STATE OF MAINE

ASSESSMENT

MANUAL

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STATE OF MAINE
MAINE REVENUE SERVICES
PROPERTY TAX DIVISION
P. O. BOX 9106
AUGUSTA, MAINE
04332-9106

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Valuation is the end result of the assessment process and is the focal point of the distribution of the property tax burden. For each property, the assessed value establishes the tax liability to be borne by the property. It is important, therefore, that every assessor becomes familiar with the legal and theoretical foundations of value for assessment purposes.

In arriving at an assessed value, the assessor must consistently follow the same orderly thought processes of a professional appraiser in making a value estimate. Since value depends upon decisions made by people, appraising is more similar to a social science than a physical science, in that it does not produce findings of an exact nature. The appraisal process and report does, however, recognize and document all value-influencing factors affecting the subject property, and should lead the reader to the same conclusion reached by the assessor/appraiser. Values of real properties cannot be determined or established by an appraisal; they can only be estimated, until an arm's-length transaction establishes market value at a specific point in time.

Furthermore, any estimate of value is good only with respect to a single point in time. This may be obvious, but the fact is often overlooked, and many errors in value estimates are made because of failure to recognize and identify the relevant time period.

The current generally accepted definition of "*Market Value*" reads as follows:

Market Value – The highest price in terms of money, which a property will bring in a competitive and open market under all conditions requisite to a *fair sale*, the buyer and seller, each acting prudently, 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 each acting in what he considers his own best interest.
3. a reasonable time is allowed for exposure in the open market.
4. payment is made in cash or its equivalent.
5. financing, if any, is on terms generally available in the community at the specified date and typical for the property type in its locale.
6. the price represents a normal consideration for the property sold, unaffected by special financing amounts and/or terms, services, fees, costs or credits incurred in the transaction.

The term "*Fair Sale*" is significant in the definition of value for assessment purposes, because it means that the assessor must always be thinking in

terms of a hypothetical sale or transfer between two private parties even if there are no sales on record for a particular property or comparable properties.
Maine Statutes refer to the term "*Just Value*," in that assessment of property. The terms "*Market Value*" and "*Just Value*" are considered to be synonymous for the purposes of this discussion. "*Just Value*" is defined according to Maine Statutes, Title 36, Chapter 105 §701-A as:

"*In the assessment of property, assessors in determining just value are to define this term in a manner which recognizes only that value arising from presently possible land use alternatives to which the particular parcel of land being valued may be put. In determining just value, assessors must consider all relevant factors including without limitation, the effect upon value of any enforceable restrictions to which the use of the land may be subjected, current use, physical depreciation, sales in the secondary market, functional obsolescence and economic obsolescence. Restrictions include but are not limited to zoning restrictions limiting the use of land, subdivision restriction and any recorded contractual provisions limiting the use of lands. The just value of land is determined to arise from and is attributable to legally permissible use or uses only.*"

Real estate is defined as the physical thing, the land and all improvements on and to the land. Real property, however, is the rights to real estate. In the State of Maine, the two terms are synonymous for purposes of taxation. Real Estate is defined by State Statute, Title 36, Chapter 105, Sub-chapter II §551 as follows:

"Real estate, for the purposes of taxation, shall include all lands in the State and all buildings, mobile homes and other things affixed to the same, such as, but not limited to, camp trailers, together with the water power, shore privileges and rights, forests and mineral deposits appertaining thereto; interests and improvements in land, the fee of which is in the State; interests by contract or otherwise in real estate exempt from taxation; and lines of electric light and power companies. Buildings, mobile homes and other things affixed to the land, on leased land, or on land not owned by the owner of the buildings, shall be considered real estate for purposes of taxation and shall be taxed in the place where said land is located. Mobile homes, except stock in trade, shall be considered real estate for purposes of taxation."

Particular care must be taken to be sure that the correct rights are valued when estimates of market value are made. A common example is the sale of a parcel of land, but an easement is retained by a grantor. The price paid for the land reflects the fact that the easement was retained. That is, it would normally be lower than a similar property which sold with all the rights being transferred.

CHAPTER I
Valuation

COST AND PRICE

Any attempt to clarify the meaning of market value in terms of actual market transactions soon leads to the use of such words as "*cost*" and "*price.*" However, these words are not automatically synonymous with market value.

Cost or price represent actual historical transfers of record of particular properties at a particular time, and the assessor is not bound to a particular time, and the assessor is not bound to a particular cost or price if in his judgment such cost or price is not typical of the ordinary market value of a property; i.e., one particular sale does not make a market, and the courts have recognized such situations. However, a particular sale is very strong evidence of market value and the assessor must be well prepared to overcome such evidence if he chooses to ignore it in making his assessment. Professional appraisers have agreed upon certain valuation principles to be observed in estimating the market value of real property.

THE PRINCIPLE OF SUPPLY AND DEMAND

Market value is determined by the interaction of the forces of supply and demand in the particular sub market at the date of valuation. The demand side is represented by buyers with similar objectives and characteristics. The supply side is represented by all of the properties that are similar in the eyes of those buyers. To value property, the assessor must analyze and evaluate supply and demand factors.

HIGHEST AND BEST USE

Highest and best use is defined as that use which prudence dictates, and will, over a reasonable foreseeable period of time, produce for the typical owner the highest net return or benefits; thus, it reflects the highest capital asset value, and will, generally, simultaneously preserve the utility of the property.

(Utility may not be preserved in certain instances. For example, gravel stripping land, which is depleted as a result of its highest use and best use.)

Highest and best use is a most important principle and must always be given primary consideration. It is a major factor of market value, as pointed out in an 1894 U.S. Supreme Court decision:

"The value of the property results from the use to which it is put and varies with the profitableness of that use, the present and prospective, actual and anticipated. There is no pecuniary value aside from that which results from such use, the amount and profitable character of such use determines the value."

Many things must be considered in estimating highest and best use – supply and demand, competitive properties, use conformity, size of the land and possible economic type and size of structures or improvements which may be placed thereon, zoning, building restrictions and neighborhood or vicinity trends.

THE PRINCIPLE OF SUBSTITUTION

The principle of substitution is such that when property is replaceable, its value tends to be set at the cost of acquisition of an equally desirable and valuable

substitute property. That which may be substituted may be a replica structure, a similar structure with equivalent functional utility, or an investment having an equal degree of investment opportunity. Thus, the market value of a given property is to a major extent limited and controlled by the value of available similar properties having like utility, comparable locations,

characteristics and foreseeable future benefits. The principle of substitution is important to the market data approach, to the cost approach and to the income approach of appraisals, about which more will be said later.

THE PRINCIPLE OF MARGINAL PRODUCTIVITY (CONTRIBUTION)

The value of any element of a property is worth only as much as it contributes to the property value as a whole, or how much the lack of this element detracts from the property value as a whole. Its application is basic to any design that involves a remodeling or modernization. It asks the question, "Does the added income from this factor justify its expense?"

THE PRINCIPLE OF INCREASING AND DECREASING RETURNS

Successive increments of factors add to income first at an increasing rate, and then at a decreasing rate, until finally income decreases absolutely. This principle is commonly known as the "fertilizer principle." Successive amounts of fertilizer increase production up to a point. After that point, the successive amounts increase production at a declining rate. Finally, the successive amounts lead to an actual decline in production.

THE PRINCIPLE OF ANTICIPATION

Value is the present worth of anticipated future net benefits to be derived from the ownership of real property (the rights). It is the expectation of buyers and sellers about the future, which determine market values.

THE PRINCIPLE OF CHANGE

The value of a property is subject to change because factors which make up market conditions are constantly changing. This is why value estimates are made as of a particular date. Nothing ever remains exactly the same.

THE PRINCIPLE OF CONFORMITY

The value of a particular property is increased when it is in conformity with the surrounding neighborhood standards. Conversely, the value of surrounding properties may be affected by a non-conforming property which encroaches on those properties.

Over-improvement and under-improvement in real estate, while not in itself a separate principle, is an important element in the principle of highest and best use of land, and of increasing returns or the rule of diminishing returns.

From a valuation viewpoint, many farm properties, for example, are "over-improved" with buildings. That is, the size and cost of the buildings are in excess of what is ordinarily required for full utilization of the land on which they are located. However, for estimating market values for a purchase transaction, the difference between an estimate of value of buildings necessary for utilization of a farm in conformance with its general vicinity pattern of land use and the estimate of value of the actual

improvements on the farm indicates the extent of over-improvement or under-improvement.

Good judgment must be exercised in using market data in estimating degrees of over or under-improvement. There are many sections of the country having large farms with country estate types of improvements. In such cases, buildings may be definite over-improvements for farming purposes only, but may not be over-improvements as country estate dwellings. Here you have a dual land use. Market studies indicate definitely that lands near a large city or close to small cities or villages have value as farm units and rural dwelling sites. The test in all such cases is whether a demand exists for such real estate at prices, which reflect a dual or multiple land use.

THE THREE APPROACHES TO VALUE

In estimating the market value of real property, three basic approaches have been recognized by appraisers. They are:

1. Market data or sales approach
2. Income or earnings approach
3. Cost or summation approach

THE MARKET DATA APPROACH

The market data or sales approach is of great importance to the assessor because it is the most direct approach in estimating market value and most nearly conforms to the statutory language of "full value which could ordinarily be obtained therefore at private sale."

In simple language, it is estimating the market value of a given property by comparison with other similar properties in the same vicinity, which have been sold recently in the open market. The market data approach is concerned with the principle of substitution in that typical buyers will not purchase a property at a price higher than the prices of similar properties having comparable locations, characteristics and future earnings or utility capabilities.

The market data approach generally is preferred above all others. It is the most frequently used and best understood of all the appraisal approaches. Under ideal circumstances it probably comes nearest to reducing the appraisal to the point of least approximation. It is the only approach to value that directly reflects the balance of supply and demand in actual trading in the market place.

THE INCOME APPROACH

The income approach is used in the valuation of investment properties such as stores, apartments, shopping centers, commercial buildings, and other real estate *which is bought and sold primarily on the basis of the income produced.* It may also be used for multipurpose industrial properties and for single-purpose industrial properties put on the open market for the next best use. The value of such properties tends to be set by the quantity, quality and durability of the net income generated by the property.

Capitalization of anticipated net income indicates the investment required to produce that income. Extreme care must be used both in estimating net income and in selecting the proper rate of capitalization.

One of the first steps is to secure a statement of the historical record of income and expenses for the past three to five years. An average of income and

expenses is satisfactory if both income and expenses are relatively stable.

The income approach, like the market data and cost approaches, is closely related to the market. The anticipated income, the operating expenses, the land value, the proper capitalization rate – all are developed and checked for reasonableness by comparisons with similar rental properties and investments.

THE COST APPROACH

The cost approach, also known as depreciated replacement cost approach or summation approach, is very useful to the assessor. In using this approach, the assessors build up the value of the total property by estimating the cost of replacement new of the improvement and diminishing the same by loss in value due to all causes – physical deterioration, functional obsolescence and economic obsolescence – and finally adding the value of the land. The value of the land only, subject to improvement, is always estimated by a study of comparable sales. The estimate of the replacement cost new of the improvements is based on current cost of labor and materials for construction of improvements of like utility.

This method is popular with assessors because it lends itself to a systematic and uniform procedure for all properties. However, by itself, such a procedure does not have the legitimacy of the market or sales approach, and in order to be most effective, must be used in conjunction with the market or sales approach.

Chapter II
Aerial Mapping for Reappraisal Programs

Fair and equitable tax assessments are the aim of every municipality. The foundation upon which sound assessment administration rests is a complete set of accurate up-to-date tax maps. The assessor must know **what it is** and **where it is** before a defensible appraisal can be made. Moreover, reputable appraisal concerns are reluctant to revalue a town or city without a complete set of property maps; so the first step in any sound equalization program is to secure them. **Maine Revenue Services does not recommend revaluation programs without the use of adequate maps.**

Municipalities without a modern assessment system may find that their assessments do not reflect the equality expected by the law. This may be due to the lack of the necessary financial support to institute sound assessment practices. In many towns, the assessors serve only part time. Many of these officials have no maps of their towns. Resultantly they are sometimes unable to describe correctly many of the parcels of land, which they are required to assess, or to define the area and classification of the use of land in each parcel.

There are several methods for making property tax maps. One method is to run a precise transit survey of every lot in a town. The cost involved would be prohibitive, and the project would take too long to complete. Another method used with a fair degree of success involves the compilation of a property map by use of deed descriptions and recorded plans.

Another method is to have each land owner in a town submit a sketch of his individual holdings. These sketches can be assembled and traced on a single map or series of maps.

The most common method for making dependable tax maps of large areas at a reasonable cost is through the use of aerial photographs that are digitized into an electronic format. An experienced person, equipped with a complete set of vertical photographs, can accurately map a town at a fraction of the cost of a conventional group survey, and do it in a relatively short time. This technique also involves utilizing some of the more practical aspects of the methods previously described. Overall horizontal control is secured by transit traverses, and some parcels are plotted from recorded plans and deed descriptions. Nevertheless, the majority of the property lines are placed on the photographs in the field. This is done by visiting each parcel and pinpointing lines on these photographs.

Because a photograph is merely a pictorial representation, it does not necessarily have the same scale throughout. In order to assure common scale, the scale discrepancies in the photograph must be eliminated. These inherent variations in scale can be eliminated by technical photogrammetric process or digital conventions in the office and will result in highly accurate maps.

Complete photographic coverage of a town ensures that every square foot of the area is accounted for and eliminates the possibilities of gaps in the final maps. Such cases are unusual, however. The idea often expressed that property discovered in the mapping process, previously overlooked or omitted from the assessment, would contribute appreciably to offsetting the cost of the program should be discounted considerably. Experience has shown that property of this kind seldom includes much valuable acreage.

Chapter II
Aerial Mapping for Reappraisal Programs

Scales for tax maps should vary, depending upon the average size of the parcels and the relative value of the land. In urban areas, where unit land values are higher and the lots smaller, the scale should be larger. In most cases, urban or congested areas should be mapped for property assessment purposes at a scale of at least one inch equals one hundred feet. Urban maps should also show all lot dimensions, legal street widths, land divisions, and similar plane topographic details. Rural areas can be mapped at smaller scales, as the parcels are usually larger and the unit values lower than those of urban areas. Scales for rural maps can vary from one inch equals one thousand feet, to one inch equals two hundred feet. In Maine, the average rural scale is one inch equals five hundred feet.

By utilizing the stereoscopic (three dimensional) features of the photographs, it is possible for an experienced person to classify most land. In every parcel, a complete breakdown by area of tillage, pasture, various types of woodland, bog, water, home sites, etc., can be secured from the photographs. With this information available, the assessor is able to assign values to each classification and arrive at a fair assessment for any given lot.

Up-to-date property maps are not only necessary for assessment work, but they can also be used advantageously by utility companies, real estate professionals, title lawyers, and local governments for:

City Planning:
- Schools
- Recreational sites
- New subdivisions
- Parking sites
- Industrial expansion
- Traffic flow
- Future developments
- Zoning

Water
- Sewers

Police Department

Fire Department

Municipal Engineer
- Storm drainage
- Sanitary sewers
- Street location or relocation

The routine of keeping maps up-to-date is important but not overly difficult.

An aerial survey for making tax maps gives a complete and true land inventory. The assessors not only have a pictorial record of each parcel, but have an accurate map and complete inventory of what is on the ground. Their bookkeeping problems are less complicated, and such procedures of initiating valid tax liens are greatly simplified. By making the maps an official record in the assessor's office, the time spent writing up the "Valuation Book" is simplified, as the assessors may then identify each parcel by a unique map and lot number, instead of using the usual, and often inaccurate "bounds system." (See Property Tax Bulletin No. 4, **Specifications for Tax Mapping Program**.)

With a complete set of up-to-date property maps, the assessors are in a position to assign equitable and just values to each parcel of land; they are able to show each owner exactly **how** and **why** they arrived at each individual value.

Chapter II
Aerial Mapping for Reappraisal Programs

PROCEDURE IN COMPILING PROPERTY MAPS FROM AERIAL PHOTOGRAPHS

The first step in a property-mapping survey is determining the scales for the final maps. These scales are based on the area and lot sizes within the municipality. Urban and congested areas, where lots are comparatively small in size, should be mapped at a scale of at least one inch equals 100 feet, in order to show all lot dimensions. This also holds true for cottage lot developments on various lakes and ponds. Rural areas may be mapped at a smaller scale, since the lots are usually larger. However, careful consideration should be given to future development in order that all new lots can be plotted accurately.

Towns near larger cities where considerable growth is taking place should be mapped on a scale of at least one inch equals 100 feet. Rural farming and wooded areas, where few or no changes are taking place, can vary from a scale of one inch equals one thousand feet. The majority of Maine cities and towns can advantageously use a scale of one inch equals one hundred feet in urban and congested areas, and one inch equals five hundred feet for the rural areas.

After the scales for the maps have been decided upon, the next step is to get complete aerial photographic coverage. This is done by plotting flight lines on the United States Geological Survey maps at specified intervals according to the scale desired for the contact prints, in order to get a desirable 60% overlap. Photographs for use with a property mapping survey should be taken in the spring or fall. Best results are obtained when there are no leaves on the deciduous trees and no snow on the ground, and the waters of the brooks and streams should be within their banks.

After the flight is complete, a careful check is made of the contact prints to see that the area has been completely covered.

The next step is to check the scale of the contact prints. This is done by taking actual ground measurements between two points visible on the photograph, so this photograph can be enlarged to the desired scale for the final planimetric maps. Because distortion and scale discrepancies become more pronounced as a photograph is enlarged, a four-diameter enlargement is the maximum allowable for this type of work. If possible, the enlargement should be held to three diameters to obtain the best photographic contrast and quality.

When photographic enlargements of the municipality have been completed, experienced interpreters can pinpoint all property lines within the boundaries of the town. This is done by utilizing all recorded plans at the Registry of Deeds, all available highway, street, and railroad right-of-way plans, and by examining deeds and descriptions. Next, property owners are interviewed to assist in lot-line determination. Where necessary, actual field measurements are taken if available data is not accurate enough to delineate property lines. After all land on the photographs has been accounted for and a final check has been made against the valuation book, the field work is complete.

Due to the radial distortion and vertical changes in topography, various scale discrepancies occur in all aerial photographs. To assure a common scale throughout, overall horizontal control must be secured by actual ground surveys in order

that these inherent variations can be eliminated by photogrammetric techniques. Only then, can accurate planimetric maps, at the scale specified, be produced. There are several used for correcting these variations, but the most accurate results are obtained by the use of type stereo-plotting instruments or digital conventions.

After variations have been corrected on the plots, the town is divided into a grid system in accordance with the sheet size desired. This step will define the area to be covered by each individual map, at the scales specified. Every parcel of land on each map is then numbered and a property record card is made, showing map and lot number, owner's name, address, and Registry of Deeds book and page number, if available. Lot dimensions and/or acreage figures for each lot, as well as a break down of the land classification into tillage, pasture, woodland, industrial, commercial, etc., are also noted on the property card.

Maps prepared as outlined above, photographs on which all properties are delineated in ink, and a property record card for each lot will give the assessor a complete and accurate description of every parcel of land in the town. These maps can be readily maintained at a small annual expense.

Some assessors believe that accurate scale maps are not necessary for assessment purposes, and rather than pay the extra expense of correcting inherent photographic distortion, they ask for plastic overlays or transparencies (which are only copies of the property lines as shown on the photographs). Such transparencies give a fairly accurate picture of the individual parcels. In towns where there are not too many subdivisions and little activity, this method has worked out reasonably well. However, when land is subdivided, it is impossible to plot these developments accurately on overlays; the original lots may be either too small or too large, and the new plans will not fit. Correcting such variations can be costly.

It is difficult to explain to the general public the advantages of a good set of property maps, especially when it means higher initial cost. When owners have a choice between a relatively expensive set of reliable maps or cheaper ones, they will often take the latter, not realizing that such a choice means sacrificing both accuracy and quality.

If town officials were to study the specifications thoroughly and then contact other cities and towns that have engaged in this type of mapping work, it would help them a great deal in deciding on specifications best suited for their needs.

The basic factors to be considered in determining the cost for a complete aerial mapping program are listed below:

1. Area of the town or city
2. Number of individual parcels
    a) In urban or congested areas
    b) In rural or outlying areas
    c) Cottage lots and subdivisions
3. Desired scale for the photographs and final maps
4. Degree of accuracy desired
5. Type of city or town. There may be significant variations in costs between towns, since these costs depend to a large degree on the amount and kind of information available at the town offices and the Registry of Deeds. Towns that have large farming areas with considerable open land are much easier to map than towns that are primarily woodland. Accessibility is also an

important factor, and towns with a good road network cost less to map.

USE OF OTHER MAPS IN THE ASSESSOR'S OFFICE THAT MAY BE OF ASSISTANCE

The assessor must find, list, and value all property within the taxing jurisdiction. Indispensable to a complete equalization program, tax maps must delineate all parcels of land to correct scale in relative size, shape, and location. The land is accurately classified according to its nature and use from the scale-corrected aerial photographs.

Tax maps are equally important, if not more so, for rural areas than for urban sections. In communities where re-sources are inadequate to support the cost of such a mapping program, there are often other maps available which can be of limited assistance to assessors. Aerial photographs for almost the entire state of Maine are available from several public and private sources.

Few photographs obtained from such sources would be adaptable for a reliable tax map. These photos will seldom be recent ones; they will not be adjusted to true scale; and they are often to small a scale to be easily used. But such photographs still have value for use in the assessor's office. By plotting approximate lot lines on the photos, a useful property location map can be obtained. This will aid the assessors considerably in "finding" property, and provide a general idea of the areas involved, and of the use of the land. It will **not** simplify the process of describing the property. In using soil conservation photographs or other aerial photographs for the purpose of valuing specific parcels of land, it is important to remember that this is an imprecise practice unless adequate photographs of recent date of all properties are available. For, if changes in land value are made as a result of information obtained from the photographs, all similar land must be discovered and valued accordingly as of the time of the appraisal.

The Registry of Deeds also may have maps of subdivisions and land developments that would be of some assistance to the assessor's office.

Section maps of the U.S. Coast & Geodetic Surveys (USGS Topographic maps) may be adapted for use by an assessor, although a considerable amount of work may be required to make them useful. To make them workable, they will likely need to be enlarged. This often means the use of several section maps in order to include all of the area within a municipality. Property lines may then be roughly plotted, and the resulting map, while not a tax map, will aid in locating and identifying property. It will be of little value for describing property, but may provide some indication of swamp areas and other topographical features that might have some effect on property values.

Few maps that are not professionally made as an essential part of an equalization program can be anything other than of general assistance to the assessor. However, all of them will provide **some** information and assistance that would not otherwise be available; therefore, this should not be discounted entirely.

"Home-made" maps are usually recommended only for towns that would like to have some basic record of land area and features, but whose finances will not allow professional help. The principle difficulty,

and one that is often overlooked, is that a considerable amount of detail work is always involved in such a project. Assessors who attempt to make their own maps should realize that the job will be time-consuming and demanding. If they are not paid for their efforts, their initial enthusiasm is apt to lessen, and the result may not be worth the trouble. On the other hand, if they are paid for their extra effort and then find the job to be more than they bargained for, they are still responsible for completing the work. Whether or not maps made under these circumstances are worth the time, trouble and expense of making them is a matter that must be decided by the circumstances in each case.

Land Value Maps* are a particularly desirable asset in good assessment administration. A copy of the tax map can be used for this purpose, although it is preferable to use a map drawn to a much smaller scale, covering a larger section of the municipality than is carried on in the usual single-tax map sheet. It is advantageous if the streets are considerably exaggerated in width. No lot or property lines are required on an outline map of this kind, nor does it need to be drawn precisely to scale. These factors make it possible to put a great deal of information on the map for use in establishing unit values. This information should include notations on:

1. Type of road surface
2. Public utility lines
3. Location of the public, religious, educational and recreational institutions
4. Location of special nuisances
5. Zoning and municipal ordinance or codes
6. Other land-use characteristics
7. Location of parcels for which acceptable sales and income data are on file

Initial unit values are derived through a sales data study program.

Conflicting values that may result are resolved, and gaps in areas of insufficient sales experience may be filled in, largely through the use of the comparative method of appraisal. After all of the developed unit values are recorded on the outline map, the land value map is complete, and it should be made a matter of public record.

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*Adapted and condensed from material contained in Urban Land appraisal, pages 49-56.

Chapter III
Land Valuation

Land value is a local product. It arises from demand in the market where the property is located and bears only coincidental relation to the value of similar land in other localities. The valuation of land must therefore be based on analysis of its local market.

For valuation, land can be classified into five broad categories based on its potential use: natural resource, agricultural, residential, commercial, or industrial. Although the following basic valuation principles apply to all categories, the forces that create value cause variations in the individual markets.

BASIC PRINCIPLES

Land, whether vacant or improved, is valued as if available for development to its highest and best use; that most likely legal use which will yield the highest present worth. That use must be acceptable to the market and it must conform to existing zoning and land-use ordinances. Occasionally, land value is reduced by the cost for demolishing an existing building that cannot generate a return sufficient to support the land.

Four methods are available to determine the value of the land:

1. Comparison: Value is based on sale prices of similar vacant land, adjusted to reflect variations.
2. Residual: Value is indicated by capitalization of the residual income that might be produced by a proper new building improvement on the land, after deduction of the expenses and return required for the building.
3. Allocation: Land value is measured by segregation of the amount that improvements contribute to the known sale price.
4. Development: Value is indicated by the present worth of the return that might be obtained from sale of the parts, after deduction of costs for development, sales and investment.

COMPARISON METHOD

This method is preferred when sufficient data exists to permit its use. Because comparison of the properties available for sale is the measure that investors use in choosing properties for purchase, this method of valuation most closely reflects the market. It therefore provides the most accurate measure of land value.

No two pieces of land are exactly alike, although they may be similar in many respects. Consequently, adjustments to sale prices must be made to indicate the value of a specific parcel: adjustment for date of purchase, for location, for all the ways in which the sale property differs from the land being valued.

The most common variables requiring adjustment are:

Time: The real estate market is seldom static. Adjustment must be made for changes that have occurred since the date of sale.

Location: Although a neighborhood varies in its attraction to buyers, its relative desirability can be demonstrated from market data.

Physical Features: Some farms produce more corn per acre, some industrial land require little or no grading, some commercial sites require no pilings to support

buildings. These characteristics require adjustment to arrive at a value estimate.

Motivation: To provide an accurate measure of value, a sale must be an "arm's-length" transaction. Neither buyer nor seller should be under compulsion, and both should be fully aware of all factors, that contribute to value. Sales between family members are rarely arm's-length transactions, as are sales to a public agency, which has the power of condemnation. Sales resulting from previously reached agreements, such as sales in satisfaction of land contracts, do not qualify for comparison.

Utilities: Public services to a property create value. A site with municipal water is usually more valuable that one without. The cost of supplying a service like water, sewer, gas or rail may be the measure of adjustment.

Zoning: The legal use allowed for a property can be changed only by government action.

Exposure: Relative exposure is often a factor in value. Retail commercial sites gain value if pedestrian traffic is heavy. Service stations gain from exposure to vehicular traffic.

Size: The value of land generally decreases as its size increases beyond the economic unit appropriate for its highest and best use.

Shape: A triangular commercial site with its base on the street is more desirable than one with its apex on the street. A rectangular industrial site is generally more desirable than an irregular site.

Comparisons can be made only on the basis of a common unit. The unit selected (square foot, front foot, rental unit, acre or lot) depends upon the property involved and the preference of investors.

Adjustments are always made **from** the sale **to** the property being valued. If the sale property is superior to the subject, the adjustment is a minus. If inferior to the subject, the adjustment is a plus.

Adjustments are based on a percentage of sale price or on a lump sum dollar amount, generally arranged in tabular form:

	ADJUSTMENTS			
			Physical	Indicated
Price	Time	Location	Features	Value
$30,000	+5%	-10%	+15%	$33,000
$30,000	+$1,500	-$3,000	+$4,500	$33,000

The adjustment, whether percentage or lump sum, must be based upon analysis of actual market sales.

The valuation of residential and retail commercial lots usually requires adjustment for variations from standard depth, for the influence of corner locations and for variations from standard rectangular shape.

Adjustment tables, applicable to specific locations, have been developed by assessors in most major cities and by others interested in maintaining uniformity in the valuation of similar land. These depth, corner influence and triangular lot tables set forth percentage relationships for variations from local norms.

Because such tables are reliable only when they accurately reflect local market

conditions, they should be used with caution – and only if their basis is clearly understood.

RESIDUAL METHOD

In heavily built-up areas where sales of vacant land cannot be found, an indication of land value can be developed by capitalizing the net income that might be produced by a proper new building improvement on the site, after deduction of the expenses and return required for the building.

To select a hypothetical improvement, highest and best use of the land must be determined. This is often obvious from the development of surrounding land. Whatever the improvement selected, it must be acceptable to the market. The residual method must be used with care, as variations in the capitalization rate or changes in the projected improvement may cause wide variation in the land value indicated.

ALLOCATION METHOD

When the only sales available for comparison are those with building improvements, a measure of land value can be gained by allocating from the total selling price that portion reasonably attributable to the building. The remainder is assumed to be land value. The building value can be estimated from a study of sales of similar properties in other locations where land values can also be determined.

Allocation between land and building is sometimes derived from application of the reported ratio between assessed value and market value. The fairness of a value obtained in this way depends upon the proficiency of the assessor.

DEVELOPMENT METHOD

Land with a potential use as a residential or industrial subdivision is often valued by the development method. Since many estimates are required, this method should be used only when sales of comparable acreage are not available, or as a check of the results indicated by the comparison method.

To indicate present value, the development method requires estimates of the selling price of the lots; of the costs required for the development, financing, carrying and sales; of the period necessary to market the developed lots; and of the rate by which the net sale price must be discounted.

This method has validity only if a ready market exists for the developed lots. To achieve reasonable results, a thorough and comprehensive investigation of all variables is required.

URBAN LAND

RESIDENTIAL

When a sufficient number of comparable sales occur within the limits of a neighborhood or general homogenous area, the following method of arriving at unit land values can be used.

The following procedure is recommended to determine average unit land values for urban property in a **recorded subdivision.** It is based on an analysis of recent sales. Certain information must be secured by examination of deeds, by comparison with the tax map, and field observation. Necessary preliminary information is the size of each lot, the date of sale and the sales price. Procedures for calculating each succeeding item are lettered alphabetically. These

letters correspond to the columns and figures shown in the example.

KEY

D. Total Sale Price.....$66,205
I. Average Unit Sales Price.....$ 49.69 (use $50.00)
K. Test of Uniform Value.....$68,400

STEP	SOURCE
A. Size of lot	Given for each property
B. Date of sale	Given for each property
C. Sales price	Given for each property
D. Calculate total sales prices on street	Add column "C"
E. Establish effective front footage for each property	Apply basic rules of and appraisal to each property*
F. Solve for unit sales price at existing depth for each property	Divide sales price (C) by effective front footage (E) for each property
G. Obtain depth influence factor for each property	Using existing depth of each property, select applicable depth factor from table. (Sample depth table for 150-foot depth follows for use in this example)
H. Develop unit sales price at 150'-depth for each property	Divide unit sale price at existing depth (F) by depth influence factor (G)
I. Calculate average unit sales price	Add column "H" and divide by number of properties to find average
J. Determine uniform value of each property at actual depth	Multiply average unit sales price (I) by effective front footage (E) by depth influence factor (G) for each property
K. Test uniform value at actual depth by comparison with actual sales	Add column "J." Figure should come within 10% of the total sales price on the street (D)

*NOTE: In this study(on the next page), Sale No. 12 is an irregularly shaped lot with a street frontage of 81.9' and a back width of 122.58', as indicated by the fraction 81.9 ÷ 122.58 in column A. The effective front footage (Col. E) was developed using the rule for valuing a triangle with its apex on the street (a nebula triangle – ∇) at 30% of the value of a rectangle of equal frontage and depth. In this case the nebula triangle has a back width of 40.68' (122.58 – 81.9), and therefore adds 12.1' effective frontage to the actual frontage of 81.9' or 94' (40.68 x 30% + 81.9 = 94).

