 1 through 10

1-B Introduction to Commercial Assessment Practices

Unit 1
Review questions

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

F	Sales comparison	**A**	$\frac{I}{R \bullet V}$
C, D	Cost approach	**B**	Equity rate, effective tax rate, mortgage interest rate.
E	Capitalization	**C**	Land value + (RCN - depreciation) = market value.
A	Income approach	**D**	Approach that is most applicable when the improvement is new and is at its highest and best use.
G	Economic Rent	**E**	Conversion of the net return produced by a property into an indication of value.
B	Capitalization Rate	**F**	Adjust recent comparable sales to the subject.
		G	Rent that a property is normally expected to bring in an open market.

Unit 2
Review questions

Complete the following crossword puzzle.

Across

1 adjusts manual to current local actual labor and material rates

3 RCN = _____ + DEP

4 type of depreciation that is outside the property boundaries.

5 factor that uses improvements whose age is 1 year or less

7 type of depreciation that deals with the utility of the structure

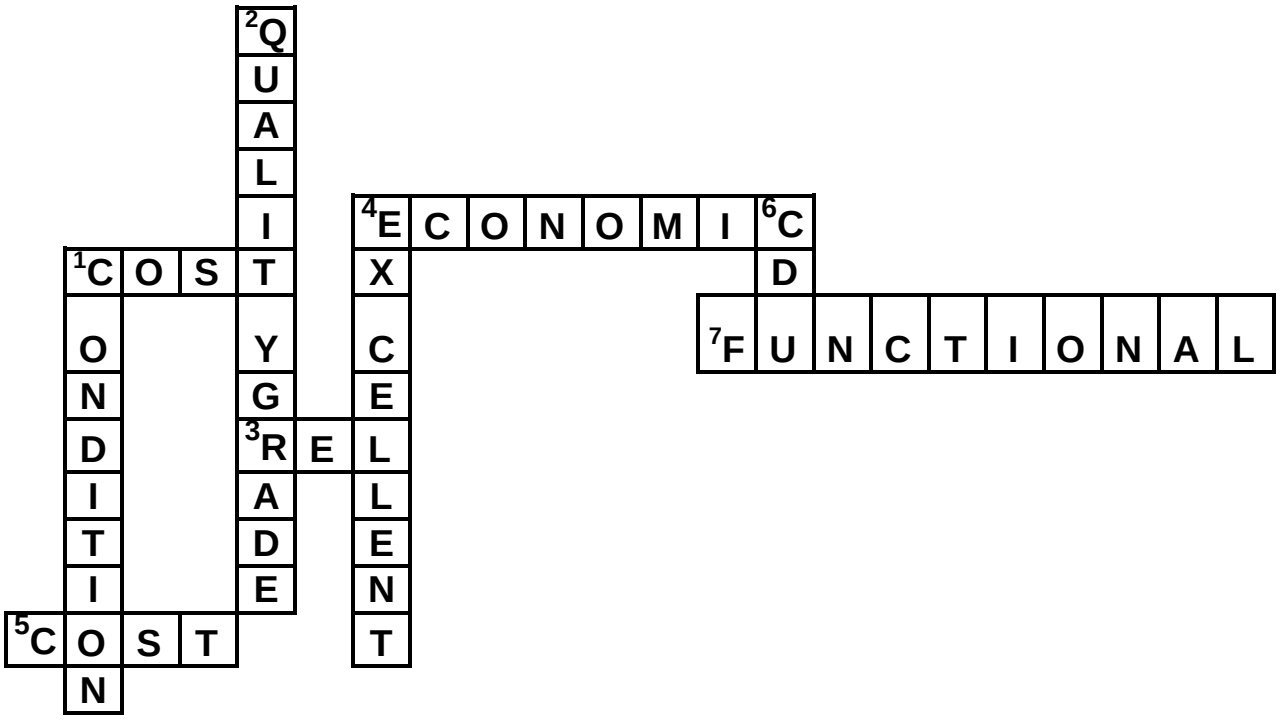
Down

1 physical depreciation refers to the _____of the structure

2 factor that may remain the same for the life of the improvement

4 quality grade of “A” is considered _____.

6 _____ratings are assigned in relation to other structures within the neighborhood



Unit 3

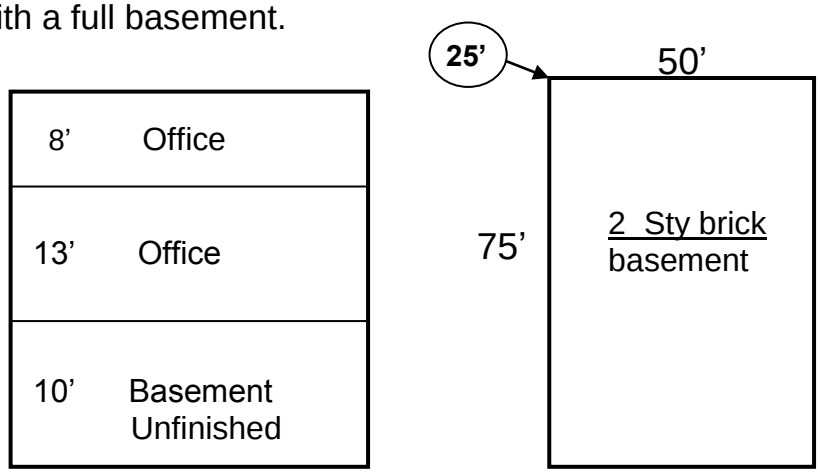
Exercise 3-1

	2-Story L36 W40 H28	2-Story L48 W50 H28	2-Story L44 W50 H28	3-Story L72 W48 H42
S/F ground area **(SFGA)**	**1,440**	**2,400**	**2,200**	**3,456**
Eff. Perim L/F **(EP)**	**152**	**196**	**188**	**240**
C/F of bldg. **(CF)**	**40,320**	**67,200**	**61,600**	**145,152**
S/F wall area **(SFWA)**	**4,256**	**5,488**	**5,264**	**10,080**
Wall Ratio **(WR)**	**9.47**	**12.24**	**11.70**	**14.40**

Unit 3

Review questions

Compute the following items in the data bank for this 2-story commercial building with a full basement.