**Condensed from material prepared by the late A.E. Weller, C.A.E., Assessor, Maplewood, New Jersey.

SAMPLE DEPTH TABLE
For use in the following study
(Standard Depth = 150 feet)

Depth In Feet	Depth Factor	Depth In Feet	Depth Factor
5	0.10	100	0.82
10	0.17	105	0.84
15	0.23	110	0.86
20	0.28	115	0.88
25	0.33	120	0.90
30	0.38	125	0.92
35	0.42	130	0.94
40	0.46	135	0.96
45	0.50	140	0.97
50	0.53	145	0.98
55	0.57	150	1.00
60	0.60	160	1.02
65	0.63	170	1.05
70	0.67	180	1.08
75	0.70	200	1.10
80	0.72	250	1.15
85	0.75	300	1.20
90	0.78		
95	0.80		

Chapter III
Land Valuation

TABULATION OF SALES

Sale No.	A Size of Lot	B Date of Sale	C Sales Price	E Fr. Ft.	F Eff. Price at Actual Depth	G Front-Foot Depth Factor	H Sales Price at 150' Depth	J Front-Foot Uniform Value Actual Depth
1	75 x 249	9/2009	$45,000	75	$600.00	1.15	$510.00	$42,300
2	155 x 277	5/2010	75,000	155	483.87	1.17	401.61	89,000
3	60 x 150	12/2100	25,000	60	416.67	1.00	416.67	29,400
4	70 x 125	10/2009	30,000	70	428.57	0.92	462.86	31,600
5	82 x 150	9/2010	40,000	82	487.80	1.00	487.80	40,200
6	95 x 110	5/2011	35,000	95	368.42	0.86	420.00	40,100
7	75 x 118	5/2008	35,000	75	466.67	0.90	513.33	33,100
8	80 x 111	10/2009	35,000	80	437.50	0.86	498.75	33,800
9	78 x 144	11/2009	40,000	78	512.82	0.98	523.08	37,500
10	156 x 144	12/2010	68,000	156	435.89	0.98	444.62	75,000
11	89 x 142	6/2009	35,000	89	393.26	0.97	405.60	42,400
12	81.9 x 162	3/2009	55,000	94	567.01	1.02	573.40	47,000
13	100 x 193	6/2008	55,000	100	550.00	1.10	495.00	54,000
14	100 x 207	5/2010	53,750	100	537.50	1.10	483.75	54,000
15	49 x 123	8/2009	32,800	49	669.39	0.92	722.94	22,100
			$659,550(D)				(15) 7358.87	$671,500 (K)
								$49.69 (I)

The process of valuing urban land for assessment purposes, after the several unit values have been developed, consists for the most part of applying a variety of rules, tables and methods to the unit values according to the circumstances in the individual cases. Although these rules and methods are usually referred to as "*standard*" it should be noted that often there are considerable differences of opinion reflected in the standardized rules included in the many appraisal and assessment manuals that consider the subject in detail. It is probably safe to say then, that in a majority of cases, the standard methods or rules used by municipalities are adapted or adopted from already developed data and selected or modified for use to best suit local requirements and actual conditions as indicated by a study of local experience and opinion.

DEPTH INFLUENCE

Depth influence recognizes the generally accepted premise that the front portion of a lot is more valuable than the portions more distant from the street (or shore in the case of waterfront). It also recognizes the principle that the value added by increasing the depth of a lot is not in proportion to the increased depth. There are few standardized assessment systems that do not consider depth influence. On the other hand, there are many different depth-factor tables used by assessors to develop values intended to acknowledge the principle of depth influence. It must be assumed then, that the impact of depth upon value may well vary in different areas if the several tables are factual representations of the results of experiment and experience with actual sales.

Since land is seldom if ever sold for a price that can be identified, either directly or indirectly, with the mathematical intricacies of depth influence, it follows that all depth tables are more or less arbitrary in nature. The only superiority that one table may claim over the others for use in an assessor's office is that it more nearly reflects the average local opinion of value as evidenced in the marketplace. In the process of developing the unit values illustrated earlier in this chapter, it can be noted that the unit front-foot sales adjusted to 150 ft. depth, using the depth table, ranged from $41.36 to $72.76 for comparable lots in a particular area. Obviously, if the average unit sales prices established by the process were employed to recheck the applicability of the depth factor used, many discrepancies would be apparent. These unit prices would still substantiate the existence of this matter of depth influence as a factor to be reckoned with, however, and emphasize the need for depth tables in the interest of equity in assessments through the use of standardized methods and practices. The assessor's first step is to establish the depth of a "standard" lot according to current market standards, and then select the depth table most suited to the situations and conditions existing within the jurisdiction.

The customs or requirements of the past, when perhaps a 50' x 100' lot was considered as both desirable and adequate in a municipality, should not unduly influence the assessor if study indicates that the presently accepted standard lot size is 100' x 200'.

In some municipalities, several depth tables are used; in others, separate tables are used for residential and commercial land. Whether or not this is a good or desirable practice must be determined by the individual circumstances and experience in each municipality. Industrial land is seldom subject to depth influence, since all of it is usually considered to contribute equally to the purpose for which it is utilized and priced on a square-foot basis. With the introduction of shopping centers in outlying areas, where traffic and pedestrian counts and other urban practices are of little assistance, comparison is next to impossible as an aid to the assessor in the search for value. In this instance, the location of the business or the development is not predicated upon the volume of traffic or business potential at the time the enterprise was conceived, but upon the probabilities of the volume of business the site could expect because of the attraction and convenience offered by the venture itself. It would appear that in speculation of this nature, all of the land, with the exception of that unused acreage or that portion reserved for further expansion, is developed and used to the extent that it should be assessed on a square-foot basis without regard for depth influence. The assessor, according to the location, extent and other pertinent factors in each case, must resolve the problem.

Depth tables for use with several standard depths will be found in the Appendix. The 100-foot table may be readily adjusted to any other standard depth. The adjustment is made by dividing each of the depth factors in the 100-foot standard table by the depth factor in the same table for the depth that is to become the new standard. To illustrate: If a new depth table for a 130-foot standard is desired, the 100-foot standard depth table shows the depth factor for 130 feet to be 114. If each depth factor in the 100-foot table is divided in turn by 114, the resulting figure is the new depth factor at a 130-foot standard depth. The depth factor for a 100-foot depth, using a 100-foot standard table is, 100 divided by 114 (100/114) = .877 or .88. The depth factor for a 100-foot depth in

an area where the standard depth is 130 feet is then .88.

If a table for a 135-foot standard depth were desired, the common divisor would be 116 (the depth factor for 130 feet based on a 100-foot standard).

RESIDENTIAL LAND – DEVELOPMENT METHOD

Land with potential use for residential subdivision is often valued by this method. To indicate present value, the development method required estimates of the selling prices of lots; of the costs required for the development financing, carrying and sales; of the period necessary to sell the developed lots; and of the rate by which the net sale price must be discounted.

This method had validity only if a ready market exists for the developed lots. To achieve reasonable results, a thorough and comprehensive investigation of all variables is required.

The following example illustrates this approach.

Gross Selling Price – 200 1-acre lots = 200 acres @ $6,000 per acre		
Two-year selling period		$1,200,000
Less Improvement Costs		
Engineering and Platting	$10,000	
Grading – 200 ac. @ $100/ac.	20,000	
Streets – 10,000 lin. ft. @ $30/lin. ft.	300,000	
Sewer Lines – 10,000 lin. ft. @ $12/lin. ft.	120,000	
Sewer Laterals – 3,000 lin. ft. @ $8/lin. ft.	24,000	
Water Main – 10,000 lin. ft. @ $8/lin. ft.	80,000	
Total Improvement cost		$ 554,000
		$ 646,000
Less Development Costs		
Interest on Site Improvements $554,000 x 9% for 2 years average	Say $ 100,000	
Interest on Estimated Purchase Price of Land $150,000 x 9% for 2 years	27,000	
Taxes During Development $18,500 per year x 2 years	37,000	
Sales commission $1,200,000 x 6%	72,000	
Total Development Costs		$ 236,000
		410,000
Less Developer's Overhead and profit $ 1,200,000 x 20%		240,000
Raw Land Value		170,000
		Or $850 per acre

COMMERCIAL

Commercial land is analyzed on the basis of its value not as raw land, but as a potential business location or building site. Proper zoning, access, parking, topography and exposure – all are factors that must be given consideration.

The commercial category has six types of land, based on location in the community:

(1) Central business district - No matter how large a city became, the downtown area was usually the hub of commercial activity, providing a full range of retail stores, office buildings and other facilities primarily oriented to pedestrian traffic. Growth is sometimes hindered by set street patterns and surrounding industrial and residential developments. Values of centrally located land are inflated due to scarcity of sites and the added costs of demolishing improvements for expansion.

(2) Strip developments – This type of commercial property is found in most cities along major arterials, where location gains advertising value. Such

businesses often rely on a high volume of vehicle traffic.

(3) Neighborhood shopping areas – As residential sections mature, neighborhood shopping areas develop as a convenient market for daily needs of nearby residents. Such areas do not aim to provide all the products and services available in the central business district, and outlets are clustered together within easy walking distance of one another.

(4) Shopping centers – An outgrowth of the neighborhood shopping area, shopping centers are classified by size, variety of products and services and importance of major tenants. The **neighborhood** shopping center is the smallest type, much like the neighborhood shopping area with its convenience outlets, but with more parking space. The **community** shopping center generally has a department store as the main tenant and offers a wider range of products and services. The regional shopping center is often in direct competition with the central business district, as it may provide two or more major department stores, a full line of products and services, and even recreational facilities such as a move theater or bowling alley.

(5) Redevelopment land – Many cities are replacing or redeveloping centrally located low income areas with new commercial, residential and industrial areas. Such commercial land generally has the same characteristics as the central business district, although development may be more like that of a shopping center.

(6) Rural commercial land – Developments in rural areas are usually at or near major intersections, convenient to a high volume of highway traffic. Little patronage is expected from local residents.

HIGHEST AND BEST USE

As it is true with any type of land, the value of commercial land, in the final analysis, is directly related to the local supply and demand for that land when put to its highest and best use. To determine that use, several tests must be passed:

1. The use must be legal; i.e., it must be in compliance with permissive or restrictive zoning.
2. The use must be within the realm of probability; i.e., it must be a likely use, not a speculative or conjectural one.
3. There must be a demand for such use.
4. The use must be profitable.
5. The use must provide the highest net return to the land.
6. The use must produce the return for the longest period of time.

Once the highest and best use of a commercial site has been determined, its value can also be estimated.

Chapter III
Land Valuation

METHODS OF VALUATION

Commercial land is usually valued by the Comparison Method, in which value is based on sale prices of similar vacant land, adjusted to reflect variations.

These other methods may be appropriate in isolated cases:

Residual Method: Value is indicated by capitalization of the income residual which might be produced by a proper new building improvement on the land, after deduction of the expenses required for the building.

Allocation Method: Land value is measured from a known sale price by segregation of the amount that improvements contribute to the total.

Capitalization of Net Ground Lease: Value is indicated by direct capitalization of the net ground rent at an appropriate rate.

COMPARISON METHOD

This method provides the most accurate measure of land value and is the one most commonly used for commercial land. It closely reflects the market because if follows the same procedure that investors use in choosing properties for purchase.

Since commercial land is usually concentrated in districts according to zoning regulations, the comparison should begin with a district investigation. Wide variations may be found in setback requirements or the limits placed on building height, yard and parking area, or occupancy depending on the type of commercial district: central business, neighborhood shopping or shopping center. In a special-use district, development of the land may be restricted to a specific occupancy such as an office building.

After the district is studied, individual sale properties are examined. They may be similar in many respects to the land for the date of purchase, for location, for any other advantage or disadvantages of the sale property, which the land being valued does not have.

Comparisons are made on the basis of a common unit – a dollar amount per square foot or per front foot. Adjustments are always made **from** the sale **to** the property being valued. If the sale property is superior to the subject, the adjustment is a minus. If inferior to the subject, the adjustment is a plus. Adjustments based on analysis of actual market sales may be expressed as a percentage of sale prices or as a lump sum, dollar amount. Both are illustrated here:

ADJUSTMENTS

Unit Sale Price/sq. ft.	Time	Location	Physical Features	Indicated Unit Value /sq. ft.
$ 9.00	+5%	-10%	+15%	$ 9.90
$ 9.00	+0.15	-$0.30	+$0.45	$ 9.90

The following paragraphs discuss the main factors, which must be compared.

SITE

Various site characteristics that directly affect its value are these:

Size: The unit value (per front foot or per square foot) of land generally decreases as the site area increases beyond the economic size appropriate for its highest and best use. Thus, for the appraisal of a large site in an area where such holdings are not difficult to assemble, adjustments must be made for sales of smaller, more readily marketable holdings.

On the other hand, if the site is a large parcel in a congested area where it is difficult to assemble large holdings, then the reverse is true and an adjustment factor, known as plottage or assemblage, must be applied. It reflects the higher unit value of a large holding assembled in an area of small holdings. Examples of this plottage factor are often found in central business districts or other congested areas where an owner or developer has been forced to pay premium prices to assemble a large piece of land.

Sometimes, entrepreneurs must buy buildings and then raze them to make the land available. Thus, the adjustment for size could be either a plus or a minus, depending upon whether the holding is "wholesale" land or land that has added unit value because of assemblage.

Shape: The shape of a commercial site is directly related to its adaptability for its highest and best use. For some buildings, a parcel that is long and narrow or irregular in shape might be more adaptable than a rectangular parcel.

Penalty adjustments should be made in the valuation of a commercial site having a shape that lessens its adaptability for development to its highest and best use. Conversely, if the shape of the parcel being valued causes it to be more readily adaptable than the compared sales, a plus adjustment is made.

Corner: Since various commercial establishments prefer a corner location for advertising exposure, corner parcels frequently sell for higher unit prices than interior parcels. In some cities, corner-influence tables have been established, usually by tax assessing agencies, to provide some basis of equalization between corner and interior parcels. But such tables are valid only for the specific city where they are developed and cannot be used as a basis for general comparisons; rather, corner parcels are compared with other corner parcels, interior parcels with other interior parcels.

Depth: In some municipalities, depth tables have been devised to provide an equalized basis for adjusting values of parcels varying from standard depth. Comparison of land units on the basis of economic size for the highest and best use gives a better indication of value.

Access: Commercial properties depend on pedestrian or vehicle access to the site. Thus, street width, sidewalks and traffic patterns are important factors to consider when comparing properties. The presence of an alley may facilitate delivery of supplies to the site, especially in a congested area.

Parking: Another important factor in the analysis of commercial property is available parking space: on-site, on streets or in a public off-street lot. The type of business occupying this site determines the required amount of space.

Topography: Some sites require little or no preparation, while others require extensive filling and grading. The effect of topography on adaptability to highest and best use must be recognized in analyzing comparatives.

Utilities: Public services to a property influence value. A site with municipal water is usually more valuable than one without. The cost of supplying a service like water, sewer, gas or electricity may be the measure of adjustment. Adequate street lighting is also particularly important to a commercial property.

Exposure: Many commercial enterprises rely on the advertising value of the site, based not only on location, but also on district zoning regulations such as setback requirements or limitations on size or placement of signs.

COMMUNITY

The value of a commercial site can be affected, either favorably or adversely, by conditions within a community, particularly those in the immediate area.

Among the specific community factors that have a bearing on commercial land value are these:

Use Restrictions: The most obvious controls limiting land use are zoning and building codes. Zoning restricts the location of businesses whose operations may be objectionable to their neighbors. When such sites are in demand, permissive zoning (variances) may actually enhance land values, and in such a situation, zoning to a so-called higher use could lower the value of adjacent properties.

Local enforcement policy as well as the restrictions themselves must be analyzed. Deed restrictions and title limitations also need investigation. Comparisons should not be attempted between sites that have different zoning or restrictions, as proper adjustments for such differences are extremely difficult.

Local Services: Value is affected by supportive community services, not only utilities, but also adequate fire and police protection. The construction and operating costs of a project may be substantially increased if private development is necessary to provide these services.

Neighborhood Environment: The relative desirability and marketability of a property is often influenced by intangible factors in the neighborhood such as appearance, housekeeping standards, safety and reputation.

Political Climate: This intangible factor has a bearing on the demand, or lack of demand, for sites in certain communities or areas. Comparative percentage adjustments are difficult, but if these factors are present, they

must be recognized when valuing business sites.

MOTIVATION

To be the basis for an opinion of value, a commercial land sale must be an "arm's-length" transaction, one in which neither the buyer nor the seller is under compulsion and both are fully informed about the local market. Sales between members of the same or related families often contain special considerations, as do inter-company sales. Sales to a public agency that has the power of condemnation should be disregarded, since they reflect compulsion to both parties. Deeds given in satisfaction of land installment contracts, which were drawn up many years ago, should also be disregarded, because the consideration is the result of an agreement made at the time of the original contract; furthermore, the land installment contract may have contained favorable terms which had some bearing on the total consideration.

Before using any sales, the person making the valuation should thoroughly investigate all motivating factors behind each transaction, preferably through actual interviews with the buyer, the seller or the broker.

TIME

For a sale to be truly comparable, it must have taken place reasonably in close in time to the valuation date and under similar economic conditions. The allowable span of time between the sale date and the valuation date is not fixed; instead, it depends upon the trend of economic conditions between the two dates. In other areas, where the real estate market is active, sales only a year old might be misleading unless appropriate adjustments are made.

However, in some areas the market rarely provides enough recent sales from which to draw a conclusion. Usually, the comparison will include additional sales to which appropriate adjustments are made for changes in the market between the sale date and the valuation date.

SUMMARY OF COMPARISON METHOD

When sales are actually comparable, adjustments for all factors are seldom necessary. Nor is there any uniform pattern for determining the weight to be given each factor. The adjustments must be made individually by investigation of local condition and limited by the tests for highest and best use.

RESIDUAL METHOD

In heavily built-up areas, where sales of vacant land cannot be found, an indication of land value can be developed by this method.

Highest and best use of the land must first be determined. This is often obvious from development of the surrounding land. Then a projection is made of the potential net income that a new building suited to this use and acceptable to the market could produce. The income required by the building investment is deducted; leaving a residual income that is attributable to the land. This is capitalized (at the *current* market rate) into an estimate of land value.

values can be developed from this Assessment Manual, with particular attention to accrued physical deterioration and functional and economic obsolescence.

The ratio of land value to building value is sometimes derived from the ratio of the assessed value and market value in the municipality.

The allocation method is vulnerable to various inaccuracies and hence should be used only as a check, not as a basis of value.

Example of Land Residual Method
1-Story Office Building

Estimated Gross Annual Income		
20,000 square feet of building area @ $8.00 per sq. ft. per year		$160,000
Parking lot, 10,000 sq. ft. @ $1.00 per sq. ft. per year		10,000
Total Income		$170,000
Less Vacancy Allowance 5%		8,500
Effective Gross Income		$161,500
Less Operating Expenses:		
Real Estate Taxes	$28,000	
Fire and Liability Insurance	4,000	
Maintenance and Repairs	9,000	
Management and Miscellaneous	8,000	
Total Operating Expenses		$ 49,000
Net Income Before Recapture of Capital		$112,500
Less Income Attributable to Building Investment of $750,000 – 2 ½ % Amortization and 9% return on Investment – Total 11 ½%		86,250
Income attributed to Land		$ 26,250
Capitalized Value of $26,250 @ 9%		$291,667
Indicated Land Value	Rounded:	$290,000

Land value per Square foot:
(Land area: 20,000 sq. ft. of building; 10,000 sq. ft. of parking; 10,000 sq. ft. of landscaping and drives – Total 40,000 sq. ft.)

$290,000
(40,000 S.F.) = $7.25 per sq. ft.

ALLOCATION METHOD

When the only sales available for comparison are those of improved property, a measure of land value can be gained from the total sale price of each property by allocating that portion reasonably attributable to the building. The remainder is assumed to be land value. Building

CAPITALIZATION OF GROUND LEASE

This method assumes the gross rental under a ground lease is the fair or economic rental. Net rental after deduction of the owner's expenses – property tax, insurance, and management – is capitalized at an interest rate from the current real estate into an estimate of land value.

Example – Leased Parking Lot
30,000-square-foot lot adjacent to an office building leased for $1,600 per month for employee parking.

Gross Annual Income		$ 19,200
Less Expenses (by Lessor)		
Real Estate Taxes	$ 2,500	
Liability Insurance	1,200	
Management	1,100	
Total Operating Expenses		$ 2,800
Net Annual Income		$14,400
Capitalized Value of $ 14,400 at 9%		
Indicated Land Value		$160,000

Land Value per Square Foot
$160,000
30,000 sq. ft. = $5.33 per square foot

INDUSTRIAL

Industrial land is analyzed on the basis of its value not as raw land, but as a potential plant site. Proper zoning, access, availability of utilities and transportation, topography and drainage – all are factors that must be given consideration.

Within the industrial and institutional category are four types of land, based on location in the community:

(1) Centrally located land – the first developments in many communities were usually multistory buildings. They now have grown old, and their occupancies are heterogeneous. They are usually located on narrow streets in congested areas and lack room for expansion and parking. Growth may be stymied by set street patterns and by surrounding commercial and residential developments. Values of centrally located land are inflated due to scarcity of sites and the added costs of demolishing improvements for expansion.

(2) Redevelopment land – many municipalities are replacing or redeveloping their older, deteriorating neighborhoods, which often have the same drawbacks as centrally located land. But, as part of the overall plan, street patterns can be altered to allow better traffic flow and large sites can be created out of small, fractional ownerships. Also, municipal services are already installed. The central location of such land is often advantageous to institutions and business-oriented industries like warehouses, distribution centers and service facilities.

(3) Industrial parks – these developments in peripheral areas encourage a mixture of occupancies, mostly in one-story buildings. The sites are usually landscaped to provide a pleasant setting.

(4) Outlying land – rural locations may be preferable when an industry needs large acreage for its plant or for bulk storage of materials. Other industries select outlying land because their operation may be objectionable to adjacent owners. In rural areas, land-use controls and building regulations are generally less restrictive, but the lack of municipal services may force a plant to be self-sufficient.

A special type of industrial land, which may fall into any one of the preceding categories, is waterfront land. Since it offers the advantage of access and transportation by water, these factors affect the value of waterfront land: length of water frontage, condition of shore or bank, docking facilities, channel width and depth, bridge clearance, and periodic need of dredging. Another advantage of some waterfront property is an unlimited supply of water, necessary for many process industries. On the other hand, waterfront land may be low, requiring a special piling and foundations or a large amount of fill, and it may be subject to flooding.

Chapter III
Land Valuation

HIGHEST AND BEST USE

As it is true with any type of land, the value of industrial land, in the final analysis, is directly related to the local supply and demand for that land when put to its highest and best use. To determine that use, several tests must be passed:

1. The use must be legal; i.e., it must be in compliance with permissive or restrictive zoning.

2. The use must be within the realm of probability; i.e., it must be a likely use, not a speculative or conjectural one.

3. There must be a demand for such use.

4. The use must be profitable.

5. The use must provide the highest net return to the land.

6. The use must produce the return for the longest period of time.

Once the highest and best use of an industrial site has been determined, its value can also be estimated.

Institutional properties, such as schools, hospitals, churches and municipal or government properties are usually not operated as profit-making ventures and thus Items 4, 5 and 6 of the above tests might not apply to an institutional site.

However, they **would** apply to the comparable lands being used as indicators of value, and the institutional site being valued must be similar to these lands.

Moreover, institutional properties are generally located in the neighborhood most convenient for the majority of persons using the facility, regardless of land values. Thus, municipal buildings are usually built in the town centers, elementary schools in residential neighborhoods and churches in the center of the parishes they serve.

Although the methods of valuing institutional and industrial land are similar, the absence of profit incentive for institutional locations causes some variances, particularly in the application of rules of highest and best use to the valuation of institutional land.

METHODS OF VALUATION

Industrial and institutional lands are usually valued by the Comparison Method, in which value is based on sale prices of similar vacant land, adjusted to reflect variations.

Other methods may be appropriate in isolated cases:

Residual Method: Value is indicated by capitalization of the income residual that might be produced by a proper new building improvement on the land, after deduction of the expenses required for the building.

Allocation Method: Land value is measured from a known sale price by segregation of the amount that improvements contribute to the total.

Development Method: Value of a large site is indicated by the present worth of the return that may be obtained from sale of the parts, after deduction of costs for development, sales and investment.

Capitalization of Net Ground Lease: Value is indicated by direct capitalization of the net ground rent at an appropriate rate.

COMPARISON METHOD

This method provides the most accurate measure of land value and is the one most commonly used. It closely reflects the market because it follows the same procedure that investors use in choosing properties for purchase.

Since industrial land is usually concentrated in districts according to zoning regulations, the comparison should begin with a district investigation. Sometimes, specialized or secondary districts are found – groupings of industries that manufacture or handle similar articles; that require the same type of labor, shipping facilities or raw material; whose by-products become the raw materials of another. Some industrial parks or districts are occupied entirely by smokeless and odorless industries. Other districts are created by the establishment of white-collar industries such as research and development centers, laboratories or suburban office complexes.

After the district has been studied, individual sale properties are examined. They may be similar in many respects to the land being valued, but adjustments to sale prices may be required for the date of purchase, for location, and for any other advantages or disadvantages of the sale property which the land being valued does, or does not, have.

Comparisons are made on the basis of a common unit – a dollar amount per square foot or per acre. Adjustments are always made **from** the sale **to** the property being valued. If the sale property is superior to the subject, the adjustment is a minus. If inferior to the subject, the adjustment is a plus. Adjustments based on analysis of actual market sales may be expressed as a percentage of sale price or as a whole-dollar amount. Both are illustrated here:

ADJUSTMENTS

Unit Sale Price	Time	Location	Physical Features	Indicated Unit Value
$6,000	+5%	-10%	+15%	$6,600
$6,000	+$300	- $600	+$900	$6,600

The following paragraphs discuss the main factors that must be compared.

SITE

Various characteristics of a site that directly affect its value are:

Size: The unit value (per acre or per square foot) of land generally decreases as the site area increases beyond the economic size appropriate for its highest and best use. Thus, for the appraisal of a large site in an area where such holdings are not difficult to assemble, appropriate adjustments must be made for sales of smaller, more readily marketable holdings.

On the other hand, if the site is a large parcel in a congested area where it is difficult to assemble large holdings, then the reverse is true, and an adjustment factor (known as plottage or assemblage) must be applied. It reflects the higher unit of value of a large holding assembled in an area of small holdings. Examples of this plottage factor are often found in central business districts or other congested areas where an owner or

developer has been forced to pay premium prices to assemble a large piece of land. Frequently, buildings must be bought and then razed them to make the land available. Thus, the adjustment for size could be either a plus or minus, depending upon whether the holding is "wholesale" land or land that has added unit value because of assemblage.

Shape: The shape of an industrial site is directly related to its adaptability for its highest and best use. For some industries, a parcel that is long and narrow or irregular in shape might be more adaptable than a rectangular parcel. Penalty adjustments should be made in the valuation of an industrial site having a shape that lessens its adaptability for development to its highest and best use. Conversely, if the shape of the parcel being valued causes it to be more readily adaptable than the compared sales, a plus adjustment is made.

Topography: Some sites require little or no preparation, while others require extensive filling and grading. The effect of topography on adaptability to highest and best use must be recognized in analyzing comparatives.

Utilities: Public services to a property influence value. A site with municipal water is usually more valuable than one without. The cost of supplying a service like water, sewer, gas or electricity may be the measure of adjustment.

Access: An industrial property must be accessible for incoming and outgoing shipments by truck; thus, proximity to interstate highways is important. If the highest and best use is heavy industrial, access by rail may be essential. Both the type of access and the transportation patterns must be analyzed in making comparative adjustments.

COMMUNITY

The value of an institutional or industrial site can be affected, either favorably or adversely, by conditions within a community, particularly those in the immediate area. The attitudes of neighbors and of city officials often influence management decisions to locate at a specific site.

Among the specific community factors which have a bearing on industrial land value are these:

Use restrictions: the most obvious controls limiting land use are zoning and building codes. The location of industries whose operations are objectionable to their neighbors is restricted by zoning. When such sites are in demand, permissive zoning (variances) may actually enhance land values, and in such a situation, zoning to a so-called higher use could lower the values of adjacent properties.

Local enforcement policy as well as restrictions themselves must be analyzed. Deed restrictions and title limitations also need investigation. Comparisons should not be attempted between sites which have different zoning or restrictions, as proper adjustments for such differences are extremely difficult.

Local services: Value is affected by supportive community services, not only utilities, but also adequate fire and police protection. The construction and operating costs of a project may be substantially

increased if private development is necessary to provide these services.

Taxes: Property taxes have a major influence on site value, particularly when comparing the desirability of sites in different tax districts. Not only must the assessed value ratio and tax rate be considered, but local policy on levies for equipment, personal property and inventories must also be investigated.

Neighborhood: The relative desirability and marketability of a modern industrial plant site is often influenced by intangible factors in the neighborhood such as appearance, housekeeping standards, safety and reputation.

Political Climate: This intangible factor has a bearing on the demand, or lack of demand, for industrial sites in certain communities or areas. Particularly in the South, some areas have made an all out effort to attract industry through tax advantages and other political concessions, while other areas or communities have acquired a reputation for political unfriendliness toward industry. Comparative percentage adjustments are difficult, but if these factors are present, they must be recognized when valuing industrial sites.

Availability of labor: Although unskilled labor does not directly affect industrial land value, it indirectly influences demand for industrial property in a given community. Some industries are attracted to a community where a large supply of unskilled labor is available. In other communities, concentration of skilled workers in various trades or professions tends to create a demand for sites; e.g., the development of research centers near certain universities or the centering of the automobile industry around Detroit, where skilled machinists are available.

MOTIVATION

To be the basis for an opinion of value, a land sale must be an arm's-length transaction, one in which neither buyer nor seller is under compulsion and both are fully informed about the local market. Sales between members of the same or related families often contain special considerations, as do inter-company sales. Sales to a public agency which has the power of condemnation should be disregarded, since they reflect compulsion to both parties. Deeds given in satisfaction of land contracts which were drawn up many years ago should also be disregarded, because the consideration is the result of an agreement made at the time of the original contract; furthermore, the land contract may have contained favorable terms which had some baring on the total consideration.

Before using any sales, the person making the valuation should thoroughly investigate all motivating factors behind each transaction, preferably through actual interviews with the buyer, the seller or the broker.

TIME

For a sale to be truly comparable, it must have taken place reasonably close in time to the valuation date and under similar economic conditions. The allowable span of time between the sale date and the valuation

date is not fixed; instead, it depends upon the trend of economic conditions between the two dates. In the rare area where real estate conditions are somewhat static, sales from several years back could be used with reliability. In other areas, where the real estate market is active, sales only a year old may be misleading unless appropriate adjustments are made.

However, the market rarely provides enough recent sales from which to draw a conclusion. Usually the comparison will include additional sales to which appropriate adjustments are made for changes in the market between the sale date and the valuation date.

SUMMARY OF COMPARISON METHOD

When sales are actually comparable, adjustments for all factors are seldom necessary. Nor is there any uniform pattern for determining the weight to be given each factor. The adjustments must be made individually by investigation of local market conditions and limited by the tests for highest and best use.

The residual and allocation methods of industrial land valuation are much the same as methods outlined for the valuation of residential and commercial land.

The following example illustrates the development approach:

Gross selling price –	
10 2-acre sites = 20 acres	
@ $20,000 per acre –	
Two year selling period	$400,000
Less Improvement Costs	
Engineering and platting	$2,000
Grading – 20 ac. @ $200/ac.	4,000
Streets – 1,500 lin. ft.	
@$40/lin. ft.	60,000
Sewer Lines – 1,500 lin. ft.	
@ $12/lin. ft.	18,000
Sewer Laterals – 500 lin. ft.	
@ $8/lin. ft.	4,000
Water Main – 1,500 lin. ft.	
@ $8/lin. ft.	12,000
Total Improvement Cost	$100,000
	300,000
Less Development Costs	
Interest on site improvements	
$100,000 x 9% for 2 years	
average	$18,000
Interest on Estimated Purchase	
Price of Land	
$40,000 x 9% for 2 years	7,200
Taxes during development	
$2,500 per year x 2 years	5,000
Sales and commission	
$400,000 x 6%	24,000
Total Development Costs	$ 54,200
	$245,800
Less Developer's Overhead	
and profit	
$400,000 x 20%	$ 80,000
	$165,800
	or $8,290 per acre

CAPITALIZATION OF GROUND LEASE

This method assumes the gross rental for the land leased is the fair market rental. Net rental after deduction of the owner's expenses – property tax, insurance, management – is capitalized at an interest rate from the current real estate market into an estimate of land value.

Example – Leased Parking Lot

30,000 square-foot lot adjacent to plant leased for employee parking at $600 per month.

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Gross Annual Income	$ 7,200
Less expenses (by Lessor)	
Real Estate Taxes	$ 2,000
Liability Insurance	400
Management	600
Total Operating Expenses	3,000
Net Annual Income	$ 4,200
Capitalized Value of $4,200 at 9%	
Indicated Land Value	$ 46,667
Rounded:	$ 46,700

Land Value per Square Foot
$ 46,700 = $1.56 per square foot
30,000 sq. ft.

CONCLUSION

The valuation of land is not a precise, mathematical procedure. Although the methods outlined provide the basis for an opinion of value, the person making the valuation must **correctly interpret** the data extracted from his investigation of the market. The comparable sales, leases, asking prices and other data which he assembles in his investigation provide the necessary background and supporting details for his opinion, but each element forming that opinion must be carefully weighed on the basis of his experience and judgment.

RURAL LAND

The basic approach to rural land value is the same as for other types of land. But, due to the extensive areas involved, the variety of land uses and classifications, and the difficulties involved in obtaining sufficient information by observation in the field, current maps are essential for the purpose of discovery, listing and valuation. In the State of Maine, rural land is usually classified in accordance with the following schedule:

LAND CLASSIFICATION SYMBOLS

H – House lot
C – Cottage or Camp Lot
I – Industrial and Commercial
T1 – Tillage (Good)
T2 – Tillage (Fair)
P1 – Pasture (Good)
P2 – Pasture (Fair)
C.R. – Chicken Range
G. P. – Gravel Pit
OY – Orchard, Young
OB – Orchard, Bearing
OO – Orchard, Old
B.B. – Blueberry Land
SW – Softwood Forest Land
MW – Mixedwood Forest Land
HW – Hardwood Forest Land
C.O. – Clear Cut
B.L. – Burnt Land
Bog – Bog
W – Water

Soil conservation maps and classifications may be added assistance to assessors in areas where the land is highly productive, and consequently more valuable. If there is a demand for undeveloped land for agricultural purposes in a particular area, the government's soil conservation capability classifications can be used to advantage. The land should not be assessed on the basis of its capability to produce, or probable productivity under different conditions, but upon its market value in its present condition. The assessor's estimate of value must take into account all known factors, but should not be unduly influenced by the possibility that dormant land could be (or should be) made productive, if local experience does not indicate any particular demand or reason for improved utilization of this land.

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In many areas in Maine, extensive acreage that was formerly crop and pastureland is reverting to woodland. Without some special attention, probably none of it will ever become high-quality timberland in the foreseeable future. It is lying unused – and of no productive use as far as the market is concerned, other than for what natural growth may develop.

What its latent capabilities are, or what its past utility may have been, makes little difference under the circumstances. The question to be resolved is what land of this nature and use will bring in the open market at the time of assessment.

Rural land unit values can be obtained only from a study of the local market and comparable markets – that is, through the Comparative Approach to value. A method of analysis similar to the following may be used to advantage in establishing base prices for rural land if there have been a sufficient number of reliable sales in the area upon which to formulate an opinion of value.

First, tabulate the available sales with a breakdown by acres of the several main land classifications which comprise each parcel. Refer to Land Valuation Analysis No. 1 below.

In the accompanying tabulation, two sales will give an indicated sale price per acre: No 2, $400 per acre for woodland, and No. 4, $800 per acre for pasture or field.

In analyzing all of the woodlands contained in several transfers, it was determined that the woodlands in Nos. 1 and 6 were generally similar to that of the sale, indicating a price of $400 per acre (No. 2). This fact noted in the process of analysis by the symbol (=) against the acreage of woodland in each case. The woodland in sale No. 3 was found to be of higher quality and more valuable by comparison to sales 1 and 6, and this fact recorded by the symbol (+) against the acreage shown. On the other hand, the woodland included in the sale of property No. 7 was not as good by comparison with that in Nos. 1, 2, and 6, and the symbol (-) against the 80 acres of woodland in No. 7 sale denotes this condition.

Considering the pasture and fields included in the several sales, it was found by comparison that sale No. 4 for which an indication of value per acre can be immediately computed ($800 per acre), represented the best quality land of this nature of any included in the group. It was noted on the table with the symbol (+). Pasture and field acreage in sales No. 5 and 6 was found to be the same quality but less valuable than that in No. 4. By comparison, the pasture and field acreage in sales Nos. 1, 3 and 7 were of poorer quality than that in Nos. 5 and 6, and much inferior to that in sale No. 4. This fact is noted by using the symbol (-) against the 20, 60 and 100 acres in this class of land in sales Nos. 1, 3 and 7. Refer to Land Valuation Analysis No. 2 on the next page.

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LAND VALUATION ANALYSIS NO. 1

Sale No.	Sale Date	Total Acres	Woodland	Crop	Orchard	Pasture Fields	Brush	Waste Swamp Ledge	House Lot	Building Value	Comp Value	Sale Price
1	2010	120	75	20		20		4	1A	$42,000		$ 100,000
2	2010	50	50									$ 20,000
3	2010	250	180			60		10				$ 116,000
4	2010	50				50						$ 40,000
5	2010	150		60	20	50	20			(Burned 1970)		$ 58,000
6	2010	510	100	10	250	50	75	21	4A	$84,000		$ 500,000
7	2010	215	80	20		100	13		2A	$48,000		$ 128,000

LAND VALUATION ANALYSIS NO. 2

Sale No.	Sale Date	Total Acres	Woodland	Crop	Orchard	Pasture Fields	Brush	Swamp Ledge	House Lot	Building Value	Comp Value	Sale Price
1	2010	120	75(=)	20		20(-)		4	1A	$42,000		$ 100,000
2	2010	50	50(=) $ 200/A								$20,000	$ 20,000
3	2010	250	180(+)			60(-)		10				$ 116,000
4	2010	50				50(+) $ 400/A					$40,000	$ 40,000
5	2010	150		60	20	50(=)	20			(Burned 1970)		
6	2010	510	100(=)	10	250	50(=)	75	21	4A	$84,000		$ 500,000
7	2010	215	80(-)	20		100(-)	13		2A	$48,000		$ 128,000

The analysis of individual sales for the purpose of developing an estimate of various unit values is the next step.

Sale No. 1 – 120 Acres

Woodland acreage is approximately of the same quality as that in sale No. 3. Use $400/A x 75 acres, or $30,000. Pastureland here is considerably less valuable by comparison to that of sale No. 4. Assuming that means less than half as valuable, a unit value of $400 appears reasonable for an initial estimate: 20 acres of pasture @ $400 = $8,000.

(The land upon which the dwelling is located has a special value and should be considered as a house lot. Often there is a determinable ratio existing between the value of the land and the improvement in a specific area; that is, 10 to 1, 8 to 1, 6 to 1. In a 6 to 1 area, a $48,000 residence would be situated on a $8,000 house lot. A 10 to 1 ratio used to be quite common in Maine, but the ratio is rapidly decreasing in all areas where there is any appreciable demand for property. A ratio of 7 to 1 is presumed for the purpose of this illustration of rural sales analysis.)

The house lot, then, would be representative of the local opinion of value if estimated at $6,000. Totaling the estimates made, and considering the 4 acres of wasteland as

contributing no real value of the whole, develops these figures:

Sale No. 1 – 120 acres
Woodland – 75A @ $400 = $30,000
Pasture Field – 20A @ $400 = $8,000
House Lot - $6,000
House - $42,000
leaving a balance of $14,000 to be attributed to the 20 acres of cropland, an indicated figure of $700/acre. Using $7000/acre, the value of the property would add to $100,000, the indicated sale price.

Sale No. 3 – 250 Acres

Applying the already developed unit figures from sales Nos. 2 and 4, to the acreage in this property, the values work out as follows: the 180 A of woodland were found to be higher quality than those of Sale No. 2. Therefore, they would require a higher unit value. Taking $500/acre as a trial figure, the woodland value wood be $90,000, plus the 60 acres of pasture and fields @ $400 (from sale No. 1 as representative of similar kind and quality of land) or $24,000, making a total value for the whole parcel (ignoring for the moment the 10 acres of wasteland) Of $94,000. As a precise result cannot be expected in a process of this kind, this value can be accepted as fairly representative for the property, and the land classified as "waste" may have no value properly attributable to it. On the other hand, if the wasteland is swamp and contiguous to the pasture, it may conceivably have some limited value for a stock farm. In that case, it could be assigned a value not in excess of $100/acre according to its utilitarian contribution to the whole. A value of $50 is assigned to the land in this instance, as it is swampland situated largely between the cleared and wooded areas and is accessible to the pasturage.
Sale No. 3 – 250 Acres
Woodland – 180 Acres @ $500 = $90,000
Pasture Field – 60 Acres @ $400 = $24,000
Swamp – 10 acres @ $25 = $500
Sale Price - $116,000
Total Computed Value - $114,500

Sale No. 5 – 150 Acres

(To work out this problem, it is first necessary to compare the physical qualities of the land contained in this parcel with those of other sales in the study, as new classifications appear under the headings of "Brush" and "Orchard" land. This process is similar to the initial comparison of land type and quality in sales No. 2 and 4 with similar land classes in other parcels.)

The orchards were found to be widely dissimilar. The orchard (20 acres) is neglected and no longer commercially valuable. The 250-acre orchard in sale No. 6 is well maintained and productive. It includes both old and young trees so distributed that, on an average, it can be considered as approaching its prime.

The orchard in this sale is identified with the symbol (-) to indicate "inferior" and that in sale No. 6 with the symbol (+), as it is "superior" in relative quality.

The brush land must also be compared for relative quality in sales study. It was found that the brush land in sales Nos. 5 and 7 was generally similar and of relatively low value. The 75 acres of brush in sale No. 6 had further advanced, more desirable young growth on better land. Brush land is rated with the symbol (=) for sales Nos. 5 and 7, and with the symbol (+) for sale No. 6.

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Cropland, so far, has been included in only one sale. For the purpose of continuing the study, the relationship or relative quality of the cropland in this and succeeding sales, as compared to that sale No. 1 must be considered. Upon inspection of the properties, and viewing of aerial photographs, it was established that cropland in sale No. 7 was quite similar in all respects to that of sale No 1. The 60-acre area of cropland in the subject sale (No. 5) was much less desirable and less valuable per acre than that in sale No. 1; it has been entirely neglected since the house on the property burned in 2005. The 10 acres in sale No. 6 were much better quality. These facts are indicated on the analysis sheet by the symbol (=) denoting generally inferior cropland in sale No. 5; and by (+) against the 10 acres in sale No. 6, indicating that they represent the best cropland in the study. Refer to Land Valuation Analysis No. 3 below.

Sale No. 5

Comparing the physical properties of the acreage and unit value estimates in the several sales, the fact that this property has been idle and more or less neglected since 2003 must be considered. The cropland has deteriorated considerably; it is now worth less than the pasture and field acreage. The fields have been mowed by the new owner whose farm adjoins this property. The fields, then, while not as poor as those sales Nos. 1 and 3 are worth more than the so-called "crop" land which is rapidly reverting to fields and bushes.

As a result, the cropland in this case is assigned a value comparable to that of the low-grade pasture and field lands of sales Nos. 1 and 3, of $400/acre.

The pastureland is somewhat better than that in sales Nos. 1 and 3, but not nearly as good as that in sales No. 4. Hence, $600 is used to reflect this tentative unit value.

The cumulative total for these two classes of land on this property figures $5,400 to this point. (60 A @ $400 = $24,000) (50 A @ $600 = $30,000)

The orchard has no commercial use, as noted previously, because the trees are disease-ridden from lack of care. As restoration would not be warranted, they have actually become a liability to the land. It would appear that the orchard contributes no more to the value of the property than the remaining low value brushland. Neither can be considered valuable, so a value of $50/acre is assigned to both, perhaps to recognize their existence as much as an indication of real value.

The house that formerly stood on this property burned in 2003. There has been no indication of a demand for the property for residential use in 8 years. The present owner lives on adjacent property and purchased this acreage to use in conjunction with his own. Because of these facts, no house lot value is added for this property.

Completing the computations produces this result:

Sale No. 5 – 150 Acres
Cropland – 60 Acres @ $400 = $24,000
Orchard – 20 Acres @ $50 = $1,000

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LAND VALUATION ANALYSIS NO. 3

Fields – 50 Acres @ $600 = $30,000
Brush – 20 Acres @ $50 = $1,000
Comp. Value - $56,000
Sale Price - $58,000

If it appeared that either the orchard or brush land contributed some additional value over that unit value used, a value of $100 per acre could be used for it, and the total would equal the sale price. The opinion here expressed is that neither the orchard nor the brushland was actually worth more than $50 an acre. The property was purchased by the owner of an adjacent property to be used in conjunction with it. It is thought the property would have more value to him than to the general market for such property, because of its location.

Sale No. 6 – 510 Acres

Using the same figures for similar kinds and qualities of land in other sales, the 100 acres of woodland is assigned a value of $400 an acre – the pastureland, also $400 an acre.

LAND VALUATION ANALYSIS NO. 3

Sale No.	Sale Date	Total Acres	Woodland	Crop	Orchard	Pasture Fields	Brush	Waste Swamp Ledge	House Lot	Building Value	Comp. Value	Sale Price
1	2010	120	75(=)	20(=)		20(-)		4	1A	$42,000	$100,000	$100,000
			@ $400/A	@$700/A		@$400/A			$6,000			
			$30,000	$14,000		$8,000						
2	2010	50	50(=)								20,000	20,000
			$400/A									
3	2010	250	360(+)			60(-)		10(+)			116,000	116,000
			@ $ 500			@$400/A		@$50/A				
			$90,000			$24,000		$500				
4	2010	50				50(+)					40,000	40,000
						@$800/A						
5	2010	150		60(-)	20(-)	50(=)	20(=)			(burned/2003)	58,000	58,000
6	2010	510	100(=)	10(+)	250(-)	50(=)	75(+)	21	4A	84,000	500,000	500,000
7	2010	215	80(-)	20(=)		100(-)	13(=)		2A	48,000	128,000	128,000

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LAND VALUATION ANALYSIS NO. 4

Sale No.	Sale Date	Total Acres	Woodland	Crop	Orchard	Pasture Fields	Brush	Waste Swamp Ledge	House Lot	Building Value	Comp. Value	Sale Price
1	2010	120	75(=)	20(+)		20(-)		4	1A	$21,000	$100,000	$100,000
			@ $400	@ $700		@ $ 400		--	$6,000			
			$ 30,000	$14,000		$ 8,000		NV				
2	2010	50	50(=)								20,000	20,000
			$ 200/A									
3	2010	250	180(+)			60(-)		10(+)			114,500	116,000
			@ $500			@$400		@ $50				
			$95,000			$ 4,000		$ 500				
4	2010	50				50(+)					24,000	40,000
						$800/A						
5	2010	1501		60(-)	20(-)	50(=)	20(-)			(burned/2003)	56,000	58,000
				@ $400	@ $ 50	@$600	@$50					
				$4,000	$1000	$30,000	$1000					
6	2010	510	100(+)	10 (+)	250(+)	50(=)	75(+)	21	4A	$84,000	495,500	500,000
			@ $400	@$ 900	@$ 1300	@$ 400	@ 10	--	$10000			
			$ 40,000	$ 9,000	$324,000	$20,000	$7,500	NV				
7	2010	215	80(-)	20(-)	100(-)	100(-)	13(-)		2A	48,000	126,650	128,000
			@ $200	@$ 700	@ $400	@$ 400	@$ 50		$8,000			
			$ 16,000	$14,000	$ 40,000	$40,000	$650					

The house lot at a 7 to 1 ratio figures $12,000, but due to its excess area over the usual lot, it is reduced to $10,000 as a more representative figure.

The ten acres of cropland is the best of its kind in the study and is much better than that in sale No. 1. Because of that fact, $900/acre is probably a fair estimate of relative value.

The brush land is well covered with about 10 years mixed growth. No market crop is evident, but it is probably worth at least double that of other land of this nature in the properties studied – indicated value per acres, $100.00.

The wasteland consists of swampland and an extensive area of rough ledges and outcroppings. No added value is attributed to this acreage, as it contributes no apparent utility.

The estimate now includes:

House Lot - $10,000
Building - $84,000
Woodland - 100A @ $400 = $40,000
Crop – 10 A @ $900 = $9,000
Pasture – 50 A @ $400 = $20,000
Brush – 75 A @ $100 = $7,500
Swamp – 21 A - NV

This totals $170,500 leaving a balance of $329,500 as an indicated value of the 250 acre orchard. If the several estimates made are reasonably representative of the part each class plays in gross value, the orchard land sold on the basis of $1,318 an acre. Rounding this figure to $1,300, the orchard figures $325,000, and the total computed value of the property is $495,500.

Sale No. 7 – 215 Acres

The woodland on this property was found inferior to that in sales No. 1, 2 and 6, which were valued at $400 an acre. Using $300 an acre as a trial figure, the estimate of value for this acreage is $24,000.

Cropland, as similar to that in sale No. 1, is assigned comparable unit value, $700 an acre, or $14,000.

The pasture and field acreage, as similar to sales Nos. 1 and 3, is priced at $400 an acre, or $40,000.

Brushland is comparable to that in sale No. 5, and when the same unit price of $50 an acre is applied, gives a value of $650.

The 7 to 1 ratio for the house lot does not apply too well in this case, as there are certain location advantages that make it more desirable than the usual lot; notably, a protected south hillside site with an enviable view of the mountain and lake country. A 6 to 1 ratio is used to acknowledge this added feature. The house lot is valued at $8,000, building at $48,000.

The total of the above figures is $134,650 compared to the sale price of $128,000.

Reviewing the unit values and computations, it appears that the figure least capable of being supported by immediately comparable unit value or informed judgment is the woodland. In this case only, the fact that it was not as good as the woodland in sales Nos. 1, 2 and 6 has been established. From the results obtained, it would appear that the unit value of $300 an acre assigned as a trial figure was too high.

Since the best brushland commanded a unit value of $100 an acre in the study process, the land under consideration, if it is entitled to be classified as woodland at all, must be assigned a higher unit value. Within the range so established ($100-$300), there is but a single choice $200 an acre.

Substituting this unit value for the $300 used initially, the value attributed to the 80 acres of woodland is reduced to $16,000, and the total computed value of the property becomes $126,650, compared to the sale price of $128,000. Refer to Land Valuation Analysis No. 4 above.

Some of the conclusions that may be drawn from this particular study are:

1. Woodland unit values apparently ranged from $200 to $500 an acre for the kind and quality included in the samples. Better or intermediate woodland may be priced accordingly, using the developed figures together with individual comparison.

2. Cropland values ranged from $400 to $900 an acre. The land valued at $400/acre is of poor quality and rapidly deteriorating into pasture or field through disuse. As an average, the study suggests $600 an acre for good cropland, and $900/acre for the best quality represented in the properties considered.

3. Orchards approaching their prime appeared to have in excess of $1,300 an acre.

4. Pasture or field acreage appeared to have a range from $400 - $800 an acre, with the average at $600.

5. Brushland as ordinarily found is best presented at $50 an acre, but as the

scrub growth is crowded out by recognizable young growth of potential market value, the unit price may approach that of low-value woodland.

6. While wasteland, such as swamps, bogs and ledges, often adds no measurable value to the whole property of which it is a part, it may contain an increment of value if it adds to the utility or productivity of adjoining acreage.

It should be noted that nowhere is it implied here that the market value of woodland ranges from $200 to $500 an acre; or that an orchard properly valued at $1,300 an acre; or that the best cropland is $900 an acre. It is suggested that, given the outlined set of circumstances both as to the location, nature, extent and sale price of the property, the unit values derived through the process described can be considered as having some justification in fact and as being fairly representative of the market. It provides a reasonable base, on a practical level, upon which to build an estimate of rural land value for assessment purposes, where adequate sales information and land classification data are available.

In municipalities where modern tax maps are available and where land has been classified in accordance with recommended or acceptable standard classifications, the analysis sheet would naturally be prepared using those standards. When maps and classifications are not available, it will be necessary to adopt the more general terms that are used in this analysis.

Chapter IV
Residential Grading Specifications

The accuracy of any appraisal is proportionate to the ability, knowledge and experience of the appraiser. However, in assessment work the valuations placed upon property are subject to a further very important qualification:

> Effective and proper administration demands that the value estimate must be developed so the assessor can explain and justify it logically and conclusively to the average taxpayer. The taxpayer in turn should be able to follow the reasoning, accept the method used as sound and equitable, and the resulting value as representative and proportionate.

The usual method used to establish building value estimates for assessment purposes is the cost approach, which offers the necessary advantages of being explainable, logical, and equitable. In this approach, the reproduction cost for a new similar structure is calculated, then reduced by the loss in value resulting from depreciation.

There are many different cost approach methods used by assessors and others in the appraisal field to arrive at a value estimate. Each has its champions, and most of them recognize the following five factors as essential to an orderly and logical value derivation.

1) grading
2) additions and deductions
3) physical deterioration
4) functional obsolescence
5) economic obsolescence

Grading, also called classifying or rating, is the process of determining the relative quality of the structure by comparing it to predetermined specification schedules. After the grade has been determined, the cost of reproduction new of a similar structure can be estimated by using appropriate cost schedules. Extra facilities and equipment (additions) not included in the grade specifications are then accounted for in terms of added cost. Substandard items included in the specifications but not found in the structure (deductions) must be similarly accounted for through deductions from the estimated reproduction cost. Then, depreciation allowances resulting from physical deterioration, functional obsolescence, and economic obsolescence are determined by estimation the loss of value attributable to each in the structure, These allowances, properly used as modifiers of the reproduction cost new, make it possible to arrive at a representative and justifiable building value.

The steps in establishing the relative quality and condition of the property are **not** mechanical; the examination must be critical and complete to the extent that the recorded facts can be intelligently analyzed and translated into terms of value. While it is true that much of this interpretation is necessarily developed through opinion, it should be an informed opinion based on recorded facts and established standards, which will substantiate both the opinion and the representative value obtained.

Each of the five factors serve in arriving at a value estimate that can be substantiated, although the relative impact of each on value varies. Grading is of first importance, followed by additions and deductions, physical deterioration, functional obsolescence, and economic obsolescence.

To the extent that most methods in common use recognize the same five prime factors, they may be considered similar. However, since considerable difference of opinion is reflected in these methods as to the relative importance, detail requirements, interpretation of meaning, and measurement and recording of each of the five factors, they may actually be quite dissimilar, especially in resulting dollar values.

The method used, however, is not the primary consideration. Equity is the cardinal principle of the assessment process, and the establishment of proportionate, equitable valuations is the end to which the means are directed. Different methods will give different results in most cases; however, if each factor is considered to the extent presumed by the procedures of the method used, variations will probably be within permissible tolerances.

Those methods, however, which do not fully recognize and provide for individual consideration of each of the five factors are not recommended for use by assessors.

A method, which is now in use by the Maine Revenue Service, is described in detail in Chapters IV-VI. This method was designed specifically for use in Maine and has produced very satisfactory results. It is not presented as the best or only method to use in arriving at the value estimate or as necessarily superior to other systems that are in common use. It has been developed from studies of local conditions in Maine, and it does offer to the assessor certain advantages and added assistance seldom incorporated in the usual, standardized systems which are not always compatible with local standards.

The following general discussion of grading is intended to introduce the first major factor in the cost approach and the Grading Specifications found at the end of this chapter. Chapter IV and V discuss grading in more detail, plus the other four prime factors used in the cost approach.

GRADING

Because an error in grading will be carried through all succeeding calculations, this step should be done most carefully.

The first requisite in the grading procedure is a set of specifications that identify various construction detail, equipment, and facilities of representative groups of residential structures in the assessing jurisdiction. The Grading Specifications, which follow, were prepared as representative of general construction methods and practices in Maine; they are not necessarily correct for indiscriminate use. They should not be used as a basis for establishing the grade of houses in any municipality until a thorough investigation of local standards and practices has been made to determine whether specification changes are required as a result of local conditions or construction methods. If necessary, the specifications should be revised, or new specifications developed to meet local requirements, before they are officially adopted for use.

The specifications for the various grades are broken down into ten major components -- Foundation, Basement, Framing, Roof, Interior, Exterior, Floors, Heating, Plumbing, and Lighting. The construction details of each component are sufficiently described so the difference between grades is obvious on inspection, and the indicated grade may be readily determined and recorded. The grades are identified as "A-5," "B-4," "C-3," "D-2," and "E-1." The letter is the alphabetical grade designation, and the number its numerical counterpart to be used in computations to arithmetically develop an indicated overall grade.

(NOTE: There is no reason to use duplicate grade designations where alphabetical grades are not in general use. They are used here, as most assessment systems in Maine identify the various grades alphabetically. If grades have not been designated by identifying letters, or no grading identification has been adopted, the numbers alone may be used for grading reference. This will simplify the work involved, and perhaps remove a possible source of some confusion. In such case, the grades would be established as "5," "4," "3," "2" and "1"; grade 5 representing better-quality and grade 1 poorer-quality structures.)

Chapter IV

Residential Grading Specifications

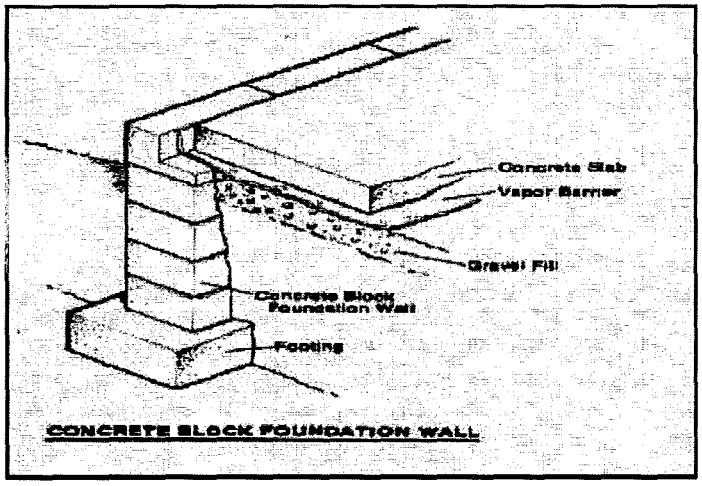
As a careful study of the Grading Specifications will show, no attempt has been made to include luxury (or multiple – A grade) homes within these procedures, since the luxury class home is usually a property made unique by size, materials, design, innovations, and perhaps even the reason for which it was built.

Chapter IV
Residential Grading Specifications

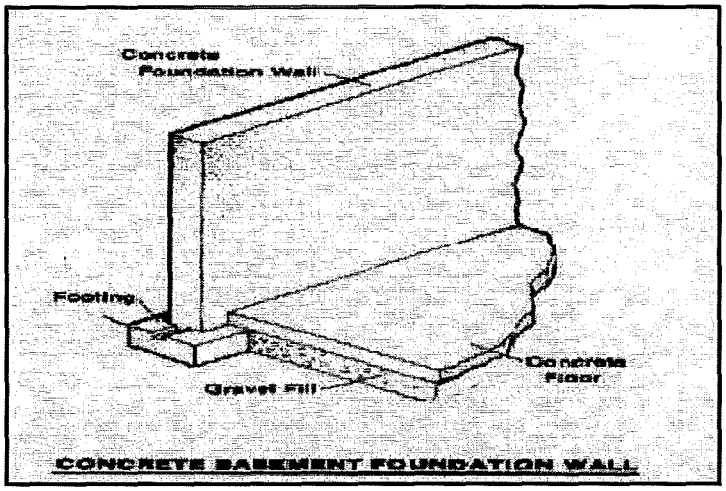
FOUNDATION

GRADE (1)	GRADE (2)	GRADE (3)	GRADE (4)	GRADE (5)
Clear and Grub	Excavation 6'	Excavation 6' 6"	Excavation 8'	Excavation 8' +
Rough Grade	Footing 8x16	Footing 8x18	Footing 12x24	Footing 12x36
Wood posts	Wall, Rock	Wall, Concrete Block 7ft	Wall, Poured Concrete 8-10"	Wall, Poured Concrete 10-12"
4x12 griders	Wall, Brick	Wall, Poured Concrete 8" 7ft	Waterproofed	Waterproofed
Mudsills		Drainage outside	Insulation	Insulation
Rocks		Waterproofed	Drainage 2 sides	Drain tile 2 sides
			Site work: Grade and clear	Site work, ample grade and clear

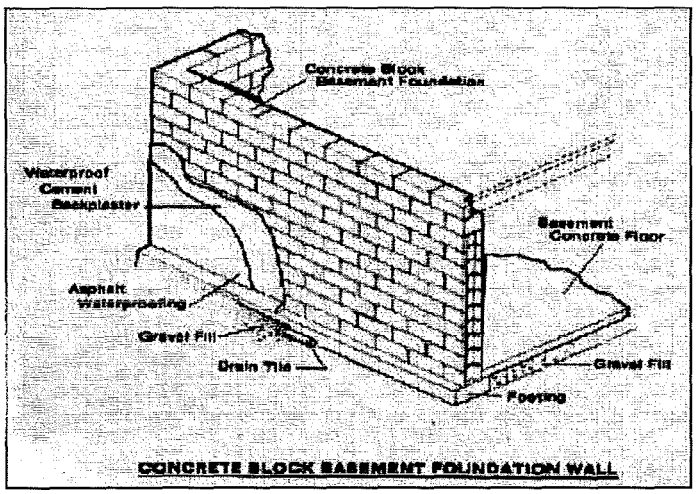
	GRADE	
Wood posts on conc pads	1.5	
Conc posts (Sono Tubes)	2	
Frost Wall 8" Poured conc	3	Deduction for no basement
Frost Wall Conc block	3	Deduction for no Basement
Pressure treated wood walls	2	



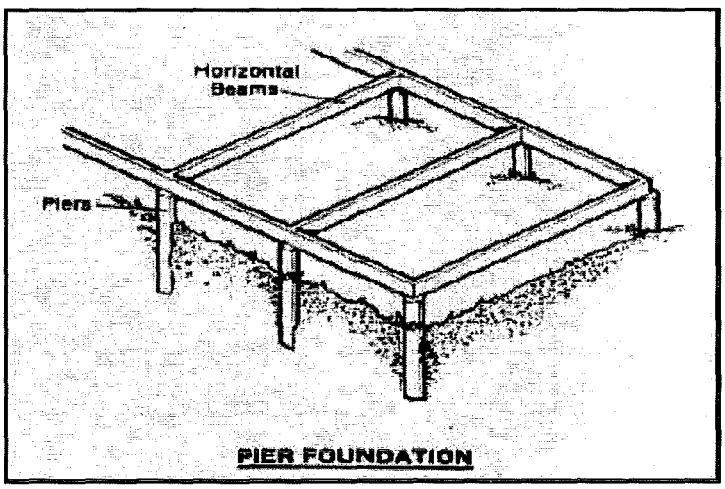
CONCRETE BLOCK FOUNDATION WALL



CONCRETE BASEMENT FOUNDATION WALL



CONCRETE BLOCK BASEMENT FOUNDATION WALL



PIER FOUNDATION

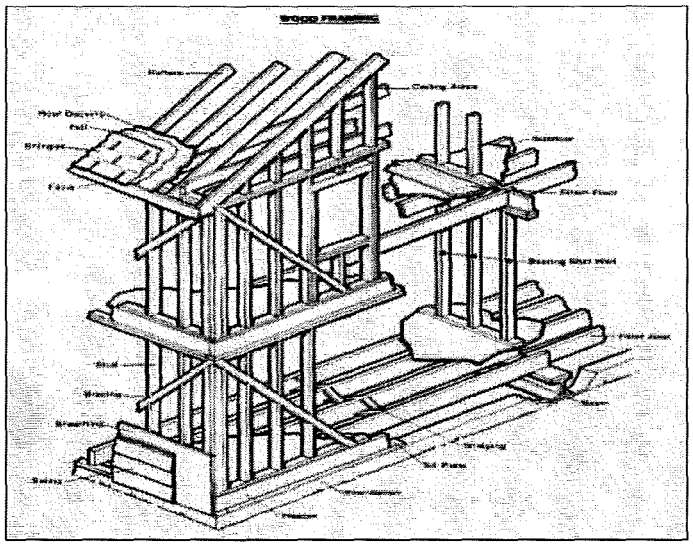
BASEMENT

GRADE (1)	GRADE (2)	GRADE (3)	GRADE (4)	GRADE (5)
No basement	Depth 6' 0"	Depth 6' 6"	Depth: 7' 0"	Depth 7' 6"
	Floor: Dirt	Floor: 6" Gravel Base	Floor: Gravel Base 5" conc floor	Floor: 6" gravel base 6" conc floor
	3" Concrete Rough	3" Conc Floor may not be smooth	Trowel finish Expansion joints	Trowel finish Expansion joints
			Wire fabric	Wire fabric
		No finished rooms	May Have: modest recreation room Rough storage facilities	May have: Finished recreation rooms Fireplace Built in storage facilities

FRAMING

GRADE (1)	GRADE (2)	GRADE (3)	GRADE (4)	GRADE (5)
	Below Avg material and workmanship	Avg material and workmanship	Above Avg material and workmanship	Excellent materials and workmanship
Floor Joists: 2x6 24oc	Floor Joists: 2x6 16oc	Floor Joists: 2x8 16oc 6½ composite 16oc	Floor Joists: 2x10 16oc 11½composite 16oc	Floor Joists: 2x12 16oc 14composite 16oc Steel I beams
Studs: 2x4 24oc	Studs: 2x4 24oc	Studs: 2x4 16oc 2x6 24oc	Studs: 2x6 16 oc	Studs: 2x6 16 oc
Rafters: 2x4 24oc	Rafters: 2x4 20oc	Rafters: 2x6 16oc truss 24 oc	Rafters: 2x8 16oc truss 16 oc	Rafters: 2x10 16oc
Ceiling Joists: 2x6 24oc	Ceiling Joists: 2x4 16oc	Ceiling Joists: 2x8 16oc	Ceiling Joists: 2x8 16oc	Ceiling Joists: 2x8 16oc
Interior Partitions: None	Interior Partitions: 2x4 24oc	Interior Partitions: 2x4 24oc	Interior Partitions: 2x4 16oc	Interior Partitions: 2x6 16oc
Or: Poles	Or: Old Style Camp style Round logs Vertical logs		Or: Milled logs	

Chapter IV
Residential Grading Specifications



ROOF

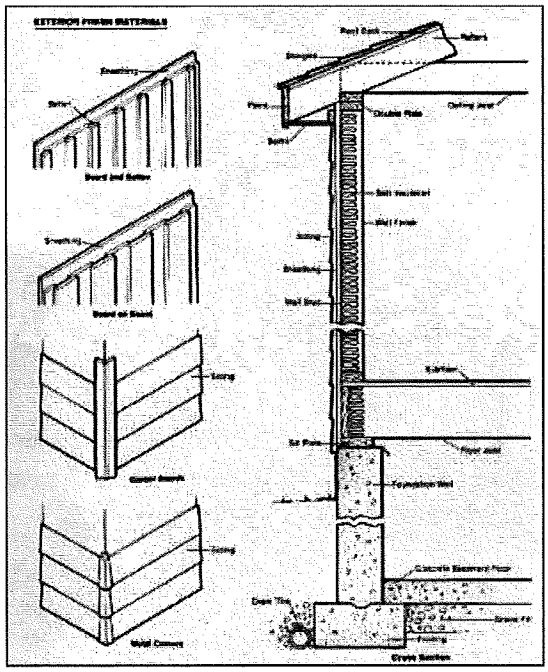
GRADE (1)	GRADE (2)	GRADE (3)	GRADE (4)	GRADE (5)
Sheathing: Spaced Boards	Sheathing: ½ CDX plywood Chipboard	Sheathing: 5/8 CDX plywood Chipboard	Sheathing: 3/4 CDX plywood T&G boards	Sheathing: 3/4 CDX plywood Diagonal boards
Cover: Roll paper	Cover: 210lb asphalt	Cover: 235lb asphalt	Cover: Wood Shingles Anodized Metal	Cover: #1 Wood Shingles Assume hip roof or window dormers Slate
Trim: Drip edge	Trim: Drip edge Raked cornice	Trim: Drip edge Boxed cornice	Trim: Drip edge Boxed cornice	Trim: Drip edge Boxed cornice Copper gutters
Support: See framing	Support: See framing	Support: See framing	Support: See framing	Support: See framing