Data Bank:

S/F ground area **(SFGA)**	**3,750**
Eff. Perim L/F **(EP)**	**250**
C/F of bldg. **(CF)**	**78,750**
S/F wall area **(SFWA)**	**5,250**
Wall Ratio **(WR)**	**15.00**

1 Compute the EP if one of the 75' walls is a party wall. **220 SF**

2 Compute the EP if both of the 75' walls are party walls. **190 SF**

Unit 4

Fill in the blanks to determine the base price for the first floor which is also brick veneer on wood studs.

1) The square footage of 3,420 is between **3,000** SF and **4,000** SF.

2) through 5) $\frac{115.50 - 119.95}{4{,}000 - 3{,}000} = \frac{-4.45}{1{,}000} = -.00445$

(There will be a minus sign in your calculator. Do not clear your calculator.)

6) On paper, find the difference between the square footage of the subject building and the **smaller** SF. **420**

7) Multiply the number in your calculator by the difference in the square footage and round to the nearest penny. – .00445 x 420 = – 1.87

8) **Add** your answer to the value that corresponds to the smaller SF.
– 1.87 + 119.95 = 118.08

The base price of the first floor is **$118.08**.

(Page 58)

Base price of floor x factor = adjusted floor price

Basement is 10' high	$37.25 x	**1.02**	=	**$ 38.00**
First floor is 12' high	$115.50 x	**.96**	=	**$ 110.88**
Second floor is 16' high	$90.95 x	**1.08**	=	**$ 98.23**
Third floor is 8' high	$85.45 x	**.92**	=	**$ 78.61**

(Page 59) **Wall ratio calculation examples**

Referring to the shape adjustment table, indicate the appropriate shape adjustment factor for the following wall ratios.

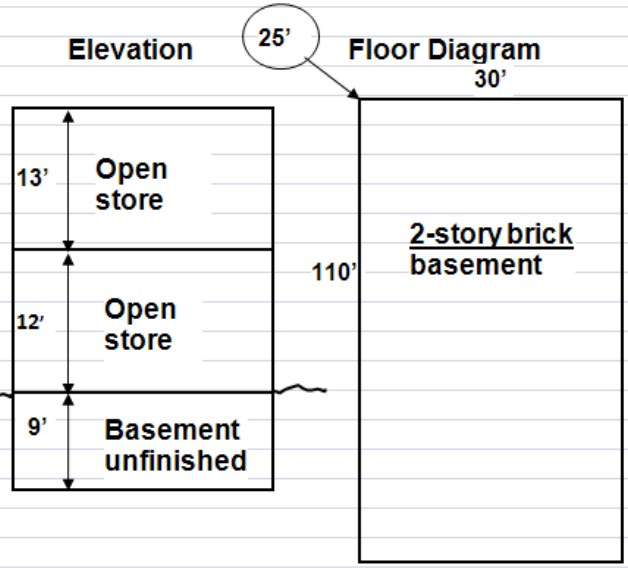
8	**1.283**	22.00	**.950**
10.5	**1.166**	20.75	**.969**
35.80	**.866**	14.6	**1.042**

Exercise 4-1 02-20-200-001 Property Record - Commercial - Industrial

Construction Specifications						
Foundation						
Sprd. Ftg	✓	Pile				
Caisson		Other				
Wall Framing	B	1	2	3	A	
Wood		✓	✓			
Steel O/FP						
Reinf. Concrete						
Load Bearing	✓	✓	✓			
Frame Bay - Bay Area						SF
Floors						
Wood		✓	✓			
Steel O/FP						
Reinf. Concrete	✓					
Frame	(Wood)	Steel	Conc.			
Exterior Walls						
Siding						
Masonry Blk /Brk		✓	✓			
Steel						
Glass						
Finish						
Unfinished	✓					
Finished Open		✓				
Finished Divd.			✓			
Heat						
Cent. Wm. Air		✓	✓			
Ht. Wt/Steam						
Unit Heaters						
None	✓					
Air Conditioning						
Central		✓	✓			
Unit						
None	✓					
Roofing						
Composition	✓	Shingle				
Slate		Metal				
Frame	(Wood)	Steel	Conc.			
Plumbing Type						
1		2	14			
3		4				
	Sprinkler	✓	1st & 2nd			

Use							
Store	1	Office	2	Vacant	B		
Apt.		WH		Abandoned			
Factory							
No. of Units							
Avg. Unit Size							
No. Rooms Per Unit							
Prorated @ _____ % with:							

Data Bank		Description		Computation
SF Ground Area	3,300	Flr. Price x Ht. Adj.	WH	
Eff. Perim LF	280	37.60 x 1.00	9 Bsmt.	37.60
CF of Bldg.	82,500	118.62 x .96	12 1st Floor	113.88
SF Wall Area	7,000	93.40 x 1.02	13 2nd Floor	95.27
Wall Ratio	11.79		3rd Floor	
2 Sty. Brk	Sched. Retail St			



		Computation
Size _____ x Shape 1.115 x Weight _____	Base Price	246.75
	BPA	1.115
	Adj. Base Price	275.13
	Heat	
	A/C	
	Electrical Light	
	Sprinkler	
	SF Price	275.13
	SF	3,300
Inc 1 fixture for every 800 sf + water heater	Subtotal	907,929
3300 x 2 = 6600 sf /800 = 8.25 --> 9 + 1 = 10	Plumbing	10,400
14 - 10 = 4 extra x 2600 = 10,400		
	Partitions	
SFWA for 1st fl = 280 x 12 = 3360 x .10 =336 sf inc	Front	— 5,207
9 x 30 = 270 ; 336-270 = 66 more inc than in bldg	Canopy	
66 x 73.70 x .96 x 1.115 = - 5207	Dock	
S C M I Grade C		913,122
C&D G 1.00 NH	A	1.00 =FAC
Eff. Age 12 / Eff. Age 12 / CDU Avg/Avg / Age 12	Replacement Cost New	913,122
Depreciation = 24%	REL	0.76
	Full Value	693,973

Summary of Other Buildings

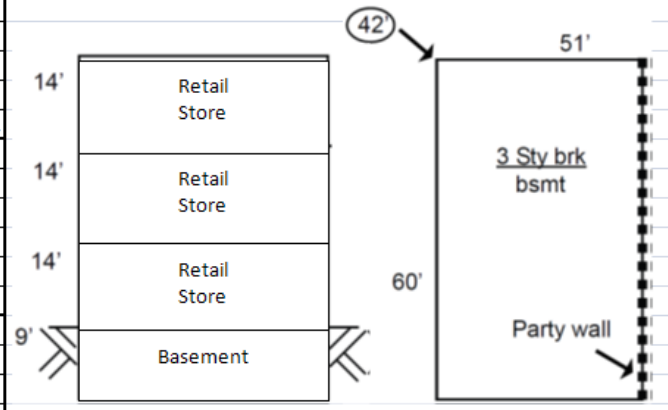
Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by: Total full value other buildings