INTERIOR

GRADE (1)	GRADE (2)	GRADE (3)	GRADE (4)	GRADE (5)
No interior finish No Insulation	Minimum Finish Old Style Lath and Plaster 3/8 Drywall visible joints Paneling Lower quality ceiling tile Minimum Kitchen Cabinets Minimum Closets	Average Finish & Trim 1/2 Drywall Softwood Kitchen Cabinets 10lf Softwood Trim Luan Interior Doors Insulation Average Ceiling Tile or Drywall Small Closets	Good Quality Finish & Trim 5/8 Drywall or Plaster Hardwood Kitchen Cabinets 18lf Hardwood Trim Panel Interior Doors Ample Closets	Best Quality Finish & Trim Plaster Walls & Ceilings Marble Countertops and sink Excellent Hardwood Trim Raised Panel Interior Doors Oak Stairs custom treads & risers Built in cabinets Walk in closets

EXTERIOR

GRADE (1)	GRADE (2)	GRADE (3)	GRADE (4)	GRADE (5)
Sheathing: Rough Boards	Sheathing: Chip board 3/8 CDX ply Square edge bds	Sheathing: 1/2 CDX ply	Sheathing: 5/8 CDX ply T&G boards	Sheathing: 3/4 CDX ply T&G Diagonal boards
Walls: Mineral paper Asphalt shingles	Walls: Hardboard T111 Board & Batten Novelty Rough log	Walls: Vinyl 5/6 T111 Aluminum Wood Shingles 2" Milled log Wood clapbds	Walls: Custom Cedar Shingles Milled logs Custom wood clapbds	Walls: Redwood Clapbds Handsplit shakes Custom fenestration
Windows: Few, low quality	Windows: Few low quality	Windows: Builders Grade Dbl Hung	Windows: Casement Dbl Hung	Windows: Bow Casement Dbl Hung
Insulation: None	Insulation: Building paper	Insulation: Air infiltration wrap Fibreglass 3 1/2"	Insulation: Air infiltration wrap Fibreglass 6" Foam board	Insulation: Air infiltration wrap Fibreglass 6"+ Foam board
Door: Exterior Door	Door: 2 Exterior doors	Door: 2 Exterior doors Solid Core 2 Storm doors	Door: 2 Exterior doors raised panel Solid Core 2 Storm doors	Door: 2+ Exterior doors custom hardwood 2+ Storm doors Atrium

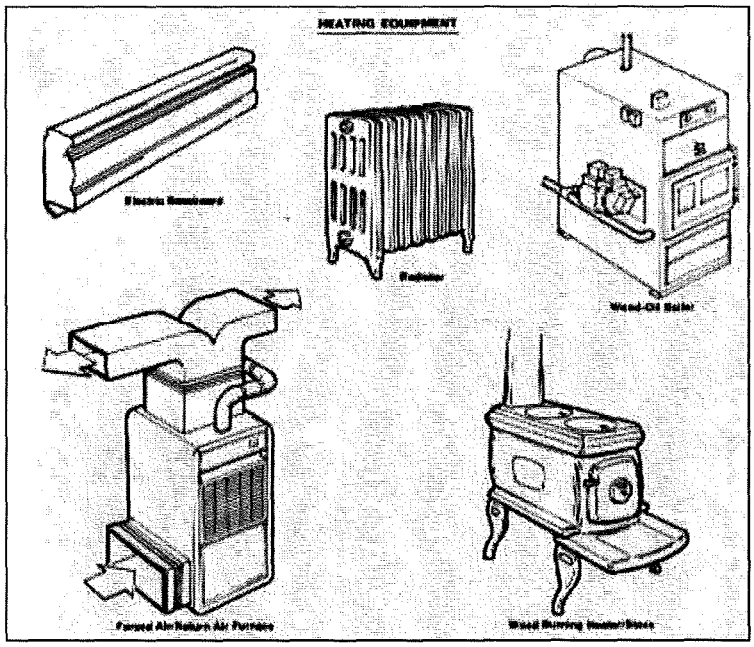


FLOORS

GRADE (1)	GRADE (2)	GRADE (3)	GRADE (4)	GRADE (5)
Substructure: See Framing	Substructure: See Framing	Substructure: See Framing	Substructure: See Framing	Substructure: See Framing
Subfloor: None Single Floor	Subfloor: 3/8 Plywood ½ Chipbd	Subfloor: 1/2 Plywood boards not tight underlayment 3/8	Subfloor: 1/2 Plywood T&G boards underlayment 1/2	Subfloor: 3/4 Plywood T&G boards diagonal underlayment 1/2
	Floor finish: Softwood 26oz carpeting Linoleum	Floor finish: Padding 32oz carpeting Linoleum embossed Matched softwood	Floor finish: Padding 32oz carpeting Hardwood Tiles	Floor finish: Padding Best carpeting Hardwood Tiles Marble

HEATING

GRADE (1)	GRADE (2)	GRADE (3)	GRADE (4)	GRADE (5)
None	Gravity hot air (no returns) Wall furnace Monitor Electric	Forced hot air (With returns)	Hot water radiant	Hot water multi zoned Central AC



PLUMBING

GRADE (1)	GRADE (2)	GRADE (3)	GRADE (4)	GRADE (5)
none	3pc inexpensive fixtures Sink Electric pump waterheater	3pc Average fixtures Sink Electric pump waterheater	3pc Good fixtures Sink Electric pump waterheater	3pc Best fixtures Sink Electric pump waterheater

ELECTRICAL

GRADE (1)	GRADE (2)	GRADE (3)	GRADE (4)	GRADE (5)
none	Minimum 60 amp service few outlets inexpensive fixtures wired for generator	Average fixtures and quality Min code # outlets 100 amp panel	Good # fixtures and quality Recessed lighting 200 amp panel 24 circuit wired for data and cable	Best quality fixtures Numerous outlets Recessed lighting 200 amp panel 24 circuit wired for data and cable Security system

The information to be obtained during the field survey of a property demands a thorough inspection to secure and record pertinent facts, observations, and opinions in connection with all factors involved in the appraisal.

As a first step, full information defining the building size and number of stories should be determined and recorded.

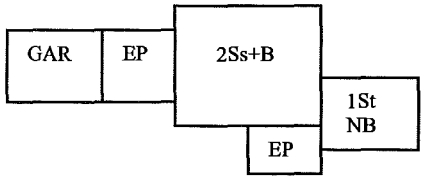
Building Sketch

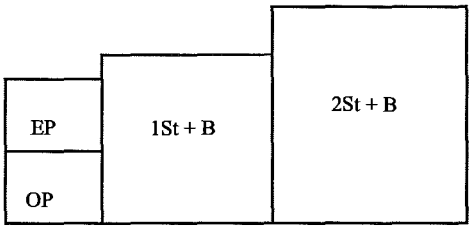
Size is determined by actual measurement of the structure. Extreme care and accuracy are required here, both in the process of measuring and in the recording of information on the field card. In the latter operation, legibility and neatness are also necessary. The building sketch should be reasonably representative (though not necessarily drawn to scale) and all dimensions accurately recorded. It should be drawn using a straightedge or template—not freehand. If a separate field card is used, and the information later transferred to a permanent office record card, a carefully drawn freehand sketch may suffice. In either case, the information should be carefully and neatly recorded.

The sketch should always be drawn with the street shown at the bottom. Each section of the building, plus all additions and attachments, should be completely identified. Measurements should be noted separately for each section.

It is essential to measure **each dimension** of the building perimeter and record all measurements. For irregularly shaped buildings, it will be necessary to total several measurements to check the correct recording of overall dimensions. To reduce the chance for errors or omissions, this check must be made in the field, together with the computation of the ground area square feet for each section.

The following diagrams illustrate correct sketching procedure:





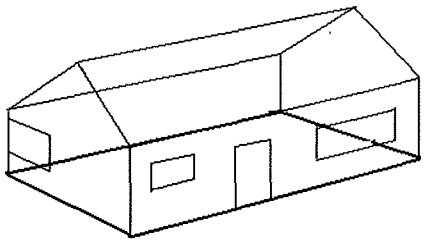
Suggested abbreviations to use in the building sketch are:

1St – 1 Story
1 ½ St – 1 ½ Story
1 ¾ St – 1 ¾ Story
2St – 2 Story
CF– Concrete Floor
B – Basement
NB–No Basement
OP – Open Porch
EP–Enclosed Porch

F – Frame
BR – Brick
M – Masonry
GAR – Garage
NV – No Value

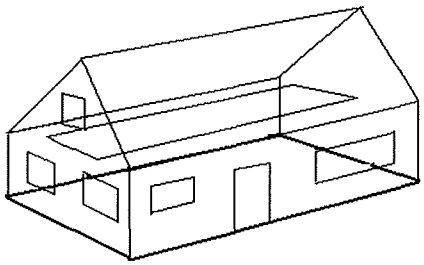
HOW TO DETERMINE NUMBER OF STORIES AND GROUND FLOOR AREA

Ground floor area is to be measured including only the shaded area illustrated in the drawings below, regardless of the number of stories. Do **not** include additions such as garages, porches, etc. in the ground floor area calculation.



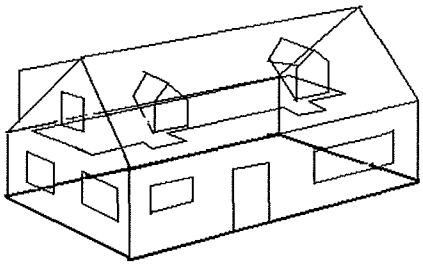
1 Story

One full floor of living area, usually at grade level. Also known as a "ranch".



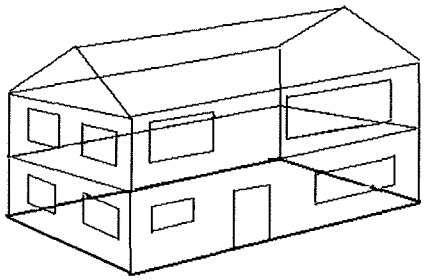
1 ½ Story

One full floor of living area, plus a second floor with about 50% as much living area as first floor at minimum 6' ceiling height, and about 65% as much living area as first floor when including all finished areas under the sloping roof. The second floor living space is usually created by a high-pitched roof only.



1 ¾ Story

One full floor of living area, plus a second floor with about 75% as much living area as first floor at a minimum 6' ceiling height. The second floor living space is usually created by a high-pitched roof plus shed and gable dormers on one or both sides of the residence.



2 Story

Two full floors of living area, one usually at grade level and one above ground.

Chapter V
Residential Field Survey

The remaining portions of the field survey involve obtaining information in connection with the five prime factors involved in the appraisal:

1) grading
2) additions and deduction (extra and substandard items)
3) physical deterioration
4) functional obsolescence
5) economic obsolescence

While these factors are identified and recorded concurrently, the analysis of each is a separate process, and even though some repetition can result, the survey procedure for each will be considered separately.

A Building Record form is recommended for fieldwork. The form lists the ten major components with which the field man is principally concerned, and space to record the grade of each component, together with adequate notations to support the grade assigned. The assessor records necessary facts in the section headed "Construction Details." As an example, the notation for a foundation might read "8" poured conc." Which, when compared with the specifications, is readily converted into "Grade C" or "3." Cracks observed in the foundation might indicate poor material, or that the footings were inadequate, and settling or heaving had resulted. If the foundation is Grade C, adequate footings or good quality materials are not required, and consequently the condition would have no effect on the grade assigned. The same condition noted in a foundation which other wise indicated a higher grade would be adversely affected as a result: a "10" poured concrete" foundation wall would indicate that it should be classified as Grade 5 construction, but vertical or diagonal cracks which revealed that it was not supported by adequate footings would require that it be downgraded, as it obviously does not conform with Grade 5 specifications. In such case, the extent of downgrading would be determined by a consideration of other specification requirements, such as depth of excavation, waterproofing, finish, etc. With all of the facts recorded, the foundation can be analyzed for representative grade. Expanding the above example, it might be recorded as follows: "Foundation: 10" poured concrete, cracking indicates inadequate footings, interior finish rough, no waterproofing evident, ¾" excavation." These facts indicate quite conclusively that, although the wall itself is 10" thick, the foundation is generally not up to Grade 5 standards and therefore, it is better classified as Grade 3. In the event that all of the other factors had indicated standard Grade 5, the lack of required footings would in itself downgrade the foundation to halfway between Grade 5 and Grade 3, which could be noted on the field form as Grade 4.0. This is, of course, an extreme example of a condition, which would seldom, if ever, be found in an otherwise Grade 5 structure.

The basement is inspected in the same way as the foundation, by comparing the construction details and utility of the area with the requirements of the specifications. In the analysis of this part of the building, the more important considerations are headroom and the utility of the space. While grading of the basement does not require much study, the inspection there produces more necessary information to evaluate the relative quality of the structure than any other part of the house. Much of the detail required concerning the framing, floor structure, heating, plumbing and lighting can be obtained by inspecting the cellar and the foundation.

All of the ten components are surveyed in the same general manner, by comparing the construction details in the specifications with those actually contained within the structure being inspected. Such facts are necessary to indicate the grade represented. Deviations, which would add to, or detract from, representative grade should be noted

on the Field Inspection Record in sufficient detail to substantiate a final determination for each component.

In the analysis of a structural unit, there are a few items that require special consideration in combination with other units or components. These include **exterior, roof,** and **floors.** In each case the **framing** must be considered as a qualifying factor when inspecting a structure for representative grade, and more importantly, rechecked when the office determination and computations are made. As shown by the specifications, the framing is a consideration in assigning grade for each of these items, and the reasoning behind this requirement is that there cannot be a full return of value or quality through the installation of a high-grade covering on a substandard structure or support. Grade A (5), or expensive, roof covering on a Grade C (3) because of, or in spite of, the covering itself. This method of analysis is recommended for the three components noted above.

In other words, intermediate grades may be assigned to any component according to the conditions found; when they obviously show that exact grading specifications are not represented by any part of the structure. In the case of flooring, for example, if the substructure (Frame) was Grade C (3), but the sub flooring was all Grade B (4) and the finish flooring Grade A (5), the representative grade of the flooring can be worked out arithmetically (3 + 4 + 5 = 12 / 3 = 4) as best indicated by Grade B (4). This is an elementary example, but more involved problems may be resolved in similar fashion.

The definition of the representative grade of **heating, plumbing** and **lighting** installations when compared to the specifications should seldom offer any difficulties upon inspection, but the **interior** will require a careful survey and the exercise of sound judgment. As the specifications indicate, the higher quality structures are conspicuous through the **absence** of imperfect materials and a **lack** of evidence of careless or unskilled workmanship in fitting, scribing, nailing and finishing. Higher grade in a residence also demands increasingly better facilities and utility space, providing an efficient layout, together with privacy, convenience and comfort. Cabinets, closets and built-in features are among the most important indicators of grade in a house. A Grade 5 house must include plenty of these features, not just enough. Without a plentiful number of them of ample size, a home that otherwise be Grade 5 would be subject to some downgrading. This does not imply that a surplus of closets will make a substandard house qualify as Grade 5, nor does it contemplate that shed or attic space may be considered as a substitute for closet or storage space.

The survey process is, in the final analysis, the careful recording of the structural details of a house as it conforms to predetermined standards in a form that may be transposed into a numerical indicator of the grade represented.

Grading specifications, once established, are not inviolate. Methods, practices, materials, and local needs, desires and opinions are subject to change.

When a trend is sufficiently noticeable to reflect a general opinion, the items or practices responsible for it will have to be incorporated in the specifications. If the newly introduced factors in grade also affect cost and value, corresponding changes will be required in the cost schedules.

Depreciation

The inspection of a structure for condition is made and recorded at the same time, generally in a manner similar to that of grading. There are, of course, no specifications or similar schedules that can

be used in this connection, as condition is a representation of the relative worth remaining after the loss of value as a result of physical deterioration has been deducted. It is always a qualifier of the estimated cost of reproduction new. The indicated **condition**, which is recorded for any or all items, must be the result of careful observation of construction details and a developed estimate of relative structural stability or deficiency as **compared to new** similar construction or facilities. The loss of value estimate in this instance is restricted to that resulting from age, wear and tear, action of the elements and similar hazards. While it is undoubtedly true that deterioration begins with, and sometimes even before, the completion of construction, if a structure is not willfully abused or its maintenance neglected, physical deterioration will usually **contribute less** to the loss in value than that occasioned by obsolescence. This is particularly so with deterioration as a result of age alone—seldom a major cause of loss in value. In these procedures, the three phases of depreciation – physical deterioration, functional obsolescence and economic obsolescence – are considered individually and measured as factually and accurately as present studies and developed data will permit. Each phase has certain standards of comparison calculated to establish a sound analytical base from which opinions or inferences leading to justifiable conclusions may be drawn.

Physical Deterioration – Condition

The standard of comparison for estimating the indicated loss of value in a structure as a result of physical deterioration is the relationship of the value remaining in the physical structure to a new and similar structure of the same quality or grade. This will seldom return an answer with any determinable degree of precision, but usually a thorough survey will produce enough information for the appraiser to form an opinion that is sufficiently accurate to justify the assignment of a representative condition ratio or percentage.

Although the facts relating to the condition of the components of a structure are observed and recorded at the same time (and as a complementary process to the inspection for grade), it is most necessary that each is recognized for what it is: a separate and distinct study. **Grade** is a systemized rating or representation of relative quality of a structure according to predetermined standards and is concerned with **construction. Condition** is a measure of the degree of **destruction** present in a structure, compared with what remains after deducting for deterioration. A house subject to a 20% deterioration allowance is in 80% condition. This is the recognition in positive terms of the loss of value attributable to the physical deterioration of a structure, rather than the negative form expressed through the use of "deterioration" as a measure. The use of "condition" both as a positive expression of loss of value and initial modifier of the cost of reproduction of a structure permits the use of a representative "observed condition" schedule and simplifies office computations.

The urgency for serious study of the nature of grade, as opposed to condition, to prevent any possibility of confusion in recognition or recording in the field cannot be stressed to emphatically. Referring again to the example previously used in discussing the process of grading a foundation, a cracked foundation wall **may**, in some instances, serve as an **indication** of **grade** but it is **always** evidence of physical deterioration that must be considered for its effect on value. It should be noted that the relative effect of deterioration from specific causes that do not affect the structure too seriously might vary in value according to the grade of the structure.

Severe cracking of plastered walls can often be considered a reliable signal that the construction is substandard. The inspection will usually reveal the cause, which might be attributable to inadequate foundations, weak framing, excessive shrinkage of

framing members when green lumber was used in the structure, or any of many other conditions. The **cause** is often attributable to the grade, or quality lacking in the structure, but the **result** must be recognized, and the loss of value accounted for as observed physical deterioration present. Similarly, water stains on ceilings, around window or doorframes, peeling wallpaper or paint, and patched plaster should be noted and the cause determined, if possible. Usually it can be traced to faulty or substandard construction, with the notable exception of plumbing failure as a result of frozen pipes or overflowing of fixtures and roof leaks resulting from neglected maintenance. Exceptions of this kind do not involve grade, but are direct deterioration charges.

The estimate of loss in value in any single component as a result of physical deterioration cannot be completed with any mathematical nicety. The measurement is pretty much restricted to one of two considerations: an estimate of the cost to correct the condition which exists or, when the condition cannot be corrected, an estimate of the representative loss in market value (percentage wise) as a result of the observed deterioration when compared to new, similar construction of the same quality. In the first instance, if the cost to correct can be estimated with reasonable accuracy, or may be subject to predetermined corrective charge, which is considered representative, the estimate or corrective should be noted on the field record card (in dollars) as a straight deduction, in addition to recording the conditions found.

When the deterioration noted is not correctable, the opinion of relative condition must be resolved into an indicated condition percentage through observation and judgment. The schedule of percentages is probably best established by considering local conditions and standards as reflected in the market or, lacking an adequate market for cost studies, local opinions of relative desirability. If it is the practice to allow an initial depreciation for new construction of 10%, to top limit for excellent condition is 90%. Generally,
50% is considered the maximum allowance for deterioration in a structure that is serviceable or in service. Under such conditions the schedule of deterioration allocation might be:

Schedule #1 – Condition

Excellent	90%
Good	80%
Average	70%
Fair	60%
Poor	50%

Unserviceable under 50% -- according to degree of deterioration.

Where it is customary to allow an initial deterioration of 5% for new or relatively new structures, the schedule recommended is:

Schedule #2 – Condition

Excellent	95%
Good	85%
Average	75%
Fair	65%
Poor	55% - 50%

Unserviceable under 50% -- according to degree of deterioration.

Depreciation is loss of value from any cause. It is measured through the cumulative effect on value, as of a given time, of three separate, concurrent factors which together compromise depreciation in the broad sense. These factors are: physical deterioration, functional obsolescence and economic obsolescence. The first two are confined to the property itself and are inherent forces resulting in a loss of value. The third is

extrinsic; a loss of value due to causes outside of the property over which the owner has no control.

The amount of depreciation existing in a property is measured by the extent that it falls below accepted, desirable standards.

The belief that there is any such thing as "normal" depreciation that can be readily translated into curves, charts or tables (or into other forms where age is a direct measure of depreciation) is rejected by a thorough study of the methods used, and also by the number of specific properties that the assessors must contend with in the State of Maine.

All "age life" or "life expectancy" methods necessarily include the effects of obsolescence as a "normal" part of growing old, and consider that these effects accrue at a given rate per year. Surely, an appraiser should not classify houses 100 years old or more as Grade 3 (or even Grade 4) structurally by comparison with modern construction methods and practices, and allocating an "effective age" of 30 years or less. Such methods cannot be justified on the grounds that they ensure equality. Unless extreme care is used and the appraiser is well qualified to make the many adjustments necessary for variations from "normal" conditions, gross inequalities may result. The **methods** are used **uniformly** in all valuations, but the values returned may not be representative of **equality.**

On the other hand, if the appraiser is qualified to evaluate the many variations from "normal depreciation" that may be present in each structure, a very detailed examination and analysis is required. The information obtained should be adequate to support an estimate of the depreciation contained without recourse to tables or other expedients used principally to reduce the cost or effort required by good assessment practice. Several past studies of assessment appraisal have been particularly critical of assessment procedures that fail to recognize and to make proper allowance for obsolescence in its various forms. The use of methods employing arithmetical prophecy as a basis for determining depreciation allowances is more likely to lend added support to this criticism than to overcome it.

In these procedures, depreciation is considered as best measured through observation, informed judgment, and comparison with accepted standards of workmanship, materials, utility, and location. It is conceded that depreciation cannot be measured with meticulous precision. But it can be identified as to cause and resulting loss of value with sufficient accuracy to be both representative of the conditions and defensible as a practice.

Experience suggests that a structure used for the purposes for which it was intended must be considered as never coming to an end of its life. If this should happen, the property immediately loses it character, its utility – and its value. If physical property is renewed and maintained, there can be no such thing as a predeterminable limited remaining life service.

In each instance, depreciation allowances must be estimated through observation, informed judgment and study. The final analysis takes into consideration the actual physical condition of the structure and its relation to other mutually dependent units contained in the property; the result of wear and tear through use, the effect of age and the action of the elements; the effect of restorative repairs that have been made; all combined with other studies dealing with the presence or absence of desirable features for modern living, as well as the location of the property.

Although depreciation consists of three elements, these elements do not have an equal impact on value, nor is there any way of predetermining the relative impact each may have on any specific property, short of

a thorough examination of the physical property and its surroundings. There is no controlling requirement that they must each be considered as individual modifiers of a common figure in the appraisal process: the cost of reproduction new. There are good reasons for considering that these elements are actually used better as successive modifiers, beginning with the cost of reproduction new in the customary order of listing: physical deterioration, functional and economic obsolescence. The principal reasons are that value is developed in logical sequence in accordance with the nature and probable effect of the several forces of quality, condition and location. With this method, the appraiser is provided with more definite guides for depreciation allowances, and cause and effect are identified as clarified to assist the assessor in explaining, and the property owner in understanding, the reasoning and process used in the value estimate.

This method also attempts to simplify for assessment purposes what is actually a complex problem. In the process, physical deterioration is recorded as a positive factor condition – an easier concept with which to work. Functional obsolescence is considered under that heading, but described and explained as a measure of "old-fashionedness," or the lack of desirable features and utility compared to modern standards. Economic obsolescence is explained as "location," and measured in terms of relative desirability.

The process first acknowledges the fact that the cost of construction of a building of given size and quality is the same for any other similar building in any area where the cost of labor and materials are the same. Regardless of where it might be, the loss of value to the structure as a result of its condition (physical deterioration) is inherent in the structure itself, and this becomes the first qualifier or modifier of the cost of construction. Somewhere, the structure will suffer to the extent of the lost value attributable to its use or neglect; it cannot command or contain a defensible value beyond this initially depreciated cost of reproduction in the market place. The figure so obtained is often called the "sound value."

The old-fashionedness (functional obsolescence), or lack of utility and desirability, contained in a property is also inherent in the structure itself, so the sound value is subject to further modification according to the loss in value from these origins from predetermined standards without regard for the situation (location) of the building. This depreciated figure now represents the estimate of value of building, considering all of its structural and functional shortcomings, but ignoring outside influences on value.

Buildings in different locations, identical both as to condition and desirability, are subject to a wide variance in value.

Location (economic obsolescence) then, must be a determining factor in the final estimate of value and may even by the controlling factor, for the final estimate of value will depend upon the advantages or disadvantages of the location in which a building is situated.

It is not uncommon to find that by far the greatest loss in value to a building, irrespective of its age, is directly assignable to the location factor (or economic obsolescence).

The schedules for condition are suggested as rough guides to supplement the appraiser's observation. Both schedules provide for an initial depreciation allowance, and both are based on the opinion that a structure in less that 50% condition cannot be considered serviceable or useful.

It is true that the assessor will encounter buildings that are occupied and used, but in such dilapidated condition that they must be

rated as in less that 50% condition. These exceptions will only serve to emphasize the fact that, considering modern standards of living, the structures cannot be serviceable or useful in an appraisal sense even though used for what protection from the elements the may provide to the inhabitants.

100% condition is the circumstance existing at the moment of completion in a brand new property. After use in its initial service capacity that is inescapable in any new structure. This is a balanced condition of newness and efficiency that was presumed when the structure was built, and the term "excellent" is used to identify it. This denotes a first class structural condition that will exist only as long as adequate maintenance is continued and the property is not otherwise abused. No expenditure of money or effort can restore a totally deteriorated property to 100% condition and failure to compensate for accumulating deterioration over any property to good condition, or even poor condition without recourse to reconstruction rather than repair.

In analyzing the component parts of a house, the condition rating should be determined a considered opinion of the observed condition compared to new construction **of the same quality or grade,** or 100% condition. This rating will have sufficient elasticity to cover the in-between properties. "Not good, but better than average" would rate an "indicated condition" of 80% and "better than good, but short of excellent," 90%, using Schedule 2.

In some cases, a double allowance may be required to reflect a condition adequately. If a basement is usually wet following heavy rains, the fact would be recorded and a deduction which is representative of a possible correction (such as a sump pump) might be allowed. A basement that is "often wet" would be allowed the corrective, plus an additional deduction sufficient to acknowledge the relative undesirability of the condition. The corrective deduction recognizes and compensates for the loss of value from existing unfavorable conditions as a result of the invasion of water, but it does not consider the cause, only the remedy. Considering this fact in relationship to the specifications for the various grades of buildings, it is readily apparent that this would have no important significance in low grade properties such as those that are Grade 2 or 1 and relatively little more to Grade 3. The indicated condition percent for the basement of Grade 2 and 1 properties where this condition might exist could justifiable be considered as 75, especially in areas where the condition is not uncommon, and the corrective would serve as sufficient acknowledgment of and compensation for the probable loss in value. A Grade 3 property, being somewhat under standard, is probably entitled to some additional allowance for "often wet" as the **indicated condition,** but no allowance would be made if the basement were wet only occasionally.

The situation with regard to Grades 5 and 4 is quite different, as both these grades are above the median established as representative of current standards. Wet basements in houses of these grades could not be rated above **fair** (65%) and probably would demand a rating of **poor** (55%) as the indicated condition.

The fact that a structure is old does not mean that it is necessarily weak in structure or unstable. A common characteristic of old Maine dwellings, found in profusion throughout the state, is that the floors are resilient and seldom level. The resiliency is attributable to basic deficiencies in structural design as compared to modern standards and practices in construction. Careful observation of the interior, especially the fit of windows and doors, will establish that neither the off level floors nor the frame have settled or otherwise gone out of position – they remain substantially as they were when the house was built. The sloping floors have been springing with the steps of

several generations. These attributes are not evidence in themselves of physical deterioration and are the natural and expected result of the type of construction. The specifications for Grade D (4) residences include this quality of construction, and the inspection of property of this nature requires particular care in differentiating between construction as denoted by grade, and destruction as reflected by deterioration.

On the other hand, the fact that a structure is relatively new is no positive assurance that it is subject to little allowance for deterioration. Two comparable new homes, one occupied by a retired couple with a penchant for home improvements and orderliness, the other lived in by two energetic young extroverts who are enthusiastic about parties and their five small children, will soon reflect both the characteristics of their owners and the tangible effect of care and repair as opposed to use and abuse.

Recording Condition – All components of the structure and its facilities are inspected and rated for **indicated condition** from observation and objective comparison with an ideal, new (or 100%) condition to the extent required to formulate a justifiable opinion. Brief notes tending to support the conclusions should be included on the record card, together with the condition percentage.

Obsolescence
All known or observed conditions within or outside of the property that could conceivably affect its value through obsolescence should be noted in the space provided at the bottom of the field record card.

Functional Obsolescence *(lack of desirability or utility as compared with modern standards)*
Functional obsolescence is indicated by a percentage representative of the loss of value resulting from the outmoding of part of the structure being appraised. It is always inherent within the structure itself. In analyzing a structure for functional obsolescence, the appraiser is concerned with its relative desirability, conformity and utility according to current standards. It cannot be measured precisely in most instances, as it deals with inadequacy, super adequacy, conformity or non-conformity of style and design, desirability, utility and efficiency of layout and modernity of equipment. It is probably best defined for our purpose as "the measure of the 'old-fashionedness' of a house."

A basic test as to whether functional obsolescence is present to any extent is to examine a building with this question in mind, "If the house were being built today would it retain the same general characteristics?" If the answer is "no," chances are that the house lacks some desirable functional utility usually expected with modern standards and consequently, there is an indicated loss of value. This test is not completely reliable in all cases, as it assumes that a new property has no functional obsolescence. Many houses are built that lack utility or the convenience demanded by current standards and are functionally obsolete, even though new.

A study by a leading real estate analyst reveals a definite trend in some areas away from houses built on concrete slabs. The undesirability of basementless homes is reflected in those markets. They are becoming harder to sell and finance, according to this authority and, more importantly increasing numbers of them are showing up for resale in the market because their owners are dissatisfied. As evidence of the fact that houses of this design are now functionally obsolete, the study shows that otherwise comparable houses in the same sections of the country **with** basements command a higher resale value. In places where the need for shelter is still acute, this situation probably has not yet developed,

and it is quite possible that in other areas it may never develop. A study of the local market will be required to formulate an opinion and policy.

The field inspection of the interior of a house should create certain definite impressions as to the relative desirability and utility of the structure without too much special analysis or time-consuming study of details. The general impression of the lack of desirable features and utilities, or the presence of undesirable qualities, which are inherent in the structure, will usually provide adequate information to identify and record the functional obsolescence satisfactorily.

With the possible exception of Grade 1 buildings, which are only expected to provide the minimum requirement of shelter, all houses must include some degree of privacy and convenience to be desirable and readily marketable. Many of the older Grade 3 and most of the Grade 4 homes will be found functionally obsolete in several respects, and representative allowances must be made to compensate for the loss of value as a result of the changing habits, social traits and utilitarian requirements.

There are many factors in structure or design that may presage a loss in value as a result of their presence or absence in a home. Among them are: poor layout, too many rooms, too small rooms, too large rooms, too high ceilings, too low ceilings, an unattractive style, lack of privacy, lack of convenience and utility of space, and outmoded facilities. A house may be too large or too small for modern requirements. All factors observed that might have a bearing on the estimate of functional obsolescence should be recorded. A high-grade house can be too modern in style to the point of being bizarre and, as a result, lose its desirability in the market. This, too, is a loss in value attributable to functional obsolescence. As styles are developed differing from the conventional or generally accepted standards, there is always the possibility that they will not meet with general acceptance.

Functional obsolescence factors – inadequacy and the like. More often than not, these factors constitute the reason for the abandonment or destruction of buildings. They are unpredictable forces and do not "accrue" at any fixed or prophetical rate through the life of the building. They **happen** at definite times. At the time of the appraisal they exist or they do not. If evidence of their existence is present, it should be accounted for by a compensating loss in value.

To some extent the outmoded characteristics of a building may be correctible. In cases where the obsolescence can be corrected, the cost to correct is the measure of lost value and may be expressed as a deduction in dollars or percentage wise. It is seldom that conditions of this kind can be entirely or even satisfactorily corrected, however, except at excessive expense. The loss of value is obviously much more difficult to estimate in those circumstances. To obtain sufficient basic background data to approach a situation of this kind with any amount of assurance requires time and careful study. It cannot be accomplished without effort. A complete, continuous and painstaking study of sales experience over extended periods of time, as well as of the character, features and shortcomings of the properties sold, is essential. (See Chapter VIII, Equalization of Assessments.)

Economic Obsolescence *(the effect of location on value)*
Up to this point, only the physical structure of the house has been considered. Economic obsolescence is not concerned with the property itself, but rather with the advantages or disadvantages of its location. It is a loss of value resulting from condition outside of the property over which the owner has no control.

In the procedures outlined here, the impact of economic obsolescence upon building value is measured by rating the relative desirability of certain significant **location factors** for a specific property when compared with all other property in town, and the town as a whole when compared with other municipalities. This method concedes a possible loss in value beyond that of any other single factor or group of factors of depreciation for a good house in a poor location.

Each of the location factors should be considered and rated from observation and investigation, together with enough supporting information to substantiate the rating. If other economic factors that could conceivably influence the value of the property are in evidence, the information should be recorded.

Ratings are assigned numerically using 20 for "excellent" to "0" (any numerical scale may be used) for "totally unsatisfactory." Intermediate conditions are identified accordingly, using the best and poorest locations in the assessment district as guides to the probable desirability of the specific location.

The five major factors in economic obsolescence (or location factors), as used in these procedures, are: neighborhood, accessibility, utilities, services, and topography. It may be argued that, as the land is part of the property itself, topography is not properly catalogued as a factor in economic obsolescence, and any loss of value attributable to it is imputable only to the land. It is suggested that the loss of value due to poor topography meets the test of economic obsolescence as it: is usually beyond the owner's control, is seldom correctible, is a force entirely outside the structure concerned. Topography factors do affect the value of subject as a whole, usually to a greater extent than to the value of the land itself. Used in that sense, it seems justifiable to include topography as a factor of economic obsolescence. In any case, the loss of value as a result of unfortunate topography will affect the value of a residence in the eyes of the typical buyer in the marketplace.

Neighborhood refers to the immediate surroundings. The rating is determined by considering the suitably of a house to its environment, giving due weight to conformity, character and use.

Commercial encroachment in the neighborhood will usually detract from the value of residential buildings (although it would be expected to have the opposite effect on land value.)

Industrial encroachment customarily suggests a loss of value to adjacent and surrounding residences, but even this cannot be presumed as a natural consequence. In rural areas, and even in some medium-class urban sections, proximity to a plant with modern buildings not inappropriate to the environment might have little effect on residential property values.

Accessibility is concerned primarily with roads and distances. Public transportation facilities are also relatively unimportant except in the more heavily populated areas; the distance from schools, churches, shopping centers and similar facilities no longer exert too much influence on where people choose to live. As a general rule, schools can be considered as near as the school bus stop, shops, churches and amusements, as near as the family car. As these factors may have more or less weight according to the customs and traits of the inhabitants of a specific town. If the sales experience in a certain town shows conclusively that people do pay more for property in the immediate vicinity of a particular church or school, or along bus routes, then the accessibility rating should be tempered to acknowledge local standards.

Utilities include electricity, telephone and gas. The rating for utilities is seldom difficult to determine. They are either present and available, or they are neither.

Services refer to water, sewer, fire and police protection, waste removal, snowplowing and similar services. The measurement of services must be based on the best available services provided in the particular town. Sections which are provided with only part or none of the services available would be rated accordingly. In a large, progressive municipality, probably all of the services mentioned would have to be considered in establishing relative values, while the majority of small towns offer much more limited services. In the latter case it is presumed that the top rating would include a dependable water supply with an electric pumping system and an adequate septic tank for waste disposal.

Topography is rated according to the suitability and desirability of the lot to the house. A driveway that is cut into a banking on a sharp highway curve would be both difficult of access and hazardous, and would down-rate the topography factor. A lot which pitched off sharply so that it would not be possible to landscape and improve the backyard or provide any desirable outdoor living space. The allowance for loss of value would vary according to the price range or quality of the house. Higher quality properties are expected to provide more amenities, privacy and freedom of movement. This factor is not as common a cause of loss of value as some of those preceding, but is a point that must be considered for any property, with the probable exception of the lower grade houses and tenements.

Other location factors are always subtracted from the total of the preceding five considerations, as they represent an additional loss of value from unusual or unpredictable causes. If a residential street is so improved, or if by using the street traffic congestion on the main thoroughfares can be avoided, making it attractive to through traffic and heavy trucks, neither the neighborhood nor accessibility have changed, but the new condition does result in a loss of value compared with other similar streets.

Using an example of a house without a water supply or well on the property, the full loss in value accounted for under Services as "unsatisfactory," does not fully compensate for the lack of desirable convenience and standard facilities, so an additional obsolescence deduction is warranted under this heading. The reasoning behind this suggestion is that, as obsolescence is loss in value compared to modern standards and practices, a 20-point deduction allowed under **Services** will compensate for lack of water service to the house, but another deduction is desirable to compensate for lack of a source of supply and the necessity of providing a well on the property. If two equally desirable houses are available and one has a satisfactory, dependable water supply and modern facilities, while the other hasn't even a source of water to draw on, may be more than 20% differential in value, disregarding any other factor or consideration.

Any situation or condition that requires adjustment under this heading of "other" should, of course, be sufficiently explained to substantiate the reduction in value.

In summary, **Grading, Extra and Substandard Items, Physical Deterioration, Functional and Economic Obsolescence** are the essential elements in a field survey. Each should be carefully considered in arriving at value.

Chapter VI
Residential Pricing

GRADING

An analysis of the facts recorded on the field survey form will provide sufficient information for each component part of the building to indicate the representative grade when compared to the specifications. As previously stated, the indicated grade of the component is entered numerically in the left-hand column under **Grade** and information necessary to affirm and substantiate the grade assigned recorded in abbreviated form under "construction details" which, in cases where the structural component is found to agree with the specifications of a particular grade, may be sufficiently identified by corresponding grade letter. When the indicated grades for all ten items have been entered, they are added and the total entered in the space provided at the bottom of the column and then divided by 10. The result is the indicated overall grade of the building. To illustrate, suppose all components were found to be Grade C; the number 3 would appear in all ten of the of the left-hand spaces; adding the figures would total 30; 30 divided by 10 is 3, or the numerical equivalent of Grade C. Of course, when all components are of the same grade, the overall grade is immediately obvious, and the computation process, as shown above for illustration purposes, is not necessary.

The developed grades will usually be in decimals such as 2.4, 3.7, 4.2, etc. It is recommended that the decimals be carried to only one place (tenths) to simplify pricing, and because additional precision is neither desirable nor necessarily productive of more accurate results. A grade 2.4 is representative of a "Grade D plus 40%," grade 3.7 represents "Grade C plus 70%." In all cases, the "plus" percentage is the percentage of the **difference between** grades, which will be covered in more detail under "Computation of Valuation."

CONDITION

The effects of physical deterioration which have been observed during the field survey, together with the indicated condition percentage as compared with new, are entered on the Building Record and they represent overall condition. The condition percentage for a structure is not carried out to decimals or fraction parts.

It is again emphasized that 100% condition is applicable to a new and unused structure. Even in such rare cases as may be found that might conceivably be entitled to this rating, an initial deterioration allowance of 5 to 10 percent is recommended.

The measurement of average condition is made through observation and comparison with an ideal 100% standard of a building for structural stability, strength, and deterioration through use. With relatively new, well-maintained home which has not been abused, 95% is noted under "Condition."

ADDITIONS AND DEDUCTIONS

Extra features and units beyond the specifications as identified and described, should be priced in the proper column on the Building Record, together with deductions for standard items. Extras, additions and deductions in such detail as required for adjusting base costs are generally identified both as to the item and cost. Supplementary data will undoubtedly have to be developed in most towns to cover regional and local conditions and problems. One problem that will be troublesome at times is the question of whether an item is an extra, or included in the grade under certain conditions. For example, a house may grade to C plus 80% (3.8) but include a plumbing system that is over-grade or "B" quality. In such a case the appraiser must determine whether or not there is added increment of value attributable to the higher quality plumbing.

Care should be taken to acknowledge added value to the house when the unit or item actually adds value to it. However, there are cases where extra items or built-in features may have contributed to extra cost when installed, but due to lack of utility and desirability they do not add value now. A case in point is the matter of fireplaces. Usually a fireplace will add to value; even artificial fireplaces, if they are ornamental and desirable, call for some additional value.

Porches, platforms and other similar attachments are identified as to kind, size and grade on the building sketch, and costs obtained from the cost schedules are noted on the sketch so they may be readily identified. The total cost of such additions is usually carried over to the computation column.

The "Add" and "Deduct" columns are totaled and the smaller of the two subtracted from the larger total. The remainder or "net" is entered in the column below the larger total and will show whether the amount is an addition or deduction in the cost of the structure.

COMPUTATION OF VALUE

Four lines are provided for the initial determination of the base cost of reproduction of the structure. Often only one line will be required for the purpose, but the additional lines are necessary for buildings with ells or additions of different story heights or grades. Calculation of the cost of reproduction would be somewhat involved using the more common pricing schedules as included in most manuals with these procedures for, with intermediate grades, it would be necessary to compute the value for two grades and add the indicated percentage of the difference between them to the base grade. This is overcome by preparing special schedules in a form relatively easy to use and quite fast in operation. The pricing schedules accompanying these procedures are reduced to integrals of 20 square feet of ground area and include the difference in value from the next higher grade in each instance except for **Grade A** structures, as grades above "A" are not within the scope of these procedures.

The story height, grade and ground area nearest 20 square feet are noted in the spaces provided under "Computation of Value" as computed and recorded on the building sketch. The indicated Cost of Reproduction is determined from the cost schedules and entered on the card under "Rep. Cost." For structures of even grade, this figure is immediately apparent from the cost schedule for that grade. For structures of intermediate grades, which will be the majority of cases, an additional step is required.

As explained previously in this chapter, the decimal portion of the grade refers to the percentage of difference between grades. The cost schedules for each grade include a table showing the difference in value from the next higher grade for any given ground area. To use schedules, it is only necessary to find the cost of a structure of the area and whole grade number and add to that figure the percentage of the difference indicated by the decimal following. That is, given a 1 1/2 story building, grade 3.7, and area of 900 sq. ft., first find in the Grade C schedule the indicated cost of reproduction of a 1 1/2 story structure with 900 sq. ft. of ground area ($122,030), then, as the grade in this example is 3.7, .7 or 70% of the adjacent figure in the "difference" column between Grade B and Grade C is added to the initial cost figure to arrive at the cost of reproduction for a grade 3.7 structure, or $122,030 plus 70% of $59,730 ($17,919) = $157,868.

The **Adjustment** is the addition or deduction necessary to compensate for extra, over-grade or substandard item features. The "NET" amount is brought over and the word or symbol for (plus) or (minus) inserted to indicate that the amount is to be

added to or deducted from the cost of reproduction as shown. If it is to be added, the word "plus" or symbol (+) is entered in the space provided.

Condition is the complement of Physical Deterioration, and the observed condition percent is brought over and used as a direct factor or qualifier of the adjusted cost of reproduction.

Functional Obsolescence is also calculated as a positive factor by subtracting the total Functional Obsolescence percentage from 100%. The resulting factor is applied to the subtotal above. This process recognizes the loss in value attributed to the items of functional obsolescence noted in the survey. The dollar value computed to this point in the calculations represents the cost of reproduction less the depreciation inherent in the structure as a physical unit. Extrinsic depreciation or economic obsolescence is applied as a qualifier to this value.

Economical Obsolescence expressed as a **Location Factor** is the rating of the actual location as compared with the 100% or most desirable location for the subject. It is used as a direct modifier of the preceding depreciated subtotal and reflects the loss of value attributable to the location. The figure obtained represents the final estimate of the Cost of Reproduction less Depreciation.

OUTBUILDINGS

Outbuilding unit prices are built up from special cost schedules according to the type of construction. The condition percent is arrived at through observation of physical deterioration and careful analysis of the utility of each building and the extent to which it contributes to the value of the property unit. A henhouse in excellent physical condition, regardless of its quality and size, located in a town where zoning laws prohibit keeping hens, is of little value unless the owner can find some alternate use for it. A large barn located on a property which was formerly a farm and is now a residence has a value only to the extent to which it can be utilized in a residential occupancy. If it best potentiality is for the storage of the family car, it should be depreciated as being obsolete to fairly represent its value in use to the unit: as a one-car garage. If the barn is partially used, the condition percentage should represent a fair estimate of the relative utility or contribution to value attributable to that use.

Of course, if the buildings are used for the purposes for which they were intended and are being employed to their full capacity, the condition percent will consider physical deterioration only, for there is no obsolescence involved. Cost Schedules and specifications differentiate types and quality of barns and outbuildings sufficiently so that the facilities and conveniences are either included or may be accounted for as extras.

CONCLUSION

The derivation of the final Cost less Depreciation as outlined above will undoubtedly encounter technical differences and objections in some instances, based primarily on the premise that the three kinds of depreciation should be added together and applied as a total percentage in a single operation to the adjusted cost of reproduction new to produce a "correct" answer.

The accuracy of either method is entirely dependent on the accuracy of the facts established and the ability of the appraiser to properly evaluate the facts into terms of percentage or dollars. The method outlined will permit a sound, standardized approach to value: the values developed can be justified and substantiated as representative proportionate in comparison with other individual properties or with property as a whole within the assessment area. Either method, correctly used, will return substantially the same answer.

This method presumes that physical deterioration in some degree is always present and must be acknowledged. The structure cannot be worth more than that depreciated figure and any further loss of value due to other causes must necessarily supplement that figure. Functional Obsolescence is estimated and deducted as a percentage of the cost less physical deterioration. This value is representative of a structure only and considered without reference to location. Again, this figure is the highest possible value that can be ascribed to a structure, even in the ideal location. Placing the same or a similar structure in different locations will result in different values, but they are always based on the highest value that the structure can have after physical deterioration and functional obsolescence have been allowed for, modified by the loss in value resulting from the deficiencies of the location in which it placed.

In procedural form, the system is necessarily complicated by attempting to describe in words what is essentially a field operation that can be explained by demonstration. The process is not difficult, but to be effective it requires actual detailed physical inspection of every property. It will soon be evident that many of the points stressed are obvious through experience or training, and the inspection and recording is a fast operation in most cases. The exceptions are most time consuming, and here the method is best demonstrated since these exceptions present the problems that are usually overlooked or ignored and represent major sources of trouble and difficulty for the assessor as a result.

The comparatively new or modern structure seldom presents much difficulty in arriving at a representative estimate of value using any of the accepted assessment appraisal methods and practices. The older, less valuable houses are much more difficult to appraise in both time and effort required and (of more direct concern) because of the many factors of functional and economic obsolescence that must be considered to develop a defensible value estimate. This major problem, involving a majority of houses in many municipalities, is too often underestimated or ignored in the assessment process. Procedures intended to emphasize significant facts and considerations that are most necessary of recognition on the part of assessors in his connection must be followed in order to achieve the desirable equalization of valuations.

The procedures and computations recognize the premise that the initial steps in arriving at the value estimate for any given property consist almost entirely of recorded facts and ordinary arithmetic. The transition from cost estimate to the final opinion of value requires knowledge, experience, and, above all, the ability to use good judgment in the application of economic and valuation principles. The accuracy and adequacy of any appraisal lie in the estimate of depreciation allowances and not in mathematical curves, tables, or schedules.

It should be noted again that thorough inspection is the rule, and neither construction nor condition can be presumed or assumed from exterior observation or probable similarities to other structures.

Ground Area	Grade A(5)	Diff A-B	Grade B(4)	Diff B-C	Grade C(3)	Diff C-D	Grade D(2)	Diff D-E	Grade E(1)
300	95880	32370	63510	19500	44010	13190	30820	15060	15760
320	99850	33590	66260	20350	45910	13650	32260	15660	16600
340	103820	34810	69010	21190	47820	14130	33690	16250	17440
360	107800	36040	71760	22040	49720	14590	35130	16850	18280
380	111770	37260	74510	22880	51630	15070	36560	17440	19120
400	115740	38480	77260	23730	53530	15530	38000	18040	19960
420	119810	39790	80020	24580	55440	16000	39440	18620	20820
440	123880	41090	82790	25430	57360	16480	40880	19200	21680
460	127950	42400	85550	26280	59270	16960	42310	19770	22540
480	132020	43700	88320	27130	61190	17440	43750	20350	23400
500	136090	45010	91080	27980	63100	17910	45190	20930	24260
520	139530	45840	93690	28880	64810	18260	46550	21650	24900
540	142970	46670	96300	29780	66520	18610	47910	22360	25550
560	146420	47520	98900	30670	68230	18960	49270	23080	26190
580	149860	48350	101510	31570	69940	19310	50630	23790	26840
600	153300	49180	104120	32470	71650	19660	51990	24510	27480
620	157420	50400	107020	33290	73730	20160	53570	25090	28480
640	161540	51620	109920	34110	75810	20660	55150	25670	29480
660	165660	52830	112830	34930	77900	21180	56720	26250	30470
680	169780	54050	115730	35750	79980	21680	58300	26830	31470
700	173900	55270	118630	36570	82060	22180	59880	27410	32470
720	177080	56220	120860	37320	83540	22550	60990	27880	33110
740	180260	57170	123090	38070	85020	22930	62090	28350	33740
760	183450	58120	125330	38840	86490	23290	63200	28820	34380
780	186630	59070	127560	39590	87970	23670	64300	29290	35010
800	189810	60020	129790	40340	89450	24040	65410	29760	35650
820	193230	61140	132090	41040	91050	24370	66680	30390	36290
840	196650	62260	134390	41730	92660	24710	67950	31030	36920
860	200080	63390	136690	42430	94260	25030	69230	31670	37560
880	203500	64510	138990	43120	95870	25370	70500	32310	38190
900	206920	65630	141290	43820	97470	25700	71770	32940	38830
920	210100	66600	143500	44520	98980	26040	72940	33420	39520
940	213290	67570	145720	45220	100500	26390	74110	33900	40210
960	216470	68540	147930	45920	102010	26720	75290	34400	40890
980	219660	69510	150150	46620	103530	27070	76460	34880	41580
1000	222840	70480	152360	47320	105040	27410	77630	35360	42270
1020	226250	71640	154610	48130	106480	27700	78780	35860	42920
1040	229660	72800	156860	48940	107920	27990	79930	36360	43570
1060	233070	73970	159100	49730	109370	28290	81080	36850	44230
1080	236480	75130	161350	50540	110810	28580	82230	37350	44880
1100	239890	76290	163600	51350	112250	28870	83380	37850	45530
1120	242860	77210	165650	51920	113730	29250	84480	38380	46100
1140	245830	78120	167710	52490	115220	29630	85590	38930	46660
1160	248800	79040	169760	53060	116700	30010	86690	39460	47230
1180	251770	79950	171820	53630	118190	30390	87800	40010	47790

Ground Area	Grade A(5)	Diff A-B	Grade B(4)	Diff B-C	Grade C(3)	Diff C-D	Grade D(2)	Diff D-E	Grade E(1)
1200	254740	80870	173870	54200	119670	30770	88900	40540	48360
1220	257930	81670	176260	55030	121230	31120	90110	41080	49030
1240	261120	82470	178650	55870	122780	31450	91330	41620	49710
1260	264300	83250	181050	56710	124340	31800	92540	42160	50380
1280	267490	84050	183440	57550	125890	32130	93760	42700	51060
1300	270680	84850	185830	58380	127450	32480	94970	43240	51730
1320	273520	85710	187810	59000	128810	32800	96010		
1340	276360	86570	189790	59610	130180	33140	97040		
1360	279190	87410	191780	60240	131540	33460	98080		
1380	282030	88270	193760	60850	132910	33800	99110		
1400	284870	89130	195740	61470	134270	34120	100150		
1420	288200	90030	198170	62330	135840	34450	101390		
1440	291540	90940	200600	63190	137410	34780	102630		
1460	294870	91830	203040	64070	138970	35090	103880		
1480	298210	92740	205470	64930	140540	35420	105120		
1500	301540	93640	207900	65790	142110	35750	106360		
1520	304540	94790	209750	66300	143450	36080	107370		
1540	307540	95950	211590	66800	144790	36410	108380		
1560	310530	97090	213440	67320	146120	36720	109400		
1580	313530	98250	215280	67820	147460	37050	110410		
1600	316530	99400	217130	68330	148800	37380	111420		
1620	319680	100340	219340	69120	150220	37820	112400		
1640	322840	101290	221550	69910	151640	38260	113380		
1660	325990	102240	223750	70700	153050	38700	114350		
1680	329150	103190	225960	71490	154470	39140	115330		
1700	332300	104130	228170	72280	155890	39580	116310		
1720	335290	104820	230470	73250	157220	39700	117520		
1740	338270	105500	232770	74210	158560	39840	118720		
1760	341260	106190	235070	75180	159890	39960	119930		
1780	344240	106870	237370	76140	161230	40100	121130		
1800	347230	107560	239670	77110	162560	40220	122340		
1820	350070	108540	241530	77530	164000	40580	123420		
1840	352910	109520	243390	77950	165440	40940	124500		
1860	355760	110510	245250	78380	166870	41280	125590		
1880	358600	111490	247110	78800	168310	41640	126670		
1900	361440	112470	248970	79220	169750	42000	127750		
1920	364370	113070	251300	80080	171220	42380	128840		
1940	367300	113660	253640	80940	172700	42770	129930		
1960	370240	114270	255970	81800	174170	43150	131020		
1980	373170	114860	258310	82660	175650	43540	132110		
2000	376100	115460	260640	83520	177120	43920	133200		
2020	379060	116490	262570	84140	178430	44180	134250		
2040	382020	117510	264510	84770	179740	44430	135310		
2060	384980	118540	266440	85390	181050	44690	136360		
2080	387940	119560	268380	86020	182360	44940	137420		
2100	390900	120590	270310	86640	183670	45200	138470		

Ground	Grade A(5)	Diff A-B	Grade B(4)	Diff B-C	Grade C(3)	Diff C-D	Grade D(2)	Diff D-E	Grade E(1)
300	112550	33590	78960	26070	52890	15010	37880	18350	19530
320	117450	34930	82520	27160	55360	15630	39730	19110	20620
340	122350	36270	86080	28240	57840	16260	41580	19870	21710
360	127250	37600	89650	29340	60310	16890	43420	20620	22800
380	132150	38940	93210	30420	62790	17520	45270	21380	23890
400	137050	40280	96770	31510	65260	18140	47120	22140	24980
420	142320	41810	100510	32780	67730	18690	49040	23120	25920
440	147590	43340	104250	34060	70190	19230	50960	24100	26860
460	152850	44870	107980	35320	72660	19790	52870	25080	27790
480	158120	46400	111720	36600	75120	20330	54790	26060	28730
500	163390	47930	115460	37870	77590	20880	56710	27040	29670
520	167810	49000	118810	38950	79860	21390	58470	27890	30580
540	172230	50070	122160	40030	82130	21900	60230	28740	31490
560	176640	51120	125520	41130	84390	22390	62000	29600	32400
580	181060	52190	128870	42210	86660	22900	63760	30450	33310
600	185480	53260	132220	43290	88930	23410	65520	31300	34220
620	190530	54590	135940	44460	91480	24010	67470	32240	35230
640	195580	55920	139660	45630	94030	24610	69420	33170	36250
660	200620	57240	143380	46790	96590	25210	71380	34120	37260
680	205670	58570	147100	47960	99140	25810	73330	35050	38280
700	210720	59900	150820	49130	101690	26410	75280	35990	39290
720	214570	60650	153920	50320	103600	26830	76770	36660	40110
740	218430	61410	157020	51520	105500	27240	78260	37340	40920
760	222280	62150	160130	52720	107410	27670	79740	38000	41740
780	226140	62910	163230	53920	109310	28080	81230	38680	42550
800	229990	63660	166330	55110	111220	28500	82720	39350	43370
820	234410	64990	169420	56040	113380	29060	84320	40070	44250
840	238830	66330	172500	56960	115540	29620	85920	40790	45130
860	243250	67660	175590	57880	117710	30180	87530	41520	46010
880	247670	69000	178670	58800	119870	30740	89130	42240	46890
900	252090	70330	181760	59730	122030	31300	90730	42960	47770
920	256110	71400	184710	60760	123950	31690	92260	43650	48610
940	260140	72480	187660	61790	125870	32080	93790	44350	49440
960	264160	73540	190620	62840	127780	32450	95330	45050	50280
980	268190	74620	193570	63870	129700	32840	96860	45750	51110
1000	272210	75690	196520	64900	131620	33230	98390	46440	51950
1020	276370	76840	199530	66000	133530	33540	99990	47180	52810
1040	280530	77990	202540	67090	135450	33850	101600	47940	53660
1060	284700	79160	205540	68180	137360	34160	103200	48680	54520
1080	288860	80310	208550	69270	139280	34470	104810	49440	55370
1100	293020	81460	211560	70370	141190	34780	106410	50180	56230
1120	296720	82240	214480	71430	143050	35220	107830	50840	56990
1140	300420	83030	217390	72480	144910	35660	109250	51510	57740
1160	304130	83820	220310	73550	146760	36080	110680	52180	58500
1180	307830	84610	223220	74600	148620	36520	112100	52850	59250

Ground	Grade	Diff	Grade	Diff	Grade	Diff	Grade	Diff	Grade
	A(5)	A-B	B(4)	B-C	C(3)	C-D	D(2)	D-E	E(1)
1200	311530	85390	226140	75660	150480	36960	113520	53510	60010
1220	315650	86480	229170	76600	152570	37480	115090	54230	60860
1240	319760	87560	232200	77540	154660	37990	116670	54960	61710
1260	323880	88660	235220	78480	156740	38500	118240	55680	62560
1280	327990	89740	238250	79420	158830	39010	119820	56410	63410
1300	332110	90830	241280	80360	160920	39530	121390	57130	64260
1320	335820	91610	244210	81470	162740	39910	122830		
1340	339520	92390	247130	82580	164550	40280	124270		
1360	343230	93170	250060	83690	166370	40660	125710		
1380	346930	93950	252980	84800	168180	41030	127150		
1400	350640	94730	255910	85910	170000	41410	128590		
1420	354800	96140	258660	86720	171940	41880	130060		
1440	358960	97550	261410	87530	173880	42340	131540		
1460	363120	98960	264160	88350	175810	42800	133010		
1480	367280	100370	266910	89160	177750	43260	134490		
1500	371440	101780	269660	89970	179690	43730	135960		
1520	375080	102470	272610	91110	181500	44140	137360		
1540	378720	103160	275560	92250	183310	44550	138760		
1560	382350	103840	278510	93400	185110	44950	140160		
1580	385990	104530	281460	94540	186920	45360	141560		
1600	389630	105220	284410	95680	188730	45770	142960		
1620	393460	106220	287240	96580	190660	46230	144430		
1640	397290	107220	290070	97470	192600	46700	145900		
1660	401110	108210	292900	98370	194530	47150	147380		
1680	404940	109210	295730	99260	196470	47620	148850		
1700	408770	110210	298560	100160	198400	48080	150320		
1720	412810	111260	301550	101120	200430	48570	151860		
1740	416850	112310	304540	102080	202460	49060	153400		
1760	420890	113370	307520	103030	204490	49560	154930		
1780	424930	114420	310510	103990	206520	50050	156470		
1800	428970	115470	313500	104950	208550	50540	158010		
1820	432390	116430	315960	105710	210250	50910	159340		
1840	435800	117380	318420	106480	211940	51270	160670		
1860	439220	118350	320870	107230	213640	51640	162000		
1880	442630	119300	323330	108000	215330	52000	163330		
1900	446050	120260	325790	108760	217030	52370	164660		
1920	450020	121300	328720	109690	219030	52850	166180		
1940	453990	122350	331640	110610	221030	53330	167700		
1960	457960	123390	334570	111550	223020	53810	169210		
1980	461930	124440	337490	112470	225020	54290	170730		
2000	465900	125480	340420	113400	227020	54770	172250		
2020	469600	126220	343380	114660	228720	55170	173550		
2040	473310	126970	346340	115930	230410	55560	174850		
2060	477010	127700	349310	117200	232110	55970	176140		
2080	480720	128450	352270	118470	233800	56360	177440		
2100	484420	129190	355230	119730	235500	56760	178740		

Ground Area	Grade A(5)	Diff A-B	Grade B(4)	Diff B-C	Grade C(3)	Diff C-D	Grade D(2)	Diff D-E	Grade E(1)
300	124170	36190	87980	28850	59130	16520	42610	19180	23430
320	128260	35980	92280	30410	61870	17110	44760	20460	24300
340	132360	35770	96590	31990	64600	17700	46900	21720	25180
360	136450	35560	100890	33550	67340	18290	49050	23000	26050
380	140560	35360	105200	35130	70070	18880	51190	24260	26930
400	144650	35150	109500	36690	72810	19470	53340	25540	27800
420	149030	35340	113690	38060	75630	20130	55500	26530	28970
440	153410	35520	117890	39440	78450	20780	57670	27530	30140
460	157800	35720	122080	40820	81260	21430	59830	28510	31320
480	162180	35900	126280	42200	84080	22080	62000	29510	32490
500	166560	36090	130470	43570	86900	22740	64160	30500	33660
520	171050	36670	134380	44850	89530	23380	66150	31450	34700
540	175530	37230	138300	46150	92150	24010	68140	32400	35740
560	180020	37810	142210	47430	94780	24650	70130	33350	36780
580	184490	38360	146130	48730	97400	25280	72120	34300	37820
600	188990	38950	150040	50010	100030	25920	74110	35250	38860
620	193320	38940	154380	51400	102980	26600	76380	36370	40010
640	197640	38930	158710	52780	105930	27280	78650	37490	41160
660	201980	38930	163050	54180	108870	27960	80910	38610	42300
680	206300	38920	167380	55560	111820	28640	83180	39730	43450
700	210640	38920	171720	56950	114770	29320	85450	40850	44600
720	215290	40040	175250	58180	117070	29870	87200	41740	45460
740	219940	41160	178780	59410	119370	30420	88950	42630	46320
760	224580	42260	182320	60640	121680	30970	90710	43540	47170
780	229230	43380	185850	61870	123980	31520	92460	44430	48030
800	233880	44500	189380	63100	126280	32070	94210	45320	48890
820	238330	45260	193070	64500	128570	32460	96110	46360	49750
840	242780	46020	196760	65910	130850	32840	98010	47400	50610
860	247240	46780	200460	67320	133140	33240	99900	48440	51460
880	251690	47540	204150	68730	135420	33620	101800	49480	52320
900	256150	48310	207840	70130	137710	34010	103700	50520	53180
920	260220	49020	211200	71190	140010	34650	105360	51520	53840
940	264290	49730	214560	72260	142300	35280	107020	52520	54500
960	268340	50410	217930	73330	144600	35910	108690	53530	55160
980	272410	51120	221290	74400	146890	36540	110350	54530	55820
1000	276480	51830	224650	75460	149190	37180	112010	55530	56480
1020	281470	53150	228320	76770	151550	37740	113810	56310	57500
1040	286460	54480	231980	78060	153920	38300	115620	57090	58530
1060	291440	55790	235650	79370	156280	38860	117420	57870	59550
1080	296430	57120	239310	80660	158650	39420	119230	58650	60580
1100	301420	58440	242980	81970	161010	39980	121030	59430	61600
1120	305510	59450	246060	82970	163090	40340	122750	60350	62400
1140	309580	60430	249150	83980	165170	40690	124480	61280	63200
1160	313670	61440	252230	84990	167240	41040	126200	62190	64010
1180	317740	62420	255320	86000	169320	41390	127930	63120	64810