Date: Total full value all buildings 693,973

Exercise 4-2 02-20-200-002 — **Property Record - Commercial - Industrial** — **Retail Store**

Construction Specifications							Use						Data Bank		Description		Computation
Foundation							Store	✓	Office		Vacant	B	SF Ground Area	3,060	Flr. Price x Ht. Adj.	WH	
Sprd. Ftg	✓	Pile					Apt.		WH		Abandoned		Eff. Perim LF	198	37.72 x 1.00	9 Bsmt.	37.72
Caisson		Other					Factory						CF of Bldg.	128,520	146.02 x 1.00	14 1st Floor	146.02
Wall Framing							No. of Units						SF Wall Area	8,316	114.05 x 1.04	14 2nd Floor	118.61
	B	1	2	3	A		Avg. Unit Size						Wall Ratio	15.45	108.04 x 1.04	14 3rd Floor	112.36
Wood		✓	✓	✓			No. Rooms Per Unit						3 Sty Brk Sched Retail St				
Steel O/FP							Prorated @ ____% with:										
Reinf. Concrete																Base Price	414.71
Load Bearing	✓	✓	✓	✓											Size ____ x Shape 1.042 x Weight ____	BPA	1.042
Frame Bay - Bay Area						SF										Adj. Base Price	432.13
Floors																Heat	
Wood		✓	✓	✓											1st fl only has AC; deduct for 2nd & 3rd	A/C	– 16.90
Steel O/FP															2nd & 3rd: 7.80 x 1.04 x 1.042 = –8.45 x 2	Electrical Light	
Reinf. Concrete	✓															Sprinkler	
Frame	Wood	Steel	Conc.														
Exterior Walls																	
Siding																	
Masonry Blk. Brk.		✓	✓	✓												SF Price	415.23
Steel																SF	3,060
Glass																Subtotal	1,270,604
															3060 x 3 = 9180/800=11.45 —>12 + 1 = 13	Plumbing	–19,726
Finish															Has 6; deduct 7; 2600 x 1.04 x 1.042 =2818		
Unfinished															2818 x 7 = 19,726	Partitions	
Finished Open		✓	✓	✓													
Finished Dwd.															198 x 14 = 2772 x 0.10 =277 sf inc	Front	157
															7 x 40 = 280; 280 -- 277 = 3 x52.20	Canopy	
Heat																Dock	
Cent. Wm. Air		✓	✓	✓													
Ht. Wt/Steam																	
Unit Heaters															S C M I Grade C	Total	1,251,035
															C&D 1.10 G 1.00 NH	A 1.10	=FAC
None	✓														Eff. Age 30 / Eff. Age 35 / CDU Avg/Poor / Age 30	Replacement Cost New	1,376,139
Air Conditioning															Depreciation = 70%	REL	0.30
Central		✓														**Full Value**	412,842
Unit																	
None	✓		✓	✓													
Roofing																	
Composition	✓	Shingle															
Slate		Metal															
Frame	Wood	Steel	Conc.														
Plumbing Type																	
1		2	6														
3		4															
	Sprinkler		1, 2, & 3														



Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by: — Total full value other buildings

Date: — Total full value all buildings **412,842**

Property Record - Commercial - Industrial

CONVENIENCE STORE EXAMPLE

Construction Specifications

Foundation			
Sprd. Ftg	X	Pile	
Caisson		Other	

Wall Framing	B	1	2	3	A
Wood					
Steel O/FP					
Reinf. Concrete					
Load Bearing		X			
Frame Bay - Bay Area					SF

Floors					
Wood					
Steel O/FP					
Reinf. Concrete		X			
Frame	Wood		Steel		Conc.

Exterior Walls					
Siding					
Masonry Blk./Brk.		X			
Steel					
Glass					

Finish					
Unfinished					
Finished Open		X			
Finished Divd.					

Heat					
Cent. Wm. Air		X			
Ht. Wt/Steam					
Unit Heaters					
None					

Air Conditioning					
Central		X			
Unit					
None					

Roofing					
Composition		Shingle			
Slate		Metal			
Frame	Wood		Steel		Conc.

Plumbing Type			
1		2	
3		4	
	Sprinkler	X	

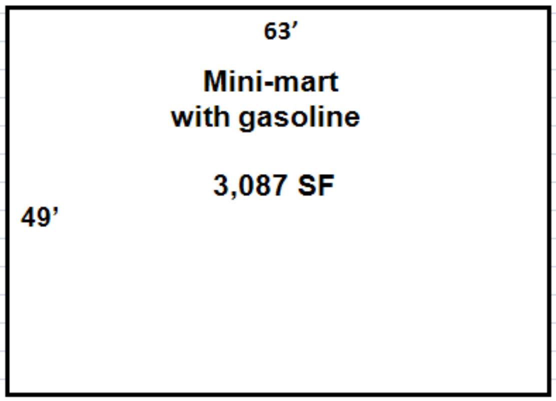
Use

Store	X	Office		Vacant	
Apt.		WH		Abandoned	
Factory					
No. of Units					
Avg. Unit Size					
No. Rooms Per Unit					

Prorated @ ________% with:

Data Bank

SF Ground Area	3,087
Eff. Perim LF	224
CF of Bldg.	49,392
SF Wall Area	3,584
Wall Ratio	13.78
1 Sty.	Sched CONVEN



Description / Computation

Description			Computation
Flr. Price x Ht. Adj.		WH	
		Bsmt.	
127.80 x 1.08	16	1st Floor	138.02
		2nd Floor	
		3rd Floor	
		Base Price	138.02
Size ______ x Shape 1.00 x Weight ______		BPA	1.00
		Adj. Base Price	138.02
Included in base cost - no adjustment		Heat	
Included in base cost - no adjustment		A/C	
		Electrical Light	
Included in base cost - no adjustment		Sprinkler	
		SF Price	138.02
		SF	3,087
		Subtotal	426,068
		Plumbing	
2 walk-in 100 SF, 30° - 40° $151/SF		**Refrigerators**	30,200
		Partitions	
		Drive-up Window	11,500
		Front	
		Canopy	
		Dock	
S C M I Grade C			467,768
C&D G NH		A	=FAC
		Replacement Cost New	467,786