Ground Area	Grade A(5)	Diff A-B	Grade B(4)	Diff B-C	Grade C(3)	Diff C-D	Grade D(2)	Diff D-E	Grade E(1)
1200	321830	63430	258400	87000	171400	41750	129650	64040	65610
1220	326050	63960	262090	88330	173760	42440	131320	64870	66450
1240	330280	64490	265790	89670	176120	43120	133000	65710	67290
1260	334480	65000	269480	91000	178480	43810	134670	66540	68130
1280	338710	65530	273180	92340	180840	44490	136350	67380	68970
1300	342930	66060	276870	93670	183200	45180	138020	68210	69810
1320	347390	67460	279930	94660	185270	45510	139760		
1340	351840	68860	282980	95640	187340	45840	141500		
1360	356310	70270	286040	96640	189400	46160	143240		
1380	360770	71680	289090	97620	191470	46490	144980		
1400	365220	73070	292150	98610	193540	46820	146720		
1420	369850	74210	295640	99670	195970	47440	148530		
1440	374460	75330	299130	100730	198400	48060	150340		
1460	379080	76450	302630	101790	200840	48690	152150		
1480	383690	77570	306120	102850	203270	49310	153960		
1500	388320	78710	309610	103910	205700	49930	155770		
1520	392120	79150	312970	105030	207940	50590	157350		
1540	395900	79580	316320	106140	210180	51240	158940		
1560	399710	80030	319680	107270	212410	51890	160520		
1580	403490	80460	323030	108380	214650	52540	162110		
1600	407290	80900	326390	109500	216890	53200	163690		
1620	411670	82070	329600	110740	218860	53470	165390		
1640	416030	83210	332820	111980	220840	53750	167090		
1660	420400	84370	336030	113220	222810	54030	168780		
1680	424760	85510	339250	114460	224790	54310	170480		
1700	429140	86680	342460	115700	226760	54580	172180		
1720	433320	87470	345850	116790	229060	55280	173780		
1740	437510	88260	349250	117890	231360	55980	175380		
1760	441700	89060	352640	118970	233670	56700	176970		
1780	445880	89840	356040	120070	235970	57400	178570		
1800	450070	90640	359430	121160	238270	58100	180170		
1820	454120	91480	362640	122430	240210	58530	181680		
1840	458150	92290	365860	123700	242160	58960	183200		
1860	462200	93130	369070	124970	244100	59390	184710		
1880	466230	93940	372290	126240	246050	59820	186230		
1900	470280	94780	375500	127510	247990	60250	187740		
1920	474410	95570	378840	128810	250030	60390	189640		
1940	478540	96350	382190	130130	252060	60530	191530		
1960	482650	97120	385530	131430	254100	60670	193430		
1980	486780	97900	388880	132750	256130	60810	195320		
2000	490910	98690	392220	134050	258170	60950	197220		
2020	495710	100500	395210	134810	260400	61560	198840		
2040	500510	102310	398200	135560	262640	62180	200460		
2060	505290	104110	401180	136310	264870	62800	202070		
2080	510090	105920	404170	137060	267110	63420	203690		
2100	514890	107730	407160	137820	269340	64030	205310		

Ground Area (ft2)	Grade A(5)	Diff A-B	Grade B(4)	Diff B-C	Grade C(3)	Diff C-D	Grade D(2)	Diff D-E	Grade E(1)
300	134050	28380	105670	41530	64140	13420	50720	25770	24950
320	140130	29570	110560	43360	67200	13990	53210	26990	26220
340	146200	30750	115450	45180	70270	14570	55700	28210	27490
360	152280	31940	120340	47010	73330	15130	58200	29450	28750
380	158350	33120	125230	48830	76400	15710	60690	30670	30020
400	164430	34310	130120	50660	79460	16280	63180	31890	31290
420	170890	36290	134600	51930	82670	17230	65440	32820	32620
440	177350	38270	139080	53200	85880	18180	67700	33750	33950
460	183810	40240	143570	54470	89100	19150	69950	34680	35270
480	190270	42220	148050	55740	92310	20100	72210	35610	36600
500	196730	44200	152530	57010	95520	21050	74470	36540	37930
520	202420	45670	156750	58350	98400	21850	76550	37450	39100
540	208110	47140	160970	59690	101280	22650	78630	38370	40260
560	213800	48600	165200	61050	104150	23440	80710	39280	41430
580	219490	50070	169420	62390	107030	24240	82790	40200	42590
600	225180	51540	173640	63730	109910	25040	84870	41110	43760
620	231510	53270	178240	65130	113110	25920	87190	42140	45050
640	345160	76230	268930	98830	170100	37340	132760	63390	69370
660	350450	77270	273180	100470	172710	37780	134930	64420	70510
680	355750	78310	277440	102130	175310	38200	137110	65450	71660
700	361050	79360	281690	103770	177920	38640	139280	66480	72800
720	365880	80360	285520	105330	180190	38940	141250	67410	73840
740	370710	81360	289350	106890	182460	39230	143230	68350	74880
760	375540	82350	293190	108450	184740	39540	145200	69280	75920
780	380370	83350	297020	110010	187010	39830	147180	70220	76960
800	282150	65280	216870	77730	139140	32330	106810	51130	55680
820	287480	66200	221280	79500	141780	32740	109040	52190	56850
840	292800	67110	225690	81280	144410	33140	111270	53240	58030
860	298130	68030	230100	83050	147050	33560	113490	54290	59200
880	303450	68940	234510	84830	149680	33960	115720	55340	60380
900	308780	69860	238920	86600	152320	34370	117950	56400	61550
920	313940	70720	243220	88390	154830	34790	120040	57380	62660
940	319090	71570	247520	90170	157350	35220	122130	58370	63760
960	324250	72430	251820	91960	159860	35630	124230	59360	64870
980	329400	73280	256120	93740	162380	36060	126320	60350	65970
1000	334560	74140	260420	95530	164890	36480	128410	61330	67080
1020	339860	75190	264670	97170	167500	36920	130580	62360	68220
1040	345160	76230	268930	98830	170100	37340	132760	63390	69370
1060	350450	77270	273180	100470	172710	37780	134930	64420	70510
1080	355750	78310	277440	102130	175310	38200	137110	65450	71660
1100	361050	79360	281690	103770	177920	38640	139280	66480	72800
1120	365880	80360	285520	105330	180190	38940	141250	67410	73840
1140	370710	81360	289350	106890	182460	39230	143230	68350	74880
1160	375540	82350	293190	108450	184740	39540	145200	69280	75920
1180	380370	83350	297020	110010	187010	39830	147180	70220	76960

Ground Area	Grade A(5)	Diff A-B	Grade B(4)	Diff B-C	Grade C(3)	Diff C-D	Grade D(2)	Diff D-E	Grade E(1)
1200	385200	84350	300850	111570	189280	40130	149150	71150	78000
1220	390170	84760	305410	113330	192080	40760	151320	72180	79140
1240	395140	85180	309960	115090	194870	41380	153490	73210	80280
1260	400120	85600	314520	116850	197670	42000	155670	74240	81430
1280	405090	86020	319070	118610	200460	42620	157840	75270	82570
1300	410060	86430	323630	120370	203260	43250	160010	76300	83710
1320	414840	87310	327530	122040	205490	43500	161990		
1340	419620	88190	331430	123700	207730	43760	163970		
1360	424390	89060	335330	125370	209960	44020	165940		
1380	429170	89940	339230	127030	212200	44280	167920		
1400	433950	90820	343130	128700	214430	44530	169900		
1420	439100	91560	347540	130450	217090	44970	172120		
1440	444260	92310	351950	132200	219750	45400	174350		
1460	449410	93050	356360	133940	222420	45850	176570		
1480	454570	93800	360770	135690	225080	46280	178800		
1500	459720	94540	365180	137440	227740	46720	181020		
1520	464470	95420	369050	139080	229970	46950	183020		
1540	469210	96290	372920	140710	232210	47190	185020		
1560	473960	97160	376800	142360	234440	47430	187010		
1580	478700	98030	380670	143990	236680	47670	189010		
1600	483450	98910	384540	145630	238910	47900	191010		
1620	488120	99390	388730	147430	241300	48320	192980		
1640	492780	99860	392920	149240	243680	48730	194950		
1660	497450	100330	397120	151050	246070	49150	196920		
1680	502110	100800	401310	152860	248450	49560	198890		
1700	506780	101280	405500	154660	250840	49980	200860		
1720	511660	102230	409430	156030	253400	50350	203050		
1740	516540	103180	413360	157400	255960	50720	205240		
1760	521410	104130	417280	158750	258530	51100	207430		
1780	526290	105080	421210	160120	261090	51470	209620		
1800	531170	106030	425140	161490	263650	51840	211810		
1820	535840	106490	429350	163610	265740	52150	213590		
1840	540500	106940	433560	165740	267820	52440	215380		
1860	545170	107400	437770	167860	269910	52750	217160		
1880	549830	107850	441980	169990	271990	53040	218950		
1900	554500	108310	446190	172110	274080	53350	220730		
1920	559270	108740	450530	173630	276900	53990	222910		
1940	564050	109190	454860	175140	279720	54620	225100		
1960	568820	109620	459200	176650	282550	55270	227280		
1980	573600	110070	463530	178160	285370	55900	229470		
2000	578370	110500	467870	179680	288190	56540	231650		
2020	582650	110690	471960	181600	290360	56820	233540		
2040	586930	110870	476060	183520	292540	57110	235430		
2060	591220	111070	480150	185440	294710	57400	237310		
2080	595500	111250	484250	187360	296890	57690	239200		
2100	599780	111440	488340	189280	299060	57970	241090		

Open Porch

Costs Include:
Piers
Floor
Railing
Ceiling
Roof
Steps
Skirt

Area	Grade 5	Grade 4	Grade 3	Grade 2	Grade 1
20	**1020**	**870**	**720**	**590**	**490**
40	**2030**	**1710**	**1420**	**1160**	**900**
60	**3040**	**2560**	**2110**	**1730**	**1320**
80	**4050**	**3400**	**2810**	**2290**	**1730**
100	**5060**	**4240**	**3500**	**2860**	**2140**
125	**6070**	**5080**	**4200**	**3430**	**2560**
150	**7090**	**5930**	**4890**	**4000**	**2970**
175	**8100**	**6770**	**5590**	**4560**	**3390**
200	**9110**	**7610**	**6280**	**5130**	**3800**
225	**10120**	**8450**	**6980**	**5700**	**4210**
250	**11130**	**9290**	**7670**	**6260**	**4630**
275	**12140**	**10130**	**8370**	**6830**	**5040**
300	**13150**	**10970**	**9060**	**7390**	**5450**
325	**14160**	**11810**	**9760**	**7960**	**5860**
350	**15170**	**12660**	**10450**	**8530**	**6280**
375	**16180**	**13500**	**11150**	**9090**	**6690**
400	**17190**	**14340**	**11840**	**9660**	**7100**
Over	**43.00**	**35.85**	**29.60**	**24.15**	**17.75**

COST OF REPRODUCTION

Enclosed Porch

Costs Include:
Same as OP plus
Enclosing Walls,
Windows, Screens
And Storm Door

Area	Grade 5	Grade 4	Grade 3	Grade 2	Grade 1
20	**3710**	**2980**	**1970**	**1500**	**1270**
40	**5920**	**4620**	**3140**	**2320**	**1970**
60	**8130**	**6270**	**4300**	**3140**	**2670**
80	**10330**	**7910**	**5470**	**3960**	**3370**
100	**12540**	**9550**	**6630**	**4780**	**4070**
125	**14750**	**11190**	**7800**	**5600**	**4770**
150	**16950**	**12840**	**8960**	**6430**	**5480**
175	**19160**	**14480**	**10130**	**7250**	**6180**
200	**21360**	**16120**	**11290**	**8070**	**6860**
225	**23570**	**17760**	**12460**	**8890**	**7580**
250	**25780**	**19410**	**13620**	**9710**	**8280**
275	**27980**	**21050**	**14790**	**10530**	**8980**
300	**30190**	**22690**	**15950**	**11350**	**9680**
325	**32400**	**24330**	**17120**	**12170**	**10380**
350	**34600**	**25980**	**18280**	**12990**	**11060**
375	**36810**	**27620**	**19450**	**13810**	**11760**
400	**39010**	**29260**	**20610**	**14630**	**12480**
Over	**97.50**	**73.15**	**51.50**	**36.60**	**31.20**

COST OF REPRODUCTION

Decks

Area	Grade 5	Grade 4	Grade 3	Grade 2	Grade 1
20	**960**	**870**	**740**	**670**	**590**
40	**1560**	**1380**	**1190**	**1070**	**920**
60	**2090**	**1880**	**1650**	**1460**	**1250**
80	**2660**	**2390**	**2100**	**1860**	**1580**
100	**3220**	**2890**	**2550**	**2250**	**1910**
125	**3790**	**3400**	**3010**	**2650**	**2240**
150	**4360**	**3900**	**3460**	**3040**	**2570**
175	**4920**	**4410**	**3920**	**3440**	**2900**
200	**5490**	**4910**	**4370**	**3830**	**3230**
225	**6060**	**5410**	**4820**	**4220**	**3560**
250	**6620**	**5920**	**5280**	**4620**	**3890**
275	**7190**	**6420**	**5730**	**5010**	**4220**
300	**7750**	**6920**	**6180**	**5400**	**4550**
325	**8320**	**7430**	**6630**	**5800**	**4880**
350	**8880**	**7930**	**7090**	**6190**	**5210**
375	**9450**	**8440**	**7540**	**6590**	**5540**
400	**10010**	**8940**	**7990**	**6980**	**5870**
Over	**25.00**	**22.35**	**20.00**	**17.45**	**14.65**

COST OF REPRODUCTION

One Story

Addition

Area	Grade 5	Grade 4	Grade 3	Grade 2	Grade 1
60	12470	9710	5460	4460	2220
80	14900	11620	6640	5440	2690
100	1810	13830	8290	6620	3270
125	21320	16240	9760	7840	3900
150	24520	18610	11240	9070	4540
175	28440	21510	13220	10670	5240
200	31600	23790	14680	11880	5910
225	35130	26380	16350	13220	6480
250	38260	28600	17780	14390	7160
275	41940	30860	19160	15540	7690
300	44670	33180	20790	16770	8340
325	48410	35980	22680	18300	8990
350	51620	38260	24140	19510	9640
375	55270	40830	25880	20870	10400
400	58380	43050	27270	22020	11020
Over	145.95	107.60	68.20	55.05	27.55

Adjustments: **with Basement 1.30 times 1st Addition price**
1 ½ st Addition 1.25 times 1st Addition price
1 ¾ st Addition 1.45 times 1st Addition price
2 st Addition 1.70 times 1st Addition price
2st OP 1.5 times OP price
2st EP 1.5 times EP price

Additions and Deductions (round to nearest overall grade)

Partial or No Basement Deduction

Deduct per sq ft of non-basement area

Grade 5	Grade 4	Grade 3	Grade 2	Grade 1
$33.30	$30.40	$28.6	$26.70	$22.50

Finished Basement Rooms Addition

Add per sq ft of finished area

Grade 5	Grade 4	Grade 3	Grade 2	Grade 1
$20.10	$19.10	$17.50	$15.90	$14.30

Finished Attic

Add per sq ft of finished area

Grade 5	Grade 4	Grade 3	Grade 2	Grade 1
$31.30	$27.30	$22.60	$17.80	$15.40

Attic Sub Floor / Plywood / Loft

Add per sq ft of floor area

Grade 5	Grade 4	Grade 3	Grade 2	Grade 1
$7.90	$7.60	$7.30	$7.00	$6.70

No Heat Deduction

Deduct per sq ft of unheated area

Grade 5	Grade 4	Grade 3	Grade 2	Grade 1
	$8.90	$6.00	$2.60	Included in grade

Fireplace

Add per unit

	Grade 5	Grade 4	Grade 3	Grade 2	Grade 1
Masonry	$9,750	$6,970	$4,860	$4,030	$3,550
Metal Pre Fabricated	$5,930	$4,010	$2,660	$2,350	$1,880
Hearth	$1,360	$1,230	$960	$850	$680

Plumbing Additions per unit

When more than three units are present

Grade 5	Grade 4	Grade 3	Grade 2	Grade 1
$2,260	$1,870	$1,390	$1,130	$920

No Pump Deduction

Assume shallow well ½ hp pump and tank

$1,900

Appliances

Range and Oven	$1,100
Microwave Combination	$1,450
Range Top	$740
Induction top	$600
Per component	$680
Ovens	$1,200
Microwave Combination	$1,880
Exhaust Fan	$250
Exhaust Fan and Hood	$790
Custom, stainless steel or copper	1780
Built-in Refrigerator or Freezer	$2880
Dishwasher	$760
Garbage Disposal	$480
Trash Compactor	$630
Intercom	$600
Vacuum cleaner with 3 inlets	$2,160
Security System, hard wired	$2,600

Roof Windows

Pitched without vent	**$460**
Pitched with vent	**$380**

Brick / Stone Veneer

$ per ft2 of wall area	$7.00

LAND IMPROVEMENTS

Drilled Well

Assume 100ft deep well ¾ hp & tank

$3,800

Septic System and Gravel Entrance

Assume 1,000 gallon tank and leach field, typical gravel driveway

$3,690

Paved Areas

$2.80 per sq ft up to 2000 sq ft

Outbuildings

Basic Specifications:

Foundation – Wood post, rocks or mudsills
Framing – 2x4 studs and plates, 2x6 rafters, 4x4 sills
Walls – Single board or ½" plywood, tar paper covered, 8' posted
Roof – Asphalt roll roofing
Floors – None
Interior – No interior finish
Heating – None
Lighting – None
Doors – One common
Windows – Adequate

Cost/ft2 -

$12.50

Additions to base cost per square foot

Floor	2x6 joists plywood	$5.30
	Concrete	$4.00
	Dlb Wood Floor	$6.90
Foundation	Conc Posts	$0.60
	Conc Block 4'	$2.90
	Poured conc	$3.00
Walls	T-111	$5.30
	Hardboard	$3.50
	Bd & Batt / Novelty	$5.10
	Vinyl	$5.20
	Aluminum	$5.00
	Wood Shingles	$8.20
	Wood Clapboards	$7.80
	Imitation log / 2" CS	$8.20
Overhead Doors	(Per unit)	
	Single	$730
	Double	$1,260
	Door Opener	$510

Roof	Asphalt Shingles	$1.80
	Metal	$2.10
	Rubber Membrane	$3.30
	Fiberglass	$2.60
	Wood Shingles	$2.80
Interior	Plywood / Paneling	$2.30
	Drywall	$2.90
	Wood Boards	$4.30
Electricity		$0.70
Wall Height	8 ft	Standard
	10ft	$1.50
	12ft	$2.00
	14ft	$2.50
	16ft	$3.40
	18ft	$4.40
	18ft	$4.40

Sample Appraisal #1 Nancy Weeks Map PE-27 Plan 6 Lot 3.5

The procedure for field recording, analysis, and valuation of the property shown on the accompanying record card are as follows:

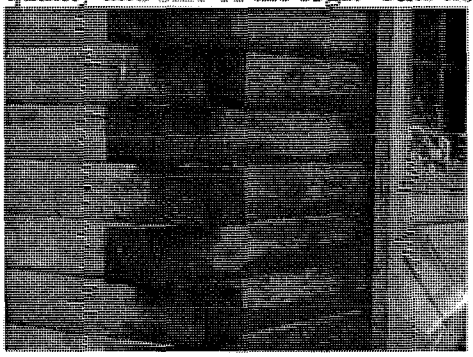
FOUNDATION Noted as "Concrete Block Wall"

This construction is in accordance with Grade 3 and recorded as "3".

BASEMENT Noted as "Full" with 7-foot headroom and "Concrete" floor

The basement specification matches Grade 3 and is recorded as "3".

FRAMING This home is a pre-cut milled log home. The logs are cut square on three sides and milled round on the outside. The logs have a spline joint with foam insulation between each layer. Log homes can be Grade 2, Grade 3 or Grade 4 depending on the quality and size of the logs. This home with 8" logs meets the specification of Grade 4.



ROOF The sheathing is matched board and the roof cover is lightweight aluminum. The roof is graded 3.

INTERIOR Natural log walls. Average grade and workmanship softwood trim, and pine kitchen cabinets are consistent with Grade 3.

EXTERIOR The exterior consists of the 8" milled logs and is graded 4 as per the specifications.

FLOORS The floors consist of pine boards with linoleum in the bath and kitchen areas. The sub-floor is made up of pine boards. This is consistent with grade 3.

HEATING The heating system is oil fired forced hot air with full ducting and is graded 3.

PLUMBING The home has a full 3pc bathroom of average quality. Additionally an electric hot water heater and stainless steel kitchen sink is found. These are consistent with grade 3.

ELECTRICAL The lighting consists of a 100 amp entrance, an average number of outlets and fixtures. Grade 3.

GRADE, CONDITION, AND ADJUSTMENTS
The figures in the Grade column at the left of the card are totaled and the total is divided by 10 (32 / 10 = 3.20). This home is then graded as a Grade 3 plus 20% of the difference between Grade 3 and Grade 4.

The overall condition of the ten construction components was observed to be average and therefore the physical condition of the home is 70%.

OPEN PORCH A small open porch of 12 square feet is attached to the front of the house. The quality of the porch is similar to the main house or Grade 3. From the porch section of the manual the replacement cost is $490.

FUNCTIONAL OBSOLESCENCE A thorough study of the market data in this area indicate that no deficiencies exits in this structure. Therefore no functional obsolescence is necessary.

ECONOMIC OBSOLESCENCE A study of sales data for developed parcels in this area indicate that there is no general loss in value applicable to any of the buildings and land when compared to the cost approach to value using this manual. There are, in the case of some other properties, deductions made because of Accessibility (located on island) or Topography (low, wet lot), but these factors are not present in this case, and thus no deduction is made for Economic Obsolescence.

COMPUTATION OF VALUATION This log-style home is a 1 ½ story, Grade 3.20 (from the Grade column) with 720 square feet of ground area (from Building sketch). This information is entered in the "computation of value" section at the right of the card. Next, the cost schedule gives an indicated cost of reproduction of a 1 ½ story, Grade 3 building with 720 sq. ft. of ground area of $103,600. The difference in cost between a Grade 3 and Grade 4 building of this size is shown in the column to the left of the Grade 3 as $50,320. The house being appraised has been graded as 3.2, and therefore 20% if this difference is added to the base Grade 3 price of $103,600 ($50,320 x .20 = $10,060 + $101,960 = $113,660). From these computations, an initial cost of $113,660 is indicated. The replacement cost of the open porch is $260. The total cost of replacement for the structure is $114,090. The house has been judged to be in average condition or at 70%. No functional or economic obsolescence was observed to be present. The cost of reproduction less depreciation is calculated as follows:

Adjusted Cost of Replacement	$ 114,090
Condition Factor	70%
Total	$79,860

OUTBUILDINGS The frame garage is listed under the "OUTBUILDINGS" and is priced from the Miscellaneous Outbuilding Pricing Schedule. Starting with a base price of $12.50 per sq. ft., the garage is priced as follows:

Base	$12.50
Concrete floor	$4.00
Metal Roof	$2.10
Electrical	$0.70
Total Unit Cost Per Sq Ft	$19.30

Area (26ft x 28ft = 728 sq ft)

Cost of Replacement (728 sq ft x $19.30 / sq ft)
$14,050
Unit Additions of 2 Overhead Doors
$1,460 (730 each)
Total Cost of Replacement $15,510
Physical Depreciation 20% or a factor of 80%
Functional Obsolescence 10% or a factor of 90%

Cost less depreciation ($15,510 x .80 x .90 = $11,170)

The cost less depreciation for the home is $79,860 and the cost less depreciation for the garage is $11,170 for a total cost less depreciation for all structures is $91,030 (rounded to the nearest $10).

LAND VALUE The home is sited on a 1 acre developed lot located on a dirt road. The land schedule (prepared from available land sales) gives a value of $27,000 to which is added $3,800 (from Additions Schedule) for a drilled well and submersible pump.

TOTAL VALUE

Buildings	$91,030
Land	$30,800
Total	$121,270

RESIDENTIAL
SAMPLE APPRAISALS

Interior Inspection | CONSTRUCTION DETAILS | ADDS / DEDUCTS 198340001

Foundation	3	Concrete Block Wall	No Basement Area	0
Basement	3	Full Avg Depth Conc Floor	Finished Area	0
Framing	4	Pre Cut Log 6x8		
Roof	3	Boards Metal		
Interior	3	Nat Log Walls Avg Trim SW Kitchen	Loft Area	0
Exterior	4	Milled Logs	Finished Loft Area	0
Floors	3	Softwood Softwood Linoleum		
Heating	3	Forced Hot Air	No Heat Area	0
Plumbing	3	3pc Bath Heater Pump		0
Lighting	5	Average	Other	
TOTAL	32.0	SURVEY BY T Walker 08/08/11	Total Adds & Deducts	0
GRADE	3.20			
COND.	70%			

Weeks Nancy

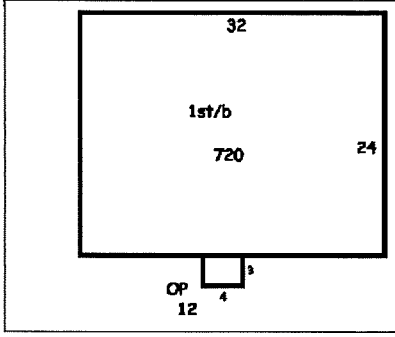
Stories	Grade	Area	Cost Rep.
1.5sl	3.2	720	113660
OP	3	12	430
	0		0
	0		0
	0		0
	0		0
Mh	L	W	0

Total Cost Rep	114090
Adjustment =	0
Adjusted Cost Rep	114,090
x Current Cost Factor	114,090
Condition	0.7
Functional Factor	1
Economic Factor	1
Cost Rep Less Dep	79860
Plus Outbuildings	11170
TOTAL VALUE BUILDINGS	91030

FUNCTIONAL OBSOL %		ECONOMIC OBSOL %	
		Area	
		Access	
		No Elec	
TOTAL	0	Services	
FACTOR	1	Topo	
		TOTAL	0
		FACTOR	1

Story Height
1st = One Story
1.5st = 1(1/2) Story
1.75st = 1(3/4) Story
2st = 2 Story
Version: 1/18/2011

Current Cost Factor: 1



OUTBUILDING	Garage				
Floors	Concrete				
Foundation					
Ext. Walls	Boards				
Roof	Metal				
Interior					
Wall Height					
Electricity	Yes				
Other					
Other Cost					
TOTAL COST	19.3	0	0	0	0
Size	26 x 28				
Area	728				
COST OF REP	14050	0	0	0	0
Unit Additions	2 OH Doors				
Unit Cost	1450				
COST FACTOR	15510	0	0	0	0
Phys / Func / Ec %	0.8 / 0.9 / 1	/ /	/ /	/ /	/ /
RCNLD	11170	0	0	0	0

PROPERTY RECORD CARD - TOWNSHIP T7 R8 WELS COUNTY PENOBSCOT

NAME	ADDRESS	DATE	BOOK / PAGE	DATE	BOOK / PAGE
Weeks Nancy					

MAP NO. PE027
PLAN NO. 06
LOT NO. 3.5
LEASE NO
LEASE FROM
SUBB LOT #
EXEMPT
CARD of

Account # 198340001

911 Road Name 102 Grumpy Old Man Lane

Date of Review Review by

Date of Review Review by

Review Comment

LAND VALUATION — Std Lot Size 1.0 ac | Std Depth | Avg Depth | Front Foot Price | Parcel Acres 1

Base type lest	Base lot	Unit Value	Factor	Base lot Value
Developed Paved Road	1	$27,000	1	$27,000
Acreage		$900		$0
Wet Land / Barren		$225		$0

Topography

Waterfront Front Feet		Depth Factor	Excess Factor	
First 250 fr ft			1	$0
Next 300 fr ft	0		0	$0
550+ fr ft	0		0	$0

Topography

Lake Name | Waterfront Acres | Total Waterfront Value $0

Other	Acres	$/ac	Topography	
				$0
				$0

Paving $0 Drilled Well Yes $3,800

GPS Coordinates

Notes

Date Printed 1/25/2011

TOTAL VALUE LAND	$30,240
VALUE BUILDINGS	$91,030
ADDITIONAL CARDS	
TOTAL VALUE	$121,270

Sample Appraisal #2 Paul Robinson Map FR-27 Plan 7 Lot 9

The procedure for field recording, analysis, and valuation of the property shown on the accompanying record card are as follows:

FOUNDATION Noted as "Posts"

This construction is in accordance with Grade 1 and recorded as "1".

BASEMENT Noted as "None"

The basement specification matches Grade 1 and is recorded as "1". The price schedule includes the cost of a full basement for all buildings. Therefore a deduction must be made.

FRAMING The walls are studded with 2x4s, 24 inches on center. The joists are 2x6s, 24 inches on center. The rafters are 2x6s, 24 inches on center. These specifications are consistent with Grade 2.

ROOF The sheathing is boards and the roof cover is lightweight aluminum. The roof is graded 2.

INTERIOR The walls are of knotty pine with minimum trim and an open ceiling. The interior is graded as 2.

EXTERIOR The exterior has V-matched pine boards. The windows are double glazed with aluminum frames. These features grade as a 2.

FLOORS The floors consist of pine boards with linoleum in the bath and kitchen areas. The sub-floor is made up of 3/8" plywood. This is consistent with grade 2.

HEATING The camp does not have central heat. This calls for a grade of 1 and a deduction must be made because the price schedule includes costs of a heating system for all structures.

PLUMBING The camp has a 2pc bathroom of lower quality fixtures. Additionally, an electric hot water heater and stainless steel kitchen sink is found. These are consistent with grade 2. A full 3pc bath is assumed for the manual, a deduction for the missing fixture is required.

ELECTRICAL A minimum of fixtures and a 60 amp entrance is found in the camp. A 2 grade is assigned.

GRADE, CONDITION, AND ADJUSTMENTS
The figures in the Grade column at the left of the card are totaled. The total is then divided by 10 (17 / 10 = 1.7). This camp is then graded as a Grade 1 plus 70% of the difference between Grade 1 and Grade 2.

The overall condition of the ten construction components was observed to be excellent and therefore the physical condition of the camp is 95%.

ENCLOSED PORCH An enclosed porch of 160 square feet is attached to the camp. The quality of the porch is similar to the main house or Grade 2 (1.7 rounded to the nearest whole grade). From the porch section of the manual the replacement cost is $6,430.

FUNCTIONAL OBSOLESCENCE A thorough study of the market data in this area indicate that no deficiencies exits in this structure. Therefore no functional obsolescence is necessary.

ECONOMIC OBSOLESCENCE A study of sales data for the camps in this area indicates that there is a general loss in value of 5% applicable to camps. A deduction of 5% is made to the subject property to reflect market conditions.

COMPUTATION OF VALUATION This camp is a 1 story, Grade 1.7 (from the grade column) with 616 square feet of ground area (from building sketch). This information is entered in the "computation of value" section at the right of the card. Next, the price schedule gives an indicated cost of reproduction for a 1 story, Grade 1 building with 616 sq. ft. of ground area of $28,480. The difference in cost between a Grade 1 and Grade 2 building of this size is shown in the column to the left of the Grade 1 is $25,090. The camp being appraised has been graded as 1.7, and therefore 70% of this difference is added to the base Grade 1 price of $28,480 ($25,090 x .70 = $17,563 + $28,480 = $46,040). From these computations, an initial cost of $46,040 is indicated. The replacement cost of the enclosed porch is $6,430. The total cost of replacement for the structure is $52,470.

ADDITIONS AND DEDUCTIONS The camp does not have a basement. A deduction of $26.70 per sq. ft. is found in the deductions section of the manual. The $/ft2 times the area of no basement is $16,447 (616 sq. ft. x $26.70 / sq. ft. = $16,447). A deduction of $/sq. ft. of living area (Grade 2) is made to the camp to acknowledge the lack of a central heating system. ($2.60 x 616 sq. ft. x 1 single story) = $1,602). The manual specifications call for a 3pc bathroom. The subject camp has only a 2pc bathroom, therefore a deduction of $1,130 (Grade 2) is made. The total of all additions and deductions is (-$16,447, -$1,602, -$1,130) = -$19,179.

The camp has been judged to be in excellent condition or at 95%. No functional obsolescence was observed to be present. Sales from the area indicate an economic

obsolescence of 5% to be applicable to align the cost manual with market conditions. The cost of reproduction less depreciation is calculated as follows:

Adjusted Cost of Replacement	$ 33,291
Physical Condition Factor	95%
	$ 31,630
Economic Obsolescence	95%
Total	$ 30,040 (rounded to nearest $10)

LAND VALUE The camp is sited on a 5 acre developed lot located on a black-top road. The land schedule (prepared from available land sales) gives a value of $10,000 for 1 acre. A size factor of 2.0 is applied to account for the 5-acre lot size. A total value of $20,000 is indicated for this property.