Eff. Age	Eff. Age	CDU	Age
6	6	Avg	4 / 6

Depreciation =

REL	0.88
Full Value	411,636

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value
Canopy		Steel	3,625	30.10	C	4 / 6	Avg		109,113	0.88	96,019
Pumps/Dispens	8	Triple Hose		19,450	C	4 / 6	Avg		155,600	0.88	136,928
Pumps/Dispens	1	Double-sided		15,700	C	4 / 6	Avg		15,700	0.88	13,816
Tanks	4	Fiberglass			C	4 / 6	Avg		138,608	0.88	121,975
Paving		6" Concrete	20,000	7.5	C	4 / 6	Avg		150,000	0.88	132,000
Sidewalk		4" Concrete	700	4.65	C	4 / 6	Avg		3,255	0.88	2,864

Listed by:	Total full value other buildings	503,602
Date:	Total full value all buildings	915,238

Exercise 4-3 — Property Record - Commercial - Industrial — CONVENIENCE STORE

Construction Specifications

Foundation			
Sprd. Ftg	X	Pile	
Caisson		Other	

Wall Framing

	B	1	2	3	A
Wood					
Steel O/FP		X			
Reinf. Concrete					
Load Bearing					
Frame Bay - Bay Area					SF

Floors

Wood					
Steel O/FP					
Reinf. Concrete		X			
Frame	Wood	Steel	Conc.		

Exterior Walls

Siding					
Masonry Blk./Brk.					
Steel					
Glass					
Ins Metal Panels		X			

Finish

Unfinished					
Finished Open		X			
Finished Divd.					

Heat

Cent. Wm. Air		X			
Ht. Wt/Steam					
Unit Heaters					
None					

Air Conditioning

Central		X			
Unit					
None					

Roofing

Composition		Shingle	
Slate		Metal	X
Frame	Wood	Steel	Conc.

Plumbing Type

1		2	5
3		4	
Sprinkler	X		

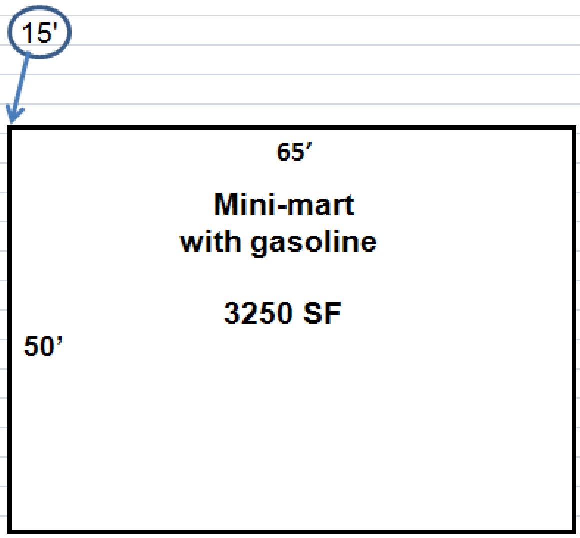
Use

Store	X	Office		Vacant	
Apt.		WH		Abandoned	
Factory					

No. of Units
Avg. Unit Size
No. Rooms Per Unit
Prorated @ ________% with:

Data Bank

SF Ground Area	3,250
Eff. Perim LF	230
CF of Bldg.	48,750
SF Wall Area	3,450
Wall Ratio	14.13
1 Sty.	Sched. CONVEN



Description / Computation

Description		Item	Computation
Flr. Price x Ht. Adj.		WH	
		Bsmt.	
141.40 x 1.06	15	1st Floor	149.88
		2nd Floor	
		3rd Floor	
		Base Price	149.88
Size ____ x Shape ____ x Weight ____		BPA	
		Adj. Base Price	149.88
Included in base cost - no adjustment		Heat	
Included in base cost - no adjustment		A/C	
		Electrical Light	
Included in base cost - no adjustment		Sprinkler	
		SF Price	149.88
		SF	3,250
		Subtotal	487,110
		Plumbing	
1 walk-in 100 SF, 30° - 40° $151/SF		**Refrigerators**	15,100
		Partitions	
		Drive-up Window	
All glass and glazing included		Front	
		Canopy	
		Dock	
S C M I	Grade C		502,210
C&D	G 1.00 NH	A	=FAC

Eff. Age	Eff. Age	CDU	Age
24	29	Avg/ Poor	15 /24

Replacement Cost New	502,210
Depreciation = REL	0.42
Full Value	210,929

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value
Canopy		Steel	3,100	30.10	C	15/24	Avg/Poor		93,310	0.42	39,190
Pumps/Dispenser	6	Triple Hose		19,450	C	15/24	Avg/Poor		116,700	0.42	49,014
Pumps/Dispenser	1	Single-sided		10,470	C	15/24	Avg/Poor		10,470	0.42	4,397
Tanks	3	Fiberglass		110,145	C	15/24	Avg/Poor		110,145	0.42	46,261
Paving		6" Concrete	19,000	7.50	C	15/24	Avg/Poor		142,500	0.42	59,850
Sidewalks		4" Concrete	700	4.65	C	15/24	Avg/Poor		3,255	0.42	1,367

Listed by:	Total full value other buildings	200,079
Date:	Total full value all buildings	411,008

Unit 4
Review questions

Use Publication 126 Instructions for Commercial Schedules to answer the following questions.

1. T or (F) An office building is 70’ x 100’. The first floor has a wall height of 16’. The wall height adjustment would be .98.

2. T or (F) A 2-story retail building with a full basement has a width of 40’ and a length of 80’. The first floor wall height is 16’, basement height is 9’, and the second story wall height is 14'. The square feet of wall area would be 9,360.

3. (T) or F Using the building specifications above, the wall ratio would be 13.33.

4. (T) or F Always adjust your square feet of ground area (SFGA) by the eave height to arrive at the cubic foot.

5. An office building with a width of 100' and a length of 200' and an overall height of 12’ would have

   a. shape adjustment of .925
   b. wall height adjustment of 1.00
   (c) a wall ratio of 33.33
   d. a size adjustment of 1.05

6. A 2-story retail building on a slab with a length of 70’ and a width of 50’ is fully sprinkled. What is the sprinkler adjustment?

   (a) sprinkler costs are included in base price
   b. sprinkler cost of $26,950
   c. sprinkler cost of $3.90 per square foot
   d. sprinkler cost of $7.70 per square foot
   e. they were too expensive and the landlord could not afford to install them

7. Using the same dimensions above, what would be the air conditioning adjustment amount placed in the computation ladder if building did **not** have air conditioning? The two stories are each at the standard height.

   a. –$7.80 per square foot
   b. not included in the base price
   (c) –$16.26 per square foot
   d. $15.60 per square foot
   e. $56,910

Answer Key

Unit 5
Exercise 5-1
Component-in-place schedules

Complete the following exercise. The appropriate schedules are noted.

	6 x 64 = 384 SFDA	
6 - 8' x 8' steel roll-up doors	384 x $23.25/SFDA =	$8,928
2 have electric operators	64 x 2 = 128 x $13.95/SFDA =	$1,786
	Total	$10,714

(Schedule 12 Pub 127 page 25)

Ceilings, Acoustical tile mineral fiber panels with insulation, in suspension system
Ceiling area 20' x 40'

20’ x 40’ = 800 SFCA

mineral fiber	$ 2.25
insulation	$ 1.80
suspension system	$ 2.25
Total	$6.30

$6.30 x 800 = $5,040

(Schedule 27 on Publication 127 page 27)

Floor area 60' x 125'

60’ x 125’ = 7,500
7,500 ÷ 2 = 3,750

1/2 finished with good grade carpet and pad	Good carpet	$7.15
	Pad	$1.30
1/2 finished with vinyl tile	Vinyl tile	$3.70
$12.15 x 3,750 = $45,563	Total	$12.15

(Schedule 28 on Publication 127 page 28)

Exercise 5-2
Replacement cost new

Complete the following exercise and compute the replacement cost new of the following.

	Cost				Schedule
10' high, 20' long, **4-wall partition**	3 walls	1 wall			15 and 26
wood stud frame, 2 x 4 — 16" on center,	$1.80	1.80			15
drywall — taped and sanded,	$1.85	1.85			26
painted on three walls	$1.25				26
good wallpaper on the other.		2.75			26
Total for partitions	**$ 4.90**	**$6.40**			
10 x 20 x 3 = 600; 10 x 20 x 1 = 200	**X 600**	**x 200**			
	$2,940	**+ $1,280**	**=**		**$4,220**
20 x 20 foot tile **ceiling**:					27
mineral fiber tile	$2.25				
suspension system	$2.25				
insulation	$1.80				
Total for ceiling	**$6.30**	**x 400**	**=**		**$2,520**
20 x 20 **floor**					28
good grade carpet	$7.15				
pad	$1.30				
Total for floor	**$8.45**	**x 400**	**=**		**$3,380**
Total					**$10,120**

Unit 5
Review questions

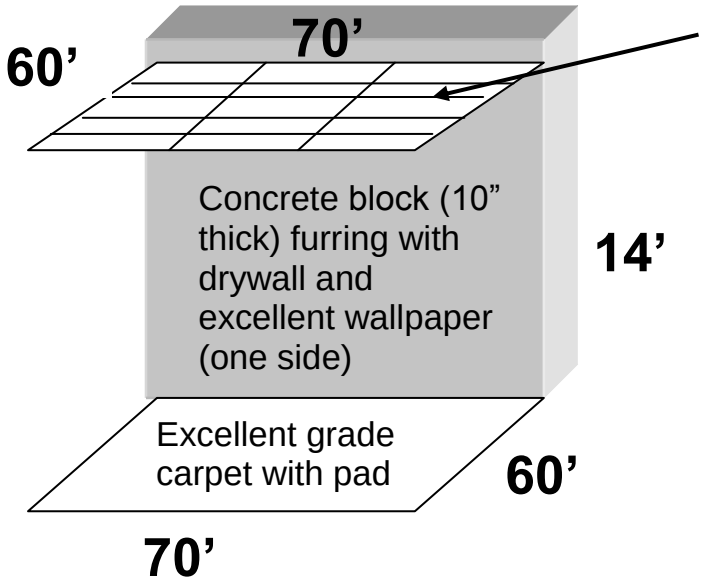
1 List three reasons why you would use CIP schedules.

Size of the improvements exceeds the size limitations of the square foot schedules, cannot find the item on the subsidiary schedules, need to establish RCN, component by component.

2 T or (F) CIP is the easiest and fastest way of establishing RCN.

3 Price out the following items. Refer to the illustration below.

Block wall	$ 21,217	(See Schedule 15 and Schedule 26.)
Ceiling	26,460	(See Schedule 27)
Carpet	45,360	(See Schedule 28)



Floor 4,200 SFFA

Carpet (excellent) $9.50
Pad $1.30
$10.80 x 4,200 = **$45,360**

Block wall
SFWA = 980 SF

Concrete Block	$13.80
Furring	$1.80
Drywall (one side)	$1.85
Wallpaper (excellent)	$4.20
	$21.65
$21.65 x 980 =	**$21,217**

Ceiling 4,200 SFCA

Mineral fiber tile	$2.25
Suspension system	$2.25
Insulation	$1.80
	$6.30
$6.30 x 4,200 =	**$26,460**