TOTAL VALUE

Buildings	$20,000
Land	$30,040
Total	$50,040

Exterior Inspection | CONSTRUCTION DETAILS | ADDS / DEDUCTS 078190006

Foundation	1	Posts	No Basement Area	(16,447)
Basement	1	None	Finished Area	0
Framing	2	Studs 2x4 24 Joists 2x6 24 Rafters 2x4 20		
Roof	2	Boards Metal		
Interior	2	Knotty Pine Walls	Loft Area	0
Exterior	2	V Matched Bds	Finished Loft Area	0
Floors	2	Softwood Softwood Linoleum		
Heating	1	None	No Heat Area	(1,602)
Plumbing	2	2pc Bath Inexpensive Fixtures Heater Pump		(1,130)
Lighting	2	Minimum	Other	
TOTAL	17.0	SURVEY BY	06/20/20 Total Adds & Deducts	(19,179)
GRADE	1.70			
COND.	95%			

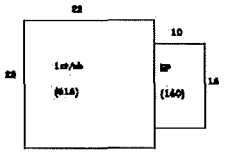
Ribonsion, Paul

Stories	Grade	Area	Cost Rep.
1st	1.7	616	46040
EP	2	160	6430
	0		0
	0		0
	0		0
	0		0
Mh	L	W	0

Total Cost Rep	52470
Adjustment =	(19,179)
Adjusted Cost Rep	33,291
x Current Cost Factor	33,290
Condition	0.95
Functional Factor	1
Economic Factor	1
Cost Rep Less Dep	31630
Plus Outbuildings	0
TOTAL VALUE BUILDINGS	31630

FUNCTIONAL OBSOL %		ECONOMIC OBSOL %	
		Area	
		Access	
		No Elec	
TOTAL	0	Services	
FACTOR	1	Topo	
Current Cost Factor		TOTAL	0
1		FACTOR	1

Story Height
1st = One Story
1.5st = 1(1/2) Story
1.75st = 1(3/4) Story
2st = 2 Story
Version: 1/31/2011



OUTBUILDING					
Floors					
Foundation					
Ext. Walls					
Roof					
Interior					
Wall-Height					
Electricity					
Other					
Other Cost					
TOTAL COST	0	0	0	0	0
Size					
Area					
COST OF REP	0	0	0	0	0
Unit Addtons					
Unit Cost					
COST FACTOR	0	0	0	0	0
Phys / Func / Ec %	/ /	/ /	/ /	/ /	/ /
RCNLD	0	0	0	0	0

PROPERTY RECORD CARD - TOWNSHIP T1 R2 WBKP COUNTY FRANKLIN

NAME	ADDRESS	DATE	BOOK / PAGE	DATE	BOOK / PAGE
Ribonsion, Paul			/		/

MAP NO. FR005
PLAN NO. 7
LOT NO. 9
LEASE NO.
LEASE FROM
SUB8 LOT #
EXEMPT
CARD of

Account #
078190006

911 Road Name

Date of Review Review by

Date of Review Review by

Review Comment

LAND VALUATION

Sid Lot Size	Sid Depth	Avg Depth	Front Foot Pric	Parcel Acres
1.0 ac				5

Base type test	Base lot	Unit Value	Factor	Base lot Value
Undeveloped Paved Road	5	$10,000	2	$20,000
Acreage		$650		$0
Wet Land / Barren		$165		$0
Topography				

Waterfront Front Feet		Depth Factor	Excess Factor	
First 250 fr ft			1	$0
Next 300 fr ft	0		0	$0
550+ fr ft	0		0	$0

Topography

Lake Name Waterfront Acres Total Waterfront Value $0

Other	Acres	$/ac	Topography	
				$0
				$0

Paving $0 Drilled Well $0

GPS Coordinates

Notes:

Date Printed 6/20/2012

TOTAL VALUE LAND	$20,000
VALUE BUILDINGS	$31,630
ADDITIONAL CARDS	
TOTAL VALUE	$51,630

Sample Appraisal #3 Roland Moreau Map SO-6 Plan 3 Lot 45

The procedure for field recording, analysis, and valuation of the property shown on the accompanying record card are as follows:

FOUNDATION Noted as "8" Poured Concrete"

This construction is in accordance with Grade 3 and recorded as "3".

BASEMENT Noted as "Full" with a concrete floor and 200 sq. ft. of finished area.

The basement specification matches Grade 4 and is recorded as "4". An addition for the finished area must be made.

FRAMING The walls are studded with 2x6s, 16 inches on center. The joists are 2x10s, 16 inches on center. The rafters are 2x8s, 16 inches on center. These specifications are consistent with Grade 4.

ROOF The sheathing is ¾" plywood with good quality asphalt shingles. The roof is graded 4. Four fixed roof windows are on the south side of the structure. Roof windows are not included in the base specifications and require an addition.

INTERIOR The walls are covered with drywall with no visible seams. Hardwood trim and a good quality kitchen is present. The interior is graded as 4.

EXTERIOR The exterior has clapboards over plywood. The windows are plentiful and of good quality. These features grade as a 4.

FLOORS The floors consist of hardwood and good quality wall to wall carpeting. The sub-floor is made up of ½" plywood. This is consistent with grade 4.

HEATING The home has radiant hot water heating (Grade 4)

PLUMBING A 3pc bathroom (with good quality fixtures) is present. A second bathroom of 2 pieces is also found. Domestic hot water heater is supplied from the boiler. These are consistent with Grade 4. An addition is required for the extra 2 plumbing fixtures.

ELECTRICAL A 100 amp entrance with 12 circuits was observed. Grade 3

GRADE, CONDITION, AND ADJUSTMENTS
The figures in the Grade column at the left of the card are totaled. This total is then divided by 10 (38.0 / 10 = 3.80). This house is then graded as a Grade 3 plus 80% of the difference between Grade 3 and Grade 4.

The overall condition of the ten construction components was observed to be very good. Therefore the physical condition of the home is 90%.

PLAT A deck of 460 square feet is attached to the house. The quality of the porch is similar to the main house or Grade 4 (3.80 rounded to the nearest whole grade). From the porch section of the manual the replacement cost is $10,280.

FUNCTIONAL OBSOLESCENCE A thorough study of the market data in this area indicate that no deficiencies exits in this structure. Therefore no functional obsolescence is necessary.

ECONOMIC OBSOLESCENCE A study of sales data for developed parcels in this area indicate that there is no general loss in value applicable to any of the homes when compared to cost approach derived from the manual . There are, in the case of some other properties, deductions made because of Limited Access (located on island) or Topography (low, wet lot), but these factors are not present in this case, and thus no deduction is made for Economic Obsolescence.

COMPUTATION OF VALUATION This home is a 1½ story, Grade 3.80 (from the grade column) with 936 square feet of ground area (from Building sketch). This information is entered in the "computation of value" section at the right of the card. Next, the price schedule gives an indicated cost of reproduction for a 1½ story, Grade 3 building with 936 sq. ft. of ground area of $125,870. The difference in cost between a Grade 3 and Grade 4 building of this size is shown in the column to the left of the Grade 3 as $61,790. The home being appraised has been graded as 3.80, and therefore 80% of this difference is added to the base Grade 3 price of $125,780 ($61,790 x .80 = $ 49,432 + $125,780 = $175,610). From these computations, an initial cost of $185,580 is indicated. The replacement cost of the platform deck is $10,280. The total cost of replacement for the structure (prior to deviations from the base specifications) is $185,890.

ADDITIONS AND DEDUCTIONS The basement has 200 sq. ft. of finished area. An addition of $19.10 per sq. ft. is found in the Additions section of the manual. The $/sq ft times the area of basement finish is $3,820 (200 sq. ft. x $19.10 / sq. ft. = $3,820). An addition of $6,970 is made for the masonry fireplace (Grade 4). The manual base specifications call for a 3pc bathroom. The subject home has an additional 2pc bathroom, therefore an addition of $1,870 (Grade 4) is made for each fixture. (2 x $840 = $3,740). On the south side of the home are two vented roof windows that require an addition of

$960 (2 x $480). The total of all additions and deductions is (+$3,820, + $6,970, + $3,740, +$960) = $15,490.

The total cost of replacement for the building is $201,380 ($175,610 Building + $10,280 Deck + $15,490 Additions)

The home has been judged to be in very good condition or at 90%. No functional or economic obsolescence was observed to be present. The cost of reproduction less depreciation is calculated as follows:

Adjusted Cost of Replacement	$ 201,380	
Physical Condition Factor	· 90%	
	Total	$ 181,240

LAND VALUE The home is sited on a 1 acre developed lot located on a dirt road. The land schedule (prepared from available land sales) gives a value of $12,700 for 1 acre. An addition value of $3,800 for a drilled well and submersible pump is made to the land for a total value of $15,940.

TOTAL VALUE

Buildings	$181,240
Land	$15,940
Total	$197,182

Interior Inspection | CONSTRUCTION DETAILS | ADDS / DEDUCTS 258120001

Foundation	3	Poured concrete 8"	No Basement Area		0
Basement	4	Full - Good Quality - Finished Area	Finished Area	200	3,820
Framing	4	Good quality Studs 2x6 16 Joists 2x10 16			
Roof	4	Plywood Asphalt Shingles			
Interior	4	Drywall HW Trim Good Kitchen Roof Windows	Loft Area		0
Exterior	3	Plywood Clapboards	Finished Loft Area		0
Floors	4	Plywood Hardwood			
Heating	4	Hot Water Baseboard Fireplace	No Heat Area		6,970
Plumbing	4	1 (1/2) Baths Good Fixtures Heater Pump			3,740
Lighting	3	Average	Other	Roof wind	960
TOTAL	37.0	SURVEY BY	Total Adds & Deducts		15,490

Roland Moreau

Stories	Grade	Area	Cost Rep.
1.5st	3.7	936	169120
Platform	4	460	10280
	0		0
	0		0
	0		0
	0		0
Mh	L	W	0

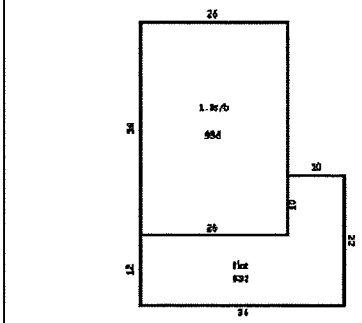
Total Cost Rep	179400
Adjustment =	15,490
Adjusted Cost Rep	194,890
x Current Cost Factor	194,890
Condition	0.9
Functional Factor	1
Economic Factor	1
Cost Rep Less Dep	175400
Plus Outbuildings	0
TOTAL VALUE BUILDINGS	175400

GRADE	3.70
COND.	90%

FUNCTIONAL OBSOL %		ECONOMIC OBSOL %	
		Area	
		Access	
		No Elec	
TOTAL	0	Services	
FACTOR	1	Topo	
		TOTAL	0
		FACTOR	1

Story Height
1st = One Story
1.5st = 1(1/2) Story
1.75st = 1(3/4) Story
2st = 2 Story
Version: 1/18/2011

Current Cost Factor: 1



OUTBUILDING					
Floors					
Foundation					
Ext. Walls					
Roof					
Interior					
Wall-Height					
Electricity					
Other					
Other Cost					
TOTAL COST	0	0	0	0	0
Size					
Area					
COST OF REP	0	0	0	0	0
Unit Addtons					
Unit Cost					
COST FACTOR	0	0	0	0	0
Phys / Func / Ec %	/ /	/ /	/ /	/ /	/ /
RCNLD	0	0	0	0	0

PROPERTY RECORD CARD - TOWNSHIP T1 R4 BKP WKR COUNTY SOMERSET

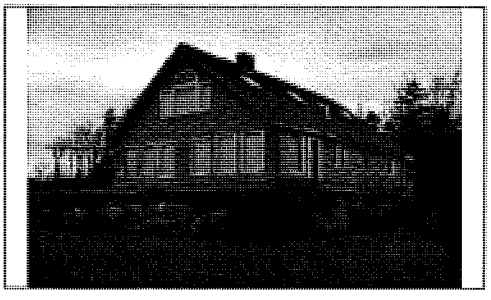
NAME	ADDRESS	DATE	BOOK / PAGE	DATE	BOOK / PAGE
Roland Moreau			/		/

MAP NO. S0006
PLAN NO.
LOT NO.
LEASE NO.
LEASE FROM
SUDB LOT #
EXEMPT
CARD of

Account # 258120001
911 Road Name

Date of Review Review by

Date of Review Review by
Review Comment



LAND VALUATION — Std Lot Size: 1.0 ac | Std Depth | Avg Depth | Front Foot Price | Parcel Acres: 1

Base type test	Base lot	Unit Value	Factor	Base lot Value
Developed Dirt Road	1	$12,700	1	$12,700
Acreage		$350		$0
Wet Land / Barren		$90		$0

Topography

Waterfront Front Feet		Depth Factor	Excess Factor	
First 250 fr ft			1	$0
Next 300 fr ft	0		0	$0
550+ fr ft	0		0	$0

Topography
Lake Name — Waterfront Acres — Total Waterfront Value $0

Other	Acres	$/ac	Topography	
				$0
				$0

Paving $0 — Drilled Well Yes $3,800

GPS Coordinates
Notes:
Date Printed 1/25/2011

TOTAL VALUE LAND	$15,940
VALUE BUILDINGS	$175,400
ADDITIONAL CARDS	
TOTAL VALUE	$191,340

CHAPTER VIII
Mobile Homes

MOBILE HOME DEFINED

Mobile homes are factory built residences designed and built on their own frames and wheel chassis to be towed by truck from factory to site and set in place for year round living. Special permits are usually required to move them on public streets.

Mobile homes area different than travel trailers which are smaller, designed to be towed behind passenger cars and generally used as temporary living quarters for those engaged in recreational activities.

Mobile homes contain living and dinette areas, a kitchen, a bath or baths, and as many as three bedrooms. Bay and picture windows or louvered windows are standard in some. Interior living area is fairly spacious and may be expanded by roll-out or tip-out rooms.

Most mobile homes include built-in dresser drawers, cabinets, carpeting, vinyl floor covering, and usually are completely furnished with free-standing appliances, pieces of furniture, and draperies, all creating a warm pleasant interior. Dining, living room, and bedroom sets are often available to the purchasers in a variety of styles and colors. In addition, many manufacturers offer optional brand-name appliances such as automatic washer dryer, garbage disposal, or entertainment systems.

Modern trailer park, where utilities are provided to hook up electric and plumbing systems, also feature such conveniences as shopping centers, swimming pools, and other recreational facilities.

CLASS SPECIFICATIONS

The specifications on the following page have been complied to help the appraiser select the correct cost table. During property inspection, the appraiser should check each component of the specifications, then select that cost table most applicable to the unit being appraised because it meets more of those specifications than any other.

Most mobile homes can be identified as fitting into one of these classes. If the user judges that a mobile home is between two of the classes, he should determine a cost of reproduction new between those shown in the tables for the closest two specifications.

CHAPTER VIII
Mobile Homes

CLASS SPECIFICATIONS

Specifications	Standard	*Above Standard*	*Deluxe*	*Super Deluxe*
Overall Quality	Very Basic – few special features- Meets minimum MHI, NFPA, ANSI, or state code requirements.	Average- some special features- Meets or exceeds MHI, NFPA, ANSI, or state code requirements,	Good Quality throughout, Numerous special features & upgrades. Exceeds all codes.	Quality materials and workmanship throughout. Numerous special features & upgrades. Exceeds all cods. Parallels conventional construction techniques.
Construction	2" x 3" wall studs – 2" x 6" floor joists 16" o.c. – subfloor, 5/8" plywood or particle board. Light gauge metal siding & roof. Double studding & headers at large windows.	2" x 4" wall studs – 2" x 6" floor joists 16" o.c. 5/8" plywood or particle board subfloor. Heavy gauge metal siding or lap siding – may have partially elevated or pitched roof. Reinforced studding & headers at all windows & doors. Insulation adequate for moderate climates.	2" x 4" - 2" x 6" wall studs 2" x 6" or 2" x 8" floor joists, 16" o.c. – 5/8 plywood subfloor. Good grade lap siding. Pitched shingle roof. Double studding and headers at all windows & doors. Insulation appropriate for northern climate- adequate ventilation.	2" x 4" - 2" x 6" wall studs 2" x 8" or 2" x 10" floor joists, 16" o.c. – 5/8 or greater plywood subfloor. Quality grade siding . Pitched roof w/generous eave overhang. Double studding and headers at all windows and & doors. Super adequate insulation & ventilation (ridge & soffit).
Ceiling Height	7' to 7'6" is common	7'6" is common – may have partially raised roof for 8' living room.	7'6" w/variable attractive roof treatments for 8' dining living rm. & kitchen ceilings.	8' – with use of cathedral ceilings common
Exterior Walls	3" to 4" thick light guage metal	4" thick or 6" upgrade Heavy guage vertical siding or average lap siding with a blackboard or hardboard siding	4" thick or 6" upgrade Good quality lap siding and sheathing/backing	2" x 4" or 2" x 6" common Quality lap siding with 7/16" OSB or comparable structural sheathing covered with building wrap
Doors and Walls	Metal clad doors- - usually less than 80" in height – Few windows – aluminum or light weight steel framed	May have conventional home entrance – rear door w/louvered windows – average use of windows. Painted metal or vinyl clad, clip-on storms and screens standard.	Conventional home doors throughout. Selective use of window – picture , bay or window wall use in common in living, dining & kitchen insulated glass windows packages commonplace.	Conventional home doors throughout. Selective use of window – picture , bay or window wall use in common in living, dining & kitchen areas Windows, vinyl clad thermopane with wood trim & sills common
Floor Covering	Standard seamless vinyl - some low quality carpeting	Average vinyl & jute backed carpeting w/ lightweight rebound pad.	Good quality vinyl with extensive sue of quality carpeting & padding.	Quality vinyl with extensive sue of quality carpeting & padding. Tile entrances common.
Interior & Walls	Low quality wood or vinyl paneling. Few low grade kitchen cabinets. Sparse storage space.	Decorative wall & ceiling treatments. Average grade kitchen few conveniences. Limited storage and closet space.	Decorative wall & ceiling treatments.- may have limited use of sheetrock. Good grade kitchen cabinets with some special features.	½" sheetrock painted & papered. Wood molding. Ample closet space – raised paneled doors. Kitchens w/ ample quality cabinets & covenience features.
Heating	Standard "centerline" linear duct	Miller gas furnace or upgrade to 80,000 to 100,000BTU oil furnace	Large capacity ducts w/ cold air returns. Branch ducts to many rooms. May have pre-fab fireplace.	Large capacity ducts w/ cold air returns. Branch ducts to many rooms. May have pre-fab fireplace.
Plumbing & Electrical Systems	Low quality fixtures - one bath - 20 gallons water Minimal circuits & outlets	Average quality fixtures – one bath – 30 gallon water. Average circuits & outlets.	Good quality fixtures - may be two baths – 30 to 40 gallon water heater. Ample circuits & outlets	Quality fixtures, extra baths and plumbing common, 40+ gallon water heater, Ample circuits & outlets with extra convenience features.

CHAPTER VIII
Mobile Homes

MOBILE HOME PRICING SCHEDULE – STANDARD CLASS

Note: The following costs should be adjusted by a CURRENT COST FACTOR, only if applicable.

Length excluding hitch.

Width	Length												
	36'	40'	44'	48'	52'	56'	60'	64'	66'	68'	72'	76'	80'
8'	13,520	14,930	15,970	17,000	18,030	19,050	20,070	21,050	21,590	22,100	23,110	24,120	25,140
10'	15,610	17,260	18,500	19,720	20,950	22,160	23,370	24,920	25,530	26,500	26,970	28,170	29,380
12'	17,850	19,320	20,730	22,140	23,540	24,930	26,310	27,640	28,380	29,070	30,370	31,800	33,200
14'	19,560	21,800	23,410	25,010	26,610	27,470	29,020	30,510	31,330	32,090	33,6,20	35,150	37,660
16'	21,260	23,660	25,440	27,200	28,960	30,700	32,440	34,100	35,040	35,910	37,620	39,340	41,080
24'	34,530	38,220	40,850	43,450	46,030	48,600	51,150	53,550	55,000	56,140	58,700	61,200	62,040
28'	38,870	42,860	45,850	48,840	51,790	54,730	57,640	60,370	62,020	63,510	66,300	69,150	71,920
32'	39,690	43,850	46,800	49,730	52,640	55,520	58,380	61,080	62,740	64,010	66,880	69,690	72,560

The above schedule excluded the wholesale furnishing cost which is estimated to be a maximum 10% of the retail cost of a unit.

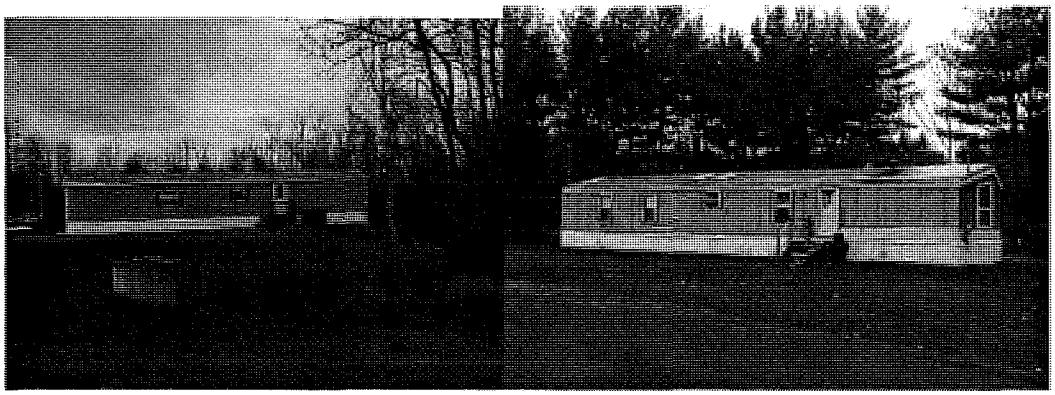
To determine cost of a mobile home which falls between listed lengths, compute the cost difference between the next lower and next higher length; then multiply that figure by one of the following:

- **.25 if the subject unit is 1' longer than the lower length;**
- **.50 if it is 2' longer than the lower length;**
- **.75 if it is 3' longer than the lower length;**

then add that result to the cost of the lower length.

MODULARS: should be treated as any other residential structure and graded, priced and depreciated from the Residential Buildings section.

CHAPTER VIII
Mobile Homes



MOBILE HOME PRICING SCHEDULE – ABOVE STANDARD CLASS

Note: The following costs should be adjusted by a CURRENT COST FACTOR, only if applicable.

Length excluding hitch.

Width	Length												
	36'	40'	44'	48'	52'	56'	60'	64'	66'	68'	72'	76'	80'
8'	15,640	17,250	18,510	19,750	21,070	22,300	23,470	24,630	25,280	25,920	27,140	28,360	28,930
10'	17,940	19,340	21,300	22,760	24,300	25,750	27,110	28,670	29,420	30,350	31,420	32,850	34,880
12'	20,270	22,360	24,060	25,740	27,420	29,090	30,750	32,300	33,180	34,050	35,690	37,340	39,020
14'	22,260	24,750	26,640	28,510	30,370	32,220	34,070	35,800	36,780	37,740	39,570	41,390	43,260
16'	26,680	29,620	31,960	34,290	36,610	38,920	41,220	43,050	44,610	45,800	48,080	50,360	52,010
24'	39,690	43,750	46,850	49,920	52,970	46,000	59,020	61,790	63,480	65,000	67,980	70,930	74,110
28'	44,900	49,300	52,850	56,380	59,890	63,370	66,840	70,030	71,980	73,710	77,130	80,530	84,050
32'	50.320	56,740	60,940	65,020	69,120	73,170	77,210	80,880	83,150	85,200	89,190	93,150	97,260

The above schedule excluded the wholesale furnishing cost which is estimated to be a maximum 10% of the retail cost of a unit.

To determine cost of a mobile home which falls between listed lengths, compute the cost difference between the next lower and next higher length; then multiply that figure by one of the following:

- **.25 if the subject unit is 1' longer than the lower length;**
- **.50 if it is 2' longer than the lower length;**
- **.75 if it is 3' longer than the lower length;**

then add that result to the cost of the lower length.

MODULARS: should be treated as any other residential structure and graded, priced and depreciated from the Residential Buildings section.

OPTIONAL AGE DEPRECIATION SCHEDULE

Standard & above Standard Class

NOTE: The following depreciation allowances recognize average physical depreciation and the normal amount of obsolescence, in a mobile home of a given age.

Additional obsolescence may be necessary and allowed on an individual basis as required.

Age of Mobile Home	% of Depreciation	Residual - % of Value Remaining
1	3%	97%
2	6%	94%
3	9%	91%
4	12%	88%
5	15%	85%
6	18%	82%
7	21%	79%
8	24%	76%
9	27%	73%
10	30%	70%
11	33%	67%
12	36%	64%
13	39%	61%
14	42%	58%
15	45%	55%
16	48%	52%
17	51%	49%
18	54%	46%
19	56%	44%
20	59%	41%
21	62%	38%
22	65%	35%
23	68%	32%
24	71%	29%
25	74%	26%
26	77%	23%
27	80%	20%

CAUTION: The depreciation tables on this page are only intended as guides for the assessor. Under no circumstances are they intended to replace observed depreciation and common sense. This is particularly true in the case of 8',10', HUD standards or approval. The quality of earlier mobile homes are inferior to today's models which are subject to various state, local, and federal regulations. Accordingly, the guidelines listed on this page may not apply without further consideration of obsolescence for outdated and undesirable construction practices

CHAPTER VIII
Mobile Homes

MOBILE HOME PRICING SCHEDULE – DELUXE CLASS

Note: The following costs should be adjusted by a CURRENT COST FACTOR, only if applicable.

Length excluding hitch.

Width	Length												
	36'	40'	44'	48'	52'	56'	60'	64'	66'	68'	72'	76	80'
10'	20,760	22,860	24,570	26,270	27,950	29,630	31,300	32,830	33,660	34,610	36,250	37,900	38,070
12'	23,780	25,170	28,150	30,130	32,110	34,070	35,120	37,800	38,770	39,900	41,830	43,750	45,830
14'	26,330	29,160	31,400	33,620	35,840	38,040	40,230	42,230	43,310	44,580	46,740	48,900	51,140
16'	29,070	32,130	34,640	37,130	39,600	42,070	44,520	46,730	47,950	49,380	51,800	54,210	56,720
24'	45,670	50,370	54,160	57,960	61,710	65,440	69,150	72,470	74,300	76,490	80,130	83,750	87,520
28'	53,270	58,300	62,530	66,730	70,900	75,040	79,150	82,820	84,860	87,290	91,320	95,330	99,530
32'	57,470	63,110	67,650	72,150	76,600	81,020	85,410	89,380	91,570	94,120	98,440	102,730	107,210

The above schedule excluded the wholesale furnishing cost which is estimated to be a maximum 10% of the retail cost of a unit.

To determine cost of a mobile home which falls between listed lengths, compute the cost difference between the next lower and next higher length; then multiply that figure by one of the following:

- **.25 if the subject unit is 1' longer than the lower length;**
- **.50 if it is 2' longer than the lower length;**
- **.75 if it is 3' longer than the lower length;**

then add that result to the cost of the lower length.

MODULARS: should be treated as any other residential structure and graded, priced and depreciated from the Residential Buildings section.

CHAPTER VIII
Mobile Homes

MOBILE HOME PRICING SCHEDULE – SUPER DELUXE CLASS

Note: The following costs should be adjusted by a CURRENT COST FACTOR, only if applicable.

Length excluding hitch.

Width	Length												
	36'	40'	44'	48'	52'	56'	60'	64'	66'	68'	72'	76'	80'
10'	16,730	27,120	29,200	31,270	33,330	35,380	37,420	39,290	40,300	41,480	43,490	45,500	47,460
12'	28,900	31,750	34,250	36,740	39,210	41,670	44,120	46,330	47,550	48,980	51,400	53,810	56,320
14'	32,960	36,410	39,300	42,180	45,030	47,890	50,720	53,250	54,660	56,350	59,160	61,950	64,880
16'	36,630	40,310	43,650	46,850	50,100	53,300	56,490	59,330	60,920	62,830	65,990	69,130	72,440
24'	57,600	63,260	68,240	73,160	78,050	82,910	87,740	92,000	94,400	97,310	102,070	109,360	114,340
28'	66,250	72,380	77,870	83,300	88,700	94,070	99,670	104,110	106,760	109,980	115,230	120,490	125,950
32'	71,500	78,400	84,280	90,120	95,910	101,660	107,370	112,480	114,930	118,730	124,360	129,950	135,850

The above schedule excluded the wholesale furnishing cost which is estimated to be a maximum 10% of the retail cost of a unit.

To determine cost of a mobile home which falls between listed lengths, compute the cost difference between the next lower and next higher length; then multiply that figure by one of the following:

- **.25 if the subject unit is 1' longer than the lower length;**
- **.50 if it is 2' longer than the lower length;**
- **.75 if it is 3' longer than the lower length;**

then add that result to the cost of the lower length.

MODULARS: should be treated as any other residential structure and graded, priced and depreciated from the Residential Buildings section.

OPTIONAL AGE DEPRECIATION SCHEDULE

Deluxe & Super Deluxe ClassNOTE: The following depreciation allowances recognize average physical depreciation and the normal amount of obsolescence, in a mobile home of a given age.

Additional obsolescence may be necessary and allowed on an individual basis as required.

Age of Mobile Home	% of Depreciation	Residual - % of Value Remaining
1	3%	97%
2	5%	95%
3	7%	93%
4	9%	91%
5	11%	89%
6	13%	87%
7	15%	85%
8	18%	82%
9	20%	80%
10	22%	78%
11	24%	76%
12	26%	74%
13	28%	72%
14	30%	70%
15	32%	68%
16	34%	66%
17	36%	64%
18	38%	62%
19	41%	59%
20	43%	57%
21	45%	55%
22	47%	53%
23	49%	51%
24	51%	49%
25	53%	47%
26	55%	45%
27	57%	43%
28	59%	41%
29	61%	39%
30	64%	36%
31	66%	34%
32	68%	32%
33	70%	30%

CAUTION: The depreciation tables on this page are only intended as guides for the assessor. Under no circumstances are they intended to replace observed depreciation and common sense. This

is particularly true in the case of 8',10', HUD standards or approval. The quality of earlier mobile homes are inferior to today's models which are subject to various state, local, and federal regulations. Accordingly, the guidelines listed on this page may not apply without further consideration of obsolescence for outdated and undesirable construction practices

CHAPTER VIII
Mobile Homes

MOBILE HOME ADDITIONS TABLE

Room Additions:

All slide – out, roll – out, or tip out at same sq. ft. cost as base unit

Addition(s) Porch: Enclosed or Open Patio: Platform or Deck Carport Garage Miscellaneous Outbuildings	**If Standard construction, use Residential Building section: Additions & deductions, with appropriate Current Cost Factor, when applicable.**

Skirting: Avg Height 24" to 32"	Cost per linear foot
Wood frame with plywood/hardboard, or waferboard	$4.60
Metal / Vinyl (vertical paneling)	$6.10
Metal / Vinyl (horizontal lap)	$10.10
Stone Veneer Concrete Block	$17.80

Foundations:

Use Residential Building section: Additions & Deductions, with appropriate Current Cost Factor, when applicable.

Slabs:	**Cost per square foot**
3" Slab on Grade	$3.60
4" Slab on Grade	$4.30
6" Slab on Grade	$7.10

Caution: following costs may already be accounted for in the assigned grade of the Mobile Home.

Built – Ins:

Oven	$690
Cooktop	$350
Dishwasher	$660
Garbage Disposer	$180

Other Features:	Unit – in place, by grade of Mobile Home
Central Air	$2.40 /ft2
Prefabricated Fireplace	$1,810
With imitation stone or brick	$3,010
Decorative electric fireplace	$590
Sliding glass doors	$960
Bay window	$860
Bow Window	$1,010
Garden Window	$430
Extra Plumbing (per fixture)	$540

CHAPTER IX
Commercial / Industrial

The Maine Revenue Service / Property Tax Division no longer supports the commercial and agricultural sections found previous manuals. Several national publications are available to the municipal assessors to assist with appraisals of these properties. Included among these are:

Marshall & Swift
PO Box 26307
Los Angeles, CA 90026-0307

1-800-544-2678

R.S. Means Company, Inc.
PO Box 800
63 Smiths Lane
Kingston, MA 02364-0800
USA

1-800-334-3509

Chapter X
Log Homes

Log homes come in many different styles and methods of construction. Ranging from vertical stacked cedar poles to heavy milled logs in an architecturally designed custom package.

Grading a log home requires judgment on the part of the appraiser. Older round log camps with chinked walls and rough trim can generally be graded as a 2 for the exterior, framing, roof, and interior components. Pre-cut log homes are usually graded higher (4) than a similar stick built home for the components of exterior, framing, and roof. Exceptions to this general rule can be found for the lower quality packages and very heavy log homes of custom design.

The foundation, basement, heat, plumbing, and electrical components are not unique to log homes and should be graded appropriately. Care should be given to the inspection of the foundation as the weight of the logs is significantly greater than that of a stick built home. A thicker concrete wall or heavier posting may be necessary to support the building.

Pre cut milled log home are available in many different styles and quality of construction. Individual logs may range in thickness from 4" to 12" and may be planed flat on two three or four sides. In many pre-cut packages the exterior face of the log is milled to a uniform shape. The better log homes have splines and insulation strips between layers.

The interior of log homes range from completely unfinished to custom designed finishes with many built in features. Many homes have an exposed beam or log interior and frequently have a cathedral ceiling in part of the home.

Framing for a typical pre-cut log home should normally be graded 4. Additionally the roof and exterior should also be graded 4. The interior may be graded 3 or 4 depending on the amount and quality of the materials and workmanship. Using these guidelines the residential pricing manual will fit most of the manufacturers kits.

Homes with cathedral ceilings should be priced from the 1½ story section of the manual with a deduction for the unfinished or open area. The roof pitch, framing, roofing, and interior finish of the exposed ceiling are consistent with a 1½ story building and more closely match those costs than would a single story structure with an addition for a loft.

CHAPTER XI
FULL VALUE ASSESSMENT

EQUALIZATION OF ASSESSMENT

"The first requirement of legal assessment is that it shall be uniform according to the standards fixed by law. The many terms used by legislatures of the several states such as: fair value, cash value, just value, true value, actual value, market value and exchange value display no real difference in meaning for tax purposes. In short "the legal standard of assessment for most property is substantially the same throughout the United States." It follows that "the primary objective of the assessor should be the assessment of all taxable property uniformly and at full value – unless otherwise required by law."

The preceding statements are quotations from the books *Urban Land Appraisal* and *Assessment Principles,* published by the International Association of Assessing Officers. Equalization is the cardinal principle of assessment, but equality and uniformity are not necessarily synonymous. The high school band is impressive in its colorful uniforms – they are outfitted uniformly, but not interchangeably. The desired effect, or equalization, is accomplished when the several uniforms are made to proper sizes to fit the individuals. Likewise, in assessment administration, the degree of equity achieved will depend upon the adoption and application of uniform standards, methods and practices.