Property Record - Commercial - Industrial

Mini-warehouse

Construction Specifications							Use						Data Bank		Description			Computation
Foundation							Store		Office		Vacant		SF Ground Area	4,000	Flr. Price x Ht. Adj.	WH		
Sprd. Ftg		Pile					Apt.		WH		Abandoned		Eff. Perim LF	280			Bsmt.	
Caisson		Other					Factory						CF of Bldg.	36,000	134.93 x .955	9	1st Floor	128.86
Wall Framing							No. of Units						SF Wall Area	2,520			2nd Floor	
	B	1	2	3	A		Avg. Unit Size						Wall Ratio	14.29			3rd Floor	
Wood							No. Rooms Per Unit						1 Sty. Sched.	Mini-whs				
Steel O/FP							Prorated @ _____% with:											
Reinf. Concrete																	Base Price	128.86
Load Bearing							**Base cost interpolated:**								Size _____ x Shape 1.31 x Weight _____		BPA	1.31
Frame Bay - Bay Area						SF	**141.00 - 128.85 = 12.15**						**141.00 + 128.85 = 269.85**		**Unit heaters included. No heat remove unit**		Adj. Base Price	168.81
Floors							**12.15 ÷ 2000 = .006075**						**269.85 ÷ 2 = 134.93**		**1.55 x .94 x 1.31 = 1.91**		Heat	– 1.91
Wood							**.006075 x 1000 = 6.075**								**No mention - no AC. Base cost not inc AC**		A/C	–
Steel O/FP							**141.00 - 6.075 = 134.93**								**Included in base cost**		Electrical Light	
Reinf. Concrete							**No Heat:**								**No sprinklers, but inc base cost.**		Sprinkler	– 7.13
Frame	Wood		Steel		Conc.		**The base cost had wall height adjustment of .955. The CIP schedule assumes a 14' hall height and requires a 3 % adj for each foot of variance. We have already adjusted for 12' to 9' so we need to adjust from 14' to 12' with a factor of .94**								**4000 SF, $5.70 x .955 x 1.l31**			
Exterior Walls																		
Siding																		
Masonry Blk./Brk.																	SF Price	159.77
Steel																	SF	4,000
Glass																	Subtotal	639,080
							Doors - Doors for each unit are a necessary part of a mini-warehouse. It could not function as a mini-warehouse without the roll-up doors so they are included in the base price already. Do not add for the roll-up doors.								**Base cost inc 3; 2,600 x .955 x 1.31 = 3253 x 3**		Plumbing	–9,759
Finish																		
Unfinished																	Partitions	
Finished Open																		
Finished Divd.																	Front	
																	Canopy	
Heat																	Dock	
Cent. Wm. Air															**Gutters 208 x 10.20**		**Gutters**	2,122
Ht. Wt/Steam															**Downspouts 54 x 7.15**		Downspouts	386
Unit Heaters															S C M I	Grade	**Total**	631,829
															C&D G	NH	A	=FAC
None															Eff. Age 13 / Eff. Age 13 / CDU Avg/Avg / Age 13		Replacement Cost New	631,829
Air Conditioning																	REL	0.675
Central															Depreciation =		**Full Value**	426,485
Unit																		
None																		

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Roofing				
Composition		Shingle		
Slate		Metal		
Frame	Wood	Steel	Conc.	

Plumbing Type			
1		2	
3		4	

Unit 6
Review questions

1. When using the industrial square foot schedules, one must use a **shape** adjustment to adjust for the ratio of the wall area to the floor area of the subject building.

2. What would be used from the data bank to determine the adjustment in Question 1? **wall ratio**

3. A mini-warehouse is constructed of tilt-up concrete panels with reinforced concrete. The length of the building is 150' and the width is 100'. The eave height is 16'.

   a. What is the shape adjustment? **.96**

   b. What is the base cost from the mini-warehouse schedule for this 1-story building of 16'? **$132.46**

   c. This improvement was built 18 years ago and its physical condition is "average" and the desirability, as well as the utility, are "poor." What is the REL factor? **45 %**

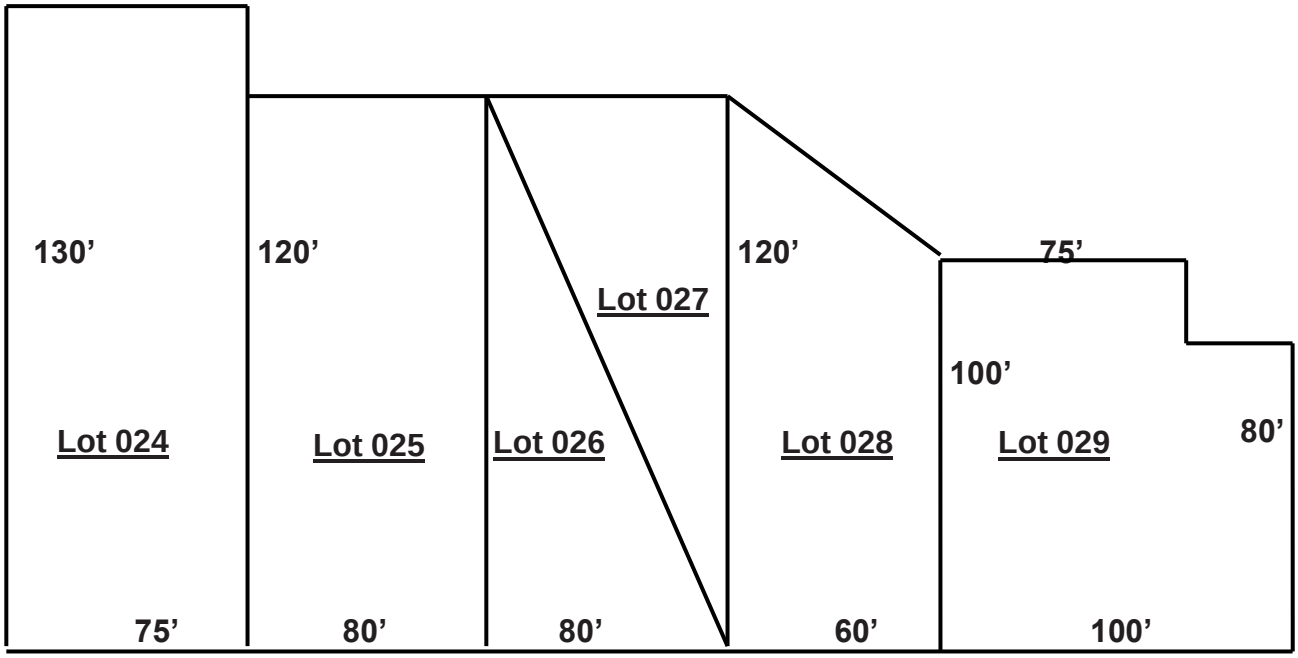
   d. What is the depreciation? **55 %**

   e. What is the height adjustment? **1.04**

Exercise 7-2 Calculating SF values

Calculate the SF values for lots 024 through 029.
The SF value is $.80/SF

Lot 024	SF value = $7,800	Lot 027	SF value = $3,840
Lot 025	SF value = $7,680	Lot 028	SF value = $5,280
Lot 026	SF value = $3,840	Lot 029	SF value = $7,600



Unit 7
Review questions

Match these terms with the correct definition.

C	Front foot	**A**	as vacant and at its highest and best use.
A	Land is valued	**B**	area of a triangular-shaped lot.
B	$\frac{b \times h}{2}$	**C**	a strip of land 1 foot wide running from the front to the rear of the lot.
D	$\frac{SP}{\#\text{ of units}}$	**D**	unit value
E	Square foot	**E**	method used to value land when size is the dominant factor affecting value

Answer Key

Unit 8

Exercise 8-1 IRV Formulas

Using the IRV formula, complete the following questions.

1. A parking lot recently sold for $300,000. The parking lot has 100 parking spaces, each renting for $25 per month. Allowable expenses are $6,000 annually.

   I / R x V = 24,000 / 300,000

   100 x 25 x 12 = 30,000
   – 6,000
   24,000

   What is the capitalization rate? **.0800 or 8%**

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

   I / R x V = 27,400 / .0935

   What is the value of this parking lot? **293,048**

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

   I / R x V

   R x V = 452,600 x 0.113

   What is the net annual income? **$ 51,144**

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

   I / R x V = 53,428 / 375,700

   What is the capitalization rate? **0.1422 = 14.22 %**

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.

   I / R x V = 78,000 / 0.1254

   350 x 12 x 20 = $84,000
   25 x 12 x 20 = – 6,000

   What is the value of this building? **$622,010**

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

   I / R x V

   R x V = 267,900 x 0.1379

What is the parking lot's net annual income? **$ 36,943**

Exercise 8-2 Income and analysis statement

Income analysis

Income information source:				**Adjusted**
Rents obtained from owner & management company				**$113,845**
Vacancy and credit loss @ 3%				**3,415**
Effective gross income				**110,430**
Expenses:				
Management			**$4,500**	**$4,500**
Administrative			**200**	**200**
Fuel			**2,800**	**2,800**
Electrical			**360**	**360**
Water			**155**	**155**
Janitor			**3,600**	**3,600**
Scavenger (trash removal)			**975**	**975**
Decorating			**800**	**800**
Reserves for replacement			**6,250**	**6,250**
Insurance			**500**	**500**
Mortgage interest			**7,250**	**—**
Total allowable expenses				**20,140**
Net operating income				

Net operating income = $ 90,290

Overall capitalization rate = 14.3 percent

Value of property = $ $ 631,399

Unit 8
Review questions

1. A 100 space 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 equity 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 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. Land used as a parking lot recently sold for $270,000. The equity 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 .1390

   What is the net income of this parking lot? **$37,530**

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 $400 a month, the 2-bedroom units rent for $350 a month, and the 1-bedroom units rent for $275 a month. Similar properties in the area have recorded their monthly income to be at $3500 a month. PGI = 3,500 x 12 = 42,000

   What is the PGI of this 12-unit apartment building? **$42,000**

5. An office building has a potential gross income of $152,176. The vacancy and collection loss is 4%.

   What is the vacancy and collection loss? **$6,087**

   What is the effective gross income? **$146,089**

Unit 9

Exercise 9-1 Sales Comparison Approach

Parcel	Subject	Sale 1	Sale 2	Sale 3	Sale 4	Sale 5
Date of Sale	—	Similar	Inferior	Inferior	Similar	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
Unit Breakdown	11 eff 13 1-bed	Inferior	Similar	Superior	Superior	Similar
Overall Rating	—	Inferior	Similar	Superior	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 9
Review Questions

Match these terms to the correct definition. Some terms may require more than one definition

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 your comparable if it is inferior to your 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.

Answer Key

Unit 10 Supplemental Exercises

Exercise 10-1 Data banks

Calculate the data bank for the following structures.

	2-Story L52 W36 H26	3-Story L40 W50 H42	2-Story L150 W75 H28
S/F ground area	1,872	2,000	11,250
Eff. perim	176	180	450
C/F of bldg	48,672	84,000	315,000
S/F wall area	4,576	7,560	12,600
Wall ratio	10.64	11.11	25.00

	2-Story L40 W40 H26	3-Story L40 W40 H42	2-Story L50 W40 H28
S/F ground area	1,600	1,600	2,000
Eff. perim	160	160	180
C/F of bldg	41,600	67,200	56,000
S/F wall area	4,160	6,720	5,040
Wall ratio	10.00	10.00	11.11

Calculate the data bank for the following structures, assuming that 1 wall of the length is a party wall.

	2-Story L40 W40 H26	3-Story L40 W40 H42	2-Story L50 W40 H28
S/F ground area	1,600	1,600	2,000
Eff. perim	144	144	160
C/F of bldg	41,600	67,200	56,000
S/F wall area	3,744	6,048	4,480
Wall ratio	11.11	11.11	12.50

Exercise 10-2 Air Conditioning and Sprinkling System

Calculate the square foot of serviced area (SFSA) adjustment for air conditioning and for a sprinkler system, assuming that the **entire building** is **not** cooled or protected by an ordinary hazard sprinkler system. Consult the commercial square foot schedules for values.

			Air conditioning	Sprinkling
2-Story	WH	2 %	7.80 x 1.00 x 1.183 = 9.23	3.85 x 1.00 x 1.183 = 4.55
L40 W40 H26	BPA	1.183	7.80 x 1.00 x 1.183 = 9.23	3.85 x 1.00 x 1.183 = 4.55
1st floor store (14')				
2nd floor store (12')			**– 18.46**	**– 9.10**
3-Story	WH	2%	16.50 x 1.00 x 1.105 = 18.23	3.90 x 1.00 x 1.105 = 4.31
L40 W40 H44	BPA	1.105	16.50 x 1.04 x 1.105 = 18.96	3.90 x 1.04 x 1.105 = 4.48
1st floor office (14')			16.50 x 1.08 x 1.105 = 19.69	3.90 x 1.08 x 1.105 = 4.65
2nd floor office (14')				
3rd floor office (16')			**–56.88**	**–13.44**
2-Story	WH	2 %	7.80 x 1.00 x 1.148 = 8.95	3.85 x 1.00 x 1.148 = 4.42
L50 W40 H28	BPA	1.148	7.80 x 1.04 x 1.148 = 9.31	3.85 x 1.04 x 1.148 = 4.60
1st floor store (14')				
2nd floor store (14')			**– 18.26**	**–9.02**
1-Story	WH	2 %	7.80 x .98 x 1.166 = 8.91	3.85 x .98 x 1.166 = 4.40
L52 W36 H13	BPA	1.166		
1st floor store			**– 8.91**	**–4.40**
3-Story	WH	1 %	7.80 x 1.00 x .917 = 7.15	3.85 x 1.00 x .917 = 3.53
L150 W75 H36	BPA	.917	7.80 x 1.01 x .917 = 7.22	3.85 x 1.01 x .917 = 3.57
1st floor store (14')			17.35 = 17.35	3.00 = 3.00
2nd floor store (13')			No WH or shape adjustments for apartments	
3rd floor apartment			**– 30.28**	**–10.10**
3-Story	WH	2 %	7.80 x .96 x .981 = 7.35	3.85 x .96 x .981 = 3.63
L100 W 60 H40	BPA	.981	7.80 x 1.04 x .981 = 7.96	3.85 x 1.04 x .981 = 3.93
1st floor store (12')			16.50 x 1.04 x .981 = 16.83	3.90 x 1.04 x .981 = 3.98
2nd floor store (14')				
3rd floor office (14')			**–32.14**	**–11.54**

Property Record — Commercial — Industrial

Construction Specifications

Foundation			
Sprd. Ftg.		Pile	
Caisson		Other	

Wall Framing	B	1	2	3	A	
Wood						
Steel O/FP						
Reinf. Concrete						
Load Bearing						

Frame Bay - Bay Area SF

Floors						
Wood						
Steel O/FP						
Reinf. Concrete						

Frame Wood Steel Conc.

Exterior Walls						
Siding						
Masonry Blk./Brk.						
Steel						
Glass						

Finish						
Unfinished						
Finished Open						
Finished Divd.						

Heat						
Cent. Wm. Air						
Ht. Wt/Steam						
Unit Heaters						
None						

Air Conditioning						
Central						
Unit						
None						

Roofing			
Composition		Shingle	
Slate		Metal	

Frame Wood Steel Conc.

Plumbing Type

1		2	
3		4	
	Sprinkler		

Use					
Store		Office		Vacant	
Apt.		WH		Abandoned	
Factory					

No. of Units

Avg. Unit Size

No. Rooms Per Unit

Prorated @ _____% with:

Data Bank	
SF Ground Area	
Eff. Perim LF	
CF of Bldg.	
SF Wall Area	
Wall Ratio	

Sty. Sched.

Description		Computation
Flr. Price x Ht. Adj.	WH	
	Bsmt.	
	1st Floor	
	2nd Floor	
	3rd Floor	
	Base Price	
Size _____ x Shape _____ x Weight _____	BPA	
	Adj. Base Price	
	Heat	
	A/C	
	Electrical Light	
	Sprinkler	
	SF Price	
	SF	
	Subtotal	
	Plumbing	
	Partitions	
	Front	
	Canopy	
	Dock	
S C M I Grade	Total	
C&D G NH	A = FAC	
Eff. Age / Eff. Age / CDU / Age	Replacement Cost New	
Depreciation =	REL	
	Full Value	

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by: Total full value other buildings

Date: Total full value all buildings

Property Record — Commercial — Industrial

Construction Specifications

Foundation			
Sprd. Ftg.		Pile	
Caisson		Other	

Wall Framing	B	1	2	3	A	
Wood						
Steel O/FP						
Reinf. Concrete						
Load Bearing						

Frame Bay - Bay Area _____ SF

Floors				
Wood				
Steel O/FP				
Reinf. Concrete				
Frame	Wood	Steel	Conc.	

Exterior Walls				
Siding				
Masonry Blk./Brk.				
Steel				
Glass				

Finish				
Unfinished				
Finished Open				
Finished Divd.				

Heat				
Cent. Wm. Air				
Ht. Wt/Steam				
Unit Heaters				
None				

Air Conditioning				
Central				
Unit				
None				

Roofing				
Composition		Shingle		
Slate		Metal		
Frame	Wood	Steel	Conc.	

Plumbing Type			
1		2	
3		4	
	Sprinkler		

Use					
Store		Office		Vacant	
Apt.		WH		Abandoned	
Factory					
No. of Units					
Avg. Unit Size					
No. Rooms Per Unit					

Prorated @ _____% with:

Data Bank	
SF Ground Area	
Eff. Perim LF	
CF of Bldg.	
SF Wall Area	
Wall Ratio	
Sty. Sched.	

Description		Computation
Flr. Price x Ht. Adj.	WH	
	Bsmt.	
	1st Floor	
	2nd Floor	
	3rd Floor	
	Base Price	
Size _____ x Shape _____ x Weight _____	BPA	
	Adj. Base Price	
	Heat	
	A/C	
	Electrical Light	
	Sprinkler	
	SF Price	
	SF	
	Subtotal	
	Plumbing	
	Partitions	
	Front	
	Canopy	
	Dock	
S C M I Grade	Total	
C&D G NH	A = FAC	
Eff. Age / Eff. Age / CDU / Age	Replacement Cost New	
Depreciation =	REL	
	Full Value	

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by: Total full value other buildings

Date: Total full value all buildings

PRC-4 (R-6/99) (opposite PRC-3)

Property Record — Commercial — Industrial

Construction Specifications

Foundation

Sprd. Ftg.		Pile	
Caisson		Other	

Wall Framing

	B	1	2	3	A	
Wood						
Steel O/FP						
Reinf. Concrete						
Load Bearing						

Frame Bay - Bay Area SF

Floors

Wood						
Steel O/FP						
Reinf. Concrete						

Frame Wood Steel Conc.

Exterior Walls

Siding						
Masonry Blk./Brk.						
Steel						
Glass						

Finish

Unfinished						
Finished Open						
Finished Divd.						

Heat

Cent. Wm. Air						
Ht. Wt/Steam						
Unit Heaters						
None						

Air Conditioning

Central						
Unit						
None						

Roofing

Composition		Shingle	
Slate		Metal	

Frame Wood Steel Conc.

Plumbing Type

1		2	
3		4	
	Sprinkler		

Use

Store		Office		Vacant	
Apt.		WH		Abandoned	
Factory					

No. of Units

Avg. Unit Size

No. Rooms Per Unit

Prorated @ _____% with:

Data Bank

SF Ground Area	
Eff. Perim LF	
CF of Bldg.	
SF Wall Area	
Wall Ratio	

Sty. Sched.

Description

Flr. Price x Ht. Adj.

Size _____ x Shape _____ x Weight _____

S C M I Grade

C&D G NH A = FAC

Eff. Age	Eff. Age	CDU	Age

Depreciation =

Computation

WH		
	Bsmt.	
	1st Floor	
	2nd Floor	
	3rd Floor	
Base Price		
BPA		
Adj. Base Price		
Heat		
A/C		
Electrical Light		
Sprinkler		
SF Price		
SF		
Subtotal		
Plumbing		
Partitions		
Front		
Canopy		
Dock		
Total		
Replacement Cost New		
REL		
Full Value		

Summary of Other Buildings

Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	REL	Full Value

Listed by:

Date:

Total full value other buildings

Total full value all buildings