The first objective of the assessor should be the equitable and uniform assessment at full value of all taxable property. There are many who question this full objective. They claim that the fractional assessment at some purportedly uniform ratio, without regard to full value, are equally effective and valid. True, even a limited study of sales experience will develop an indication of an assessment ratio, but such a ratio is nothing more than an average. A sales study in which half of all properties concerned were assessed at 90% of full value, and the remainder at 10% of full valuer, would indicate a 50% assessment ratio. But every sale in the study deviated 40% from the average. In this case, a 50% assessment rate presumes that doubling all assessments would result in full value. If valuations were doubled, half of the property would be valued at 180% of full value, and the other half at 20% of full value. Average assessment ratios are seldom conclusive evidence of sound assessment administration.

How is equalization of assessment initially established? A complete re-examination and re-appraisal of all taxable property is required. A successful program demands tax maps, specially prepared and tested-in-the-market specifications and correlated cost schedules, depreciation data, and other supplementary requirements.

A program properly initiated and carried through to completion will provide an equitable assessment base. From that point on, the assessor is entirely responsible for the equity of assessed valuations. The initial equity contained in any revaluation is retained only at the moment of completion. Ad Elliot Paul commented in *Linden on the Saugus Branch*, "Whatever isn't growing, wears out!" So the assessor must pay constant attention to detail by continuing market data and sales ratio studies. Developing and checking the effect on value of

changing specifications in building standards and resulting obsolescences. Analyzing neighborhood and area trends, as well as the everchanging economic situation. The Assessor can go on from there to the limits of his capabilities and still be considerably short of perfection. But will be doing the job that must be done if equalization is to be the criterion of a good assessment administrator. The Assessor is a professional who is entitled to remuneration commensurate with his capabilities and efforts.

There is only a single valid basis for any representation or deviation of full value. That is, actual comparison with sales experience. A price is a fact; value is an estimate of what the price should be. If value, in any of its possible connotations, is to have any real substance or meaning, its derivation must be based on fact. **The only basic fact available to serve as a measure of value is price.**

All approaches to value are initially dependant upon the comparative approach. The comparative, or market data approach, is the major source of essential information used by the assessor to successfully institute and maintain an equalized assessment program. It is a vital part of the assessment process and cannot be ignored or deferred.

What other means are available to the assessor to measure the effects of depreciation in various forms? None.

What other reliable guides for areas and neighborhoods in transition are there? There are none.

How can any assessment program be effectually maintained without such information (at hand and in workable form, as a bare minimum)?

In all technical aspects of assessment administration, continuing market data and sales ratio studies are essential to equalization.

It is not at all unusual to hear objections that sale prices are not necessarily good indications of value. It is quite true that many sales are not good indicators of value and, having been recognized as unreliable, they should not be used in market data studies. It is also true that all sales do not meet the old test of the willing-buyer, willing-seller concept of value. In fact it is doubtful if any sale ever met **all** of its requirements. There are many sales that return to the seller more or less than the market would support as value. But all sellers do not make excessive profits on every sale, any more than all buyers get bargains. On the other whole, property transfers in the market are generally satisfactory transactions for both buyer and seller. The analysis of their common opinion is the guide to value.

People determine value and it is reflected in the marketplace in sales – and sales alone provide the key to value of residential property. What people choose to do with their money or resources creates, conditions, or destroys value – need, desire, and the purchasing power of money dictate. The assessor's job to find out which, why, where, and how much. The assessor can't do it casually or incidentally – it must be purposeful and thorough. The more dependable information available as a

base for the valuation process, the more sound the conclusions reached. Lacking such supporting evidence, any value estimate is at best a guess.

The assessment must be constantly under close study. It must be revised, adjusted, and corrected to meet the requirement of continuous change It must either "grow" or "wear out." As equity is lost in individual cases, the tax burden starts to shift, and equity is slowly destroyed.

Sales ratio studies in Maine are best known for the part they play in the equalization of local assessments for State valuation purposes. The information obtained and the conclusions reached as a result of these studies are available to local assessors. These studies can be of more value to the local assessors for their purposes than to the State for its purposes. While the "average ratio" and indicated quality of equalization contained in the assessment are important and useful in assessment administration, the studies develop more valuable information for maintaining equalization in local assessments, if they are properly analyzed and used.

The sales samples can be divided into many categories for special studies. A comparison can be made between and among the factors of functional obsolescence to determine not only what they are, but to measure their impact on value. The loss of value in the market as a result of old-fashionedness, lack of utility, outmoded fixtures and equipment, and other undesirable features is only revealed by a conscientious study of sales experience.

A sales research program can also develop a measure of the relative effect on value as a result of the location of property. This is economic obsolescence, and while no more important in the appraisal process than other factors it is essential to the whole. The neighborhood, relative accessibility, utilities and municipal services provided, individually and collectively, exert considerable influence on the value of otherwise comparable properties. The measure of loss under certain circumstances, and the proper allowance to be made for the existence of specific conditions, are most entirely dependant upon a study of comparative sales.

Properly correlated sales studies will reveal trends in the ever-changing neighborhood values. Indicate where and when a review of property values in certain areas is advisable. Reveal sociological changes in the habit and desires of people. Usually, neighborhood changes and trends are rather easily spotted by a careful analysis of sales data. When a general increase or decrease from previously established values is reflected in sales over a period of time, that is an indication that economic factors are at work. The actual conditions responsible for the need for reviewing neighborhood or area valuations are seldom readily identified or localized from the basic data provided by the sales study itself. The assessor must investigate each situation to ascertain the cause of the change. A section may be growing and improving, inharmonious elements may be encroaching on an area, improved roads may open a section to development, and lack of utilities and services on other roads may make the areas they serve less

desirable. Answers can be obtained only through a field study of the effected area.

Value is constantly changing. Irrespective of the quality of the initial assessment, equity of valuations can be maintained only through constant investigation and adjustment. Without such an organized program, any assessment program is bound to "wear out".

The actual mechanics of sales ratio and market data studies in improving assessment administration are best introduced into local offices, through application to specific local data. This will lend immediate meaning and substance to the results developed. The State Property Appraisers who are engaged in this work statewide are able to provide assistance to those assessors who are interested.

The investigation and study of sales experience are of major importance in determining whether a revaluation is needed and why. They also serve as tangible evidence to substantiate that the assessment is satisfactorily equalized. In short, sales ratio and market data studies are concerned with every aspect of the assessment process.

There have been major court decisions affecting assessors and assessment practices that may well be considered "history making." All are concerned with "true value," "market value," "just value," or "full value"; in other words, a 100 percent assessment ratio.

Although each of the courts' decisions applied only to the municipalities directly concerned, obviously they also contained an advisory to all cities and towns in the several states to comply with the statutes that require municipalities to assess all property at full market value.

Value being seldom determinable with any real precision in terms of dollars, "full value," or "true value" must be permitted a range of relationship as compared actual market transactions. With an adequate number of recent reliable sales available, a carefully prepared complete sales ratio study will develop an average ratio that, while not entirely conclusive, will usually prove to be sufficiently accurate for the purpose of developing satisfactory evidence of the percentage of full value represented by the assessment.

Equalization is the principal objective, and any attempt to arrive at an estimate of market value which would be in complete accord with any of a number of indiscriminate sales or purchase prices is not possible. A variance of 10 percent is considered to be well within reasonable limits. The important thing is the equalization of the valuations contained in the assessment, rather than the unattainable perfection of 100 percent assessment. It should be noted that a complete ratio study presumes that the study is carried through to develop a rating of assessment quality (coefficient of dispersion), rather than just an average ratio.

Studies of this kind applied to assessments not based on standardized methods and practices will show only an average ratio for all properties contained in the study. There will be no

equalization among the assessments themselves – or to the average ratio.

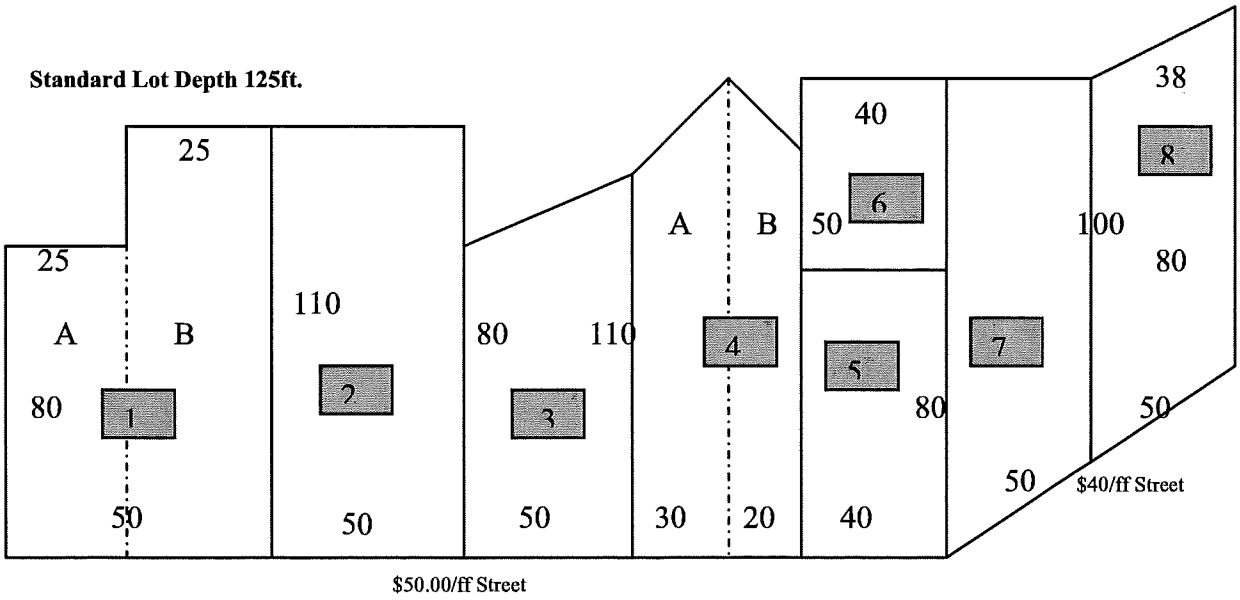
Thorough studies have been made by the Maine Revenue Services of all municipal assessments. The results are revealing, if not surprising. To begin with, of the many "full value" revaluation programs completed in the past, few are presently assessing at values that can be considered current market value. The ratios have changed appreciably, and with them, their equalization factors.

What is the reason behind these fading or rising full values? Have the assessors changed their methods; used lower cost schedules; allowed added depreciation? The answer to all these questions is, "No." The assessors have not changed their procedures, but times have changed and will continue to change. In keeping with the times, values have changed, but these changes are not reflected on the assessors' records. The valuations are still based on the value, conditions, and costs as of the time of the revaluation programs.

To illustrate the problem of the assessor in areas where marked changes and great activity are in evidence, one of the Maine cities found it necessary to increase all property values by 10 percent. There were many localized adjustments above or below that figure as specific conditions demanded – only three years after a revaluation – in order to maintain a full value assessment. Eight years later, values had become so far out of line with the assessments that a complete revaluation was required.

To return to the matter of full value, what does this actually mean? For one thing, it **could** mean that the assessor need not be too concerned over whether he should use full value or a percentage of full value for assessment purposes. It **does** mean that a full value assessment must be properly maintained to ensure equalization between real and personal property assessments. It also means that continual study and analysis of neighborhood trends and the effect of all factors relating to value is essential to retain the initial equalization. It also means that the mechanical process of valuing new property and adding it to the assessment role each year is not sufficient maintenance to ensure continued equalization or assessment at full value. In short, it means that the assessor has a most difficult and demanding technical job in local government if he does the work that is required of him by good assessment administration and demanded of him by the State statutes.

SAMPLE LAND COMPUTATION - 1



Use 125' Depth Factor Table – Depth Factor x Unit Value = Adjusted Value
Adjusted Value x Frontage = Total

Lot	Frontage	Depth	Depth Factor	Unit Value	FR. Ft. Value	Total
#1	A25	80	80	50	40	1000
	B25	110	94	50	47	1175
#2	50	110	94	50	47	2350
#3	50	95 av.	87	50	44	2200
#4	A30	120 av.	98	50	49	1470
	B30	125 av.	100	50	50	1000
#5	40	80	80	50	40	1600
#6	40 – R	50	22	50	11	440
#7	38 eff.	115 av.	96	40	38	1444
#8	38 eff.	90 av.	85	40	34	1292

EXPLANATION OF ABOVE COMPUTATIONS

#1 – Compute as two separate lots – 1A plus 1B. Total Value of lot $2175.
#2 - Regular lot. Frontage x Front Foot Value.
#3 - Side of lot unequal. Obtain average depth of each. (A) 110 + 130 ÷ 2 = 120.
#4 - Compute as two lots. Find average depth of each. (A) 110 + 130 ÷ 2 = 120.
(B) 130 + 120 ÷ 2 = 125' Total Value of lot $2470.
#5 - Regular lot.
#6 - Rear lot. Find depth factor for total depth from street (130'), subtract depth factor of front lot (80'), remainder is Depth Factor for rear lot. (102 – 80 = 22%)
$50 x .22 = $11.
#7 - Depth Factor for average depth (115') times unit value times effective frontage.
#8 - Same as No. 7.

Chapter XII
Land Computations

Use nearest dollar values over $20.00. Under $20.00 to nearest $.50.

Land Depth Tables

The following table of percentage factors is designed to give a uniform method of adjusting the value per front foot up or down, depending on whether the lot is more or less than the standard depth.

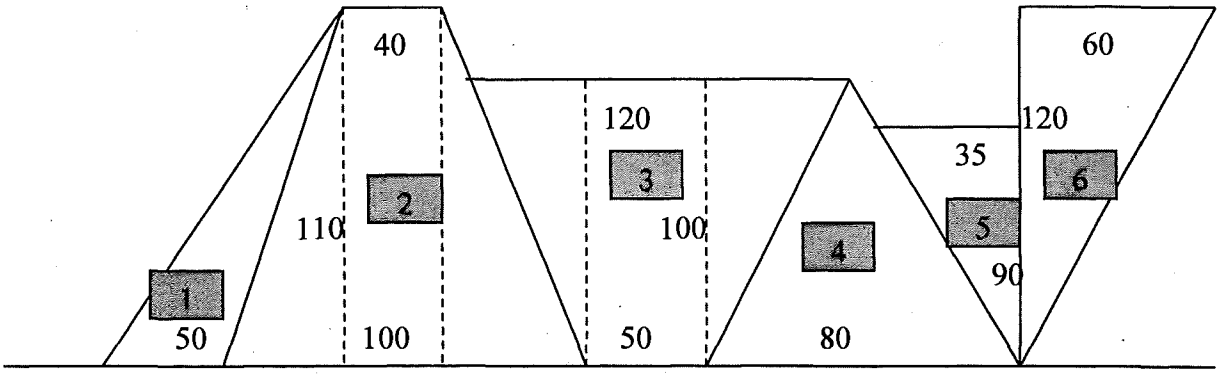
Depth In Feet	Factor 100 ft Standard	Factor 125 ft Standard	Factor 150 ft Standard	Factor 200 ft Standard	Factor
10	0.32	0.29	0.26	0.22	0.21
15	0.39	0.35	0.32	0.27	0.25
20	0.45	0.4	0.37	0.32	0.29
25	0.5	0.45	0.41	0.35	0.33
30	0.55	0.49	0.45	0.39	0.36
35	0.59	0.53	0.48	0.42	0.39
40	0.63	0.57	0.52	0.45	0.41
45	0.67	0.6	0.55	0.48	0.43
50	0.71	0.63	0.58	0.5	0.45
55	0.74	0.66	0.61	0.52	0.47
60	0.78	0.69	0.63	0.55	0.49
65	0.81	0.72	0.66	0.57	0.51
70	0.84	0.75	0.68	0.59	0.52
75	0.87	0.78	0.71	0.61	0.54
80	0.89	0.8	0.73	0.63	0.56
85	0.92	0.83	0.75	0.65	0.57
90	0.95	0.85	0.78	0.67	0.59
95	0.98	0.87	0.8	0.69	0.61
100	1	0.9	0.82	0.71	0.63
105	1.03	0.92	0.84	0.73	0.64
110	1.05	0.94	0.86	0.74	0.66
115	1.07	0.96	0.88	0.76	0.68
120	1.1	0.98	0.89	0.78	0.69
125	1.12	1	0.91	0.79	0.71
130	1.14	1.02	0.93	0.81	0.72
135	1.16	1.04	0.95	0.82	0.73
140	1.18	1.06	0.97	0.84	0.75
145	1.2	1.08	0.98	0.85	0.76
150	1.23	1.1	1	0.87	0.78
160	1.27	1.13	1.03	0.9	0.8
170	1.3	1.17	1.07	0.92	0.82
180	1.34	1.2	1.1	0.95	0.85
190	1.38	1.23	1.13	0.98	0.87
200	1.41	1.27	1.16	1	0.89
210	1.45	1.3	1.18	1.03	0.92
220	1.48	1.33	1.21	1.05	0.94
230	1.52	1.36	1.24	1.07	0.96
240	1.55	1.39	1.27	1.1	0.98
250	1.58	1.42	1.29	1.12	1
300	1.73	1.55	1.42	1.23	1.04
350	1.87	1.67	1.53	1.32	1.09
400	2.	1.79	1.63	1.42	1.13
450	2.12	1.9	1.73	1.50	1.18
500	2.24	2.	1.83	1.58	1.23

Sample Land Computation - 2

TRIANGLUAR AND ODD SHAPED LOTS

Standard Lot Depth: 100ft

The effective front footage of triangular lots is developed using the rule valuing a lot with its base on the street line at 60% of the value of a rectangular lot of equal frontage and depth: for a lot with the apex on the street, at 30% of the value of a rectangular lot of equal frontage and depth. The depth is always assumed to be the perpendicular distance from the apex of a triangle to the base line.



$80 Street

Lot	Frontage	Depth	Depth Factor	Unit Value	FR. Ft. Value	Total
#1	E-30	110	105	80	84	2520
#2	E-76	110	105	80	84	6380
#3	E-76	100	100	80	80	5680
#4	E-48	100	100	80	80	3840
#5	E-10.5	90	95	80	76	800
#6	E-18	120	110	80	88	1580

EXPLANATION OF ABOVE COMPUTATIONS

#1 – Effective Frontage is 30' (50' x 60%) Depth Factor for 110' x Unit Value x Effective Frontage (105% x 80 x 30) = $2520

#2 - Lot contains 1 regular lot 40 x 110 and two triangular lots with their bases at the street. The bases of the two triangles total 60' (100-40).60 x 60% = 36. This plus the regular lot of 40' = 76' effective frontage. With a depth factor of 105% x $80($84) x 76 = $6,380.

#3 - This lot is the reverse of #2 in that it contains one regular lot (50x x100) and two triangular pieces with their apexes on the street. The sum of their bases is 70' (120' – 50'). 70' x 30% = 21'. To this figure add the frontage of the regular lot (2' + 50') or 71' effective frontage. (100% x 80 x 71') = $5,680

#4 - A Triangular lot 100' deep with its base (80') on the street. 80 x 60% = 48' effective frontage. At the standard depth of 100' at $80 per front foot the lot is priced as $3,840 (48' x $80)

#5 - A triangular lot with its apex on the street. Its base is 30' multiplies by 30% giving an effective frontage of 10.5'. The depth factor for 90 ft. depth is 95%, applied to the unit value of $80 is $38, which for 10.5' totals $800. ($80 x 95% x 10.5')

#6 - Same as #5. Base is 60' @30% = 18'. Depth factor for 120' is 110% x $80 unit value is $88 (80 x 110%). $88 x 18' = $1,580

LINEAR CONVERSION TABLE

Rods to Feet	0	10	20	30	40	50	60	70	80	90	100
0	-	165.0	330.0	495.0	660.0	825.0	990.0	1155.0	1320.0	1485.0	1650.0
1	16.5	181.5	346.5	511.5	676.5	841.5	1006.5	1171.5	1320.0	1501.5	1666.5
2	33.0	198.0	363.0	528.0	693.0	858.0	1023.0	1188.0	1336.5	1518.0	1683.0
3	49.5	214.5	379.5	544.5	709.5	874.5	1039.5	1204.5	1369.5	1534.5	1699.5
4	66.0	231.0	396.0	561.0	726.0	891.0	1058.0	1221.0	1386.0	1551.0	1716.0
5	82.5	247.5	412.5	577.5	742.5	907.5	1072.5	1237.5	1402.5	1567.5	1732.5
6	99.0	264.0	429.0	594.0	759.0	924.0	1089.0	1254.0	1419.0	1584.0	1749.0
7	115.5	280.5	445.5	610.5	775.5	940.5	1105.5	1270.5	1435.5	1600.5	1765.5
8	132.0	297.0	462.0	627.0	792.0	957.0	1122.0	1287.0	1452.0	1617.0	1782.0
9	148.5	313.5	478.5	643.5	808.5	973.5	1138.5	1303.5	1468.5	1633.5	1798.5

1 link - 7.92 inches
1 link - .066 Feet
1 Chain - 100 Links
1 Chain - 66 Feet
4 Rods - 1 Chain (Gunter's)
1 Mile - 5,280 Feet
1 Mile - 80 Chains
1 Mile - 320 Rods
1 Acre - 10 Square Chains
1 Acre - 43,560 Square Feet

200 Rods - 3,300 Feet
300 Rods - 4,950 Feet
400 Rods - 6,600 Feet
500 Rods - 8,250 Feet
600 Rods - 9,900 Feet
700 Rods - 11,500 Feet
800 Rods - 13,200 Feet
900 Rods - 14,850 Feet

Links	To Feet		
	0	10	20
0	-	6.6	13.2
1	.66	7.26	13.86
2	1.32	7.92	14.52
3	1.98	8.58	15.18
4	2.64	9.24	15.84
5	3.3	9.9	16.50
6	3.96	10.56	-
7	4.62	11.22	-
8	5.28	11.88	-
9	5.94	12.54	-

Chapter XII
Land Computations

Rods to Feet	0	10	20	30	40	50	60	70	80	90	100
0	-	165.0	330.0	495.0	660.0	825.0	990.0	1155.0	1320.0	1485.0	1650.0
1	16.5	181.5	346.5	511.5	676.5	841.5	1006.5	1171.5	1336.5	1501.5	1666.5
2	33.0	198.0	363.0	528.0	693.0	858.0	1023.0	1188.0	1353.0	1518.0	1683.0
3	49.5	214.5	379.5	544.5	709.5	874.5	1039.5	1204.5	1369.5	1534.5	1699.5
4	66.0	231.0	396.0	561.0	726.0	891.0	1058.0	1221.0	1386.0	1551.0	1716.0
5	82.5	247.5	412.5	577.5	742.5	907.5	1072.5	1237.5	1402.5	1567.5	1732.5
6	99.0	264.0	429.0	594.0	759.0	924.0	1089.0	1254.0	1419.0	1584.0	1749.0
7	115.5	280.5	445.5	610.5	775.5	940.5	1105.5	1270.5	1435.5	1600.5	1765.5
8	132.0	297.0	462.0	627.0	792.0	957.0	1122.0	1287.0	1452.0	1617.0	1782.0
9	148.5	313.5	478.5	643.5	808.5	973.5	1138.5	1303.5	1468.5	1633.5	1798.5

1 Link – 7.92 inches

1 Link – 0.66 feet

1 Chain – 100 Links
1 Chain = 66 Feet
4 Rods – 1 Chain *Gunters*
1 Mile – 5280 Feet
1 Mile – 80 Chains
1 Mile – 320 Rods
1 Mile – 10 Sq Chains
1 Acre – 10 Square Rods
1 Acre – 43,560 Sq Feet

200 Rods – 3300Feet
300 Rods – 4950 Feet
400 Rods – 6600 Feet
500 Rods – 8250 Feet
600 Rods – 9900 Feet
700 Rods – 11500 Feet
800 Rods – 13200 Feet
900 Rods – 14850 Feet

Links to	Feet 0	10	20
0	-	6.60	13.20
1	.66	7.26	13.86
2	1.32	7.92	14.52
3	1.98	8.58	15.18
4	2.64	9.24	15.84
5	3.30	9.90	16.50
6	3.96	10.56	
7	4.62	11.22	-
8	5.28	11.88	-
9	5.94	12.54	-

Chapter XIII
Glossary

This glossary contains definitions of terms used in this manual.

Acoustical tile - Ceiling or wall tile finishing material with an inherent property to absorb sound; usually made of mineral fiber or insulated metal material.

Actual cash value – Cash equivalent for loss or damage that might occur to property exposed to catastrophe.

Addition -Living area built onto a residence after original construction; only one wall in common with residence; usually only a door or passageway connecting the two.

Air conditioning - Controlling of temperature, purity or humidity of air.

Apartment - Residential unit of one or more rooms, providing complete living facilities for a family or individual.

Architect plan - House plan prepared by an architect for a specific house or building.

Arm's-length - Transaction freely arrived in the open market, unaffected by abnormal pressure or by the absence of normal competitive negotiation as might be true in the case of a transaction between related parties.

Ashlar - Wall facing of cut stone slabs.

Asphalt shingles - Mineral-surfaced bitumen felt laid in horizontal strips on the roof.

Attached Garage - Car storage structure with one or two walls in common with residence.

Back-up - Inner, load bearing, or structural portion of a wall; usually finished with face brick, ashlar, stucco, or other decorative or protective veneer.

Barn Cleaner - Endless chain-and-slat or shuttle-paddle system which removes manure from barn gutters through a chute to outside of barn.

Batt insulation - Paper-wrapped, flat-surfaced insulating blanket

Beam Principal - Horizontal load supporting member of a building; may be wood, steel or concrete.

Beveled-wood siding – Side board of varying widths, with lower edge thicker than upper edge.

Bottom unloader - Chain or other mechanical conveyor used to remove silage from the bottom of a silo.

Bridging - Wood or metal bracing members between floor joists.

Broiler house - Structure used to house chickens to be sold as meat.

BX – Wiring encased in flexible metal tube.

Capitalization – Arithmetic process of converting anticipated dollar amounts into an estimate of their present worth.

Capitalization rate – Combination or sum of interest rate and recapture rate; relationship between net income of property and it's value.

Center-line duct - Air-conveying ducts running down the center of a structure.

Center unloader - Silo center-cylinder containing trapdoor into which silage is pushed by auger, then dropped down to the unloader conveyor.

Ceramic tile – Glazed clay tile used for wall and floor finishes.

Chimney – Masonry structure containing a vertical flue.

Common brick - Inexpensive clay brick; no uniform face or precision mold.

Concrete – Hard stone-like material made by mixing an aggregate (such as crushed stone or gravel) and cement with water.

Cost of replacement new – Amount necessary to replace a property with a modern, new unit of equivalent utility.

Chapter XIII
Glossary

Cost of reproduction new – Amount necessary to duplicate an item in its entirety. This amount is based upon current market costs for material and labor, plus contractor overhead, profit and fees; but does not include special overtime (or bonuses) for labor or premiums for materials.

Curtain wall – Exterior wall which encloses, but does not support, the structural frame of a building.

Designer plans – House plans furnished by professional designers.

Direct expansion milk cooler – Refrigerated milk cooler storage tanks.

Double-hung window – type of window containing two movable sash sections which slide vertically.

Downspout – Vertical pipe to carry rainwater from the roof gutters to the ground.

Drywall – Gypsum board; a surface material used for interior partitions and ceilings.

Economic obsolescence – Loss in value caused by unfavorable influences occurring outside the structure.

Effective age – Age of a building indicated by its condition, usefulness, and architectural appearance; may be less than actual age if building is modernized; more if its not in repair.

Effective gross income — gross income less percentage for vacancy and/or non-payment of rent.

Excavation – removal of soil from building site in anticipation of a basement, foundation walls or slab-on-ground.

Exposed aggregate panel – Precast concrete wall section with smooth interior finish and exposed gravel, stone or marble chip exterior finish.

Face brick – Decorative brick used to finish the exterior of building walls.

Farrowing pen — enclosure where sow can give birth and nurse young.

Farrowing stall – Compartment used to contain sow during delivery.

Felt – Nonwoven fabric of wool, fur, hair, or vegetable fiber matted together by heat, moisture, and pressure.

Fiber wallboard – Wood or other plant fiber building board compressed and bonded into sheets.

Filler distributor – Automatic silo loading, leveling, and compacting mechanism which packs layers of silage uniformly from silo center to wall.

Footing – Usually reinforced concrete or brick support for columns or walls.

Foundation – Supporting part of wall; Substructure below ground or basement floor on which superstructure rests.

Foyer – Lobby; entrance hall.

Frame – Skeleton; supporting structure of building.

Free stall – Individual stall where cow may enter, lie down or leave at its will.

Functional obsolescence – Loss in value occurring within a structure, caused by changes in design, overcapacity or inadequacy; e.g., high ceilings, old-style fixtures or cabinets, poor floor plan.

Gable – Wall at the end of a building above the eaves and between the slopes of a pitched roof.

Gambrel roof – Pitched roof with each side having two slopes.

Ground floor area – Area computed using the exterior dimensions of the ground floor, or that floor which is approximately level with the ground.

Gutter – Shallow channel set along eaves of house to drain water from the roof. In barns, depressed channel in the floor.

Hardwood – Wood from broad-leafed deciduous trees.

Chapter XIII
Glossary

Herringbone stalls – Stalls set at an angle to the milking parlor walkway and operator working pit.

Hallow-core plank – Load supporting, prefabricated concrete wall, floor or roof.

Ice-bank milk cooler – Cooling and storage tank containing circulating water cooled by passing over an ice supply.

Insulation – Any material used to reduce the transfer of heat, cold, or sound.

Joist – One of a series of parallel structural members, which supports the floor and ceiling loads; supported in turn by beams, girders, or bearing walls.

Lateral – Underground telephone, natural gas, city water and sewer connection from a building to municipal supplies.

Load supporting wall – Wall which supports floor and roof plus its own weight.

Mansard roof – Roof with two slopes on each of its four sides, the lower steeper than the upper.

Masonry – Stone, brick, concrete, tile and concrete, or gypsum block construction bonded with mortar.

Mechanical feeder – Auger endless-chain or slat system used to fill cattle feeding troughs.

Metal-clad door – Wood or fiber-core door with metal sheathing.

MHMA – Mobile Homes Manufacturers Association.

Monitor roof – Raised structure on a roof having windows or louvres for ventilating or lighting the building, as a factory or warehouse.

NASI - American National Standards Institute.

NFPA – National Fire Protection Association.

On center – Center-to-center distance from one structural member to another; term used for spacing studs, joists, or rafters.

Partition — A dividing wall between rooms or areas.

Physical deterioration – Wear and tear of materials due to physical factors.

Pier – Heavy square column or vertical supporting structure.

Plaster – Mixture of lime, sand, and water used as a finishing surface for walls and ceilings.

Plywood – Wood product constructed of three or more layers of veneer joined with glue; usually with grains adjoining plies at right angles.

Pole frame – Building structural skeleton consisting of cylindrical timbers, generally with the bark removed, and treated with preservative.

Porch – Roofed structure providing shelter at the entrance of a building. An open or enclosed room on the outside of a building.

Post – vertical structural member.

Pre-engineered building – Building constructed of predesigned, manufactured or assembled units such as wall and roof panels on steel frame.

Rafter – Joist or beam which supports a roof.

Reinforced concrete – Concrete containing steel rods or mesh for absorbing tensile and shearing stresses.

Riser – Vertical part of a stair step.

Roll-out room – Mobile home additional room which extends from the main structure; usually has a flat roof.

Romex – Nonmetallic sheathed wiring.

Sandwich panel – Core of insulation covered on both sides with such materials as concrete, metal asbestos, or plastic.

Sewer – Underground system of pipes to carry off waste material or surface water.

Shake – Shingle formed by splitting a log into a number of tapered rectangular sections.

Sheathing – Boards, plywood, or insulation board; first covering placed on exterior wall studding or roof rafters.

Skirting – Trim which hides the under carriage of a mobile home. It continues the wall line of the mobile home to the ground.

Slope – Relation of horizontal distance to vertical rise or fall.

Soffit - The undersurface of a building member, as of an arch, cornice, overhang or stairway.

Softwood – Wood from the botanical group gymnosperms, most of which are cone-bearing.

Specifications – Description of a building's material composition.

Stave silo – Silo constructed using either concrete or wood sections placed upright and held together by metal hoops.

Stock-type plans – Plans that can be purchased commercially.

Story – Horizontal division of a building; that portion between one floor and the floor above, or the top floor and roof.

Stucco – Cement plaster used as an exterior wall surface; usually applied over a metal or wood lath base.

Stud – A vertical wood or metal framing member used as the load bearing member in walls and partitions.

Stud frame – Building structural skeleton.

Subfloor – Floor laid on top of the floor joists, to which the underlayment or finish-flooring is fastened.

Terrazzo – A durable floor finish consisting of small colored stone or marble chips embedded in cement, and polished to a high glaze.

Tie-downs – Steel bands or wires looping a mobile home and anchored in the ground.

Tie-stall – Separate stall containing chain or bar onto which a cow's neckstrap is fastened.

Tile – Thin piece of fired clay, stone or concrete used for a roof, floor, or wall finish. A thin piece of resilient material such as cork, asphalt, rubber or plastic used for floor or wall coverings.

Tip-out room – Mobile home extension; normally smaller than a roll-out room; usually has a pitched roof.

Tract-built – Many homes built from the same basic plan or plans.

Trim – Building finish material (such as moldings) applied around openings: window trim, door trim, or floors and ceilings.

Trussed roof – Roof supported by structural frames built as a series of triangles.

Vapor barrier – Airtight plastic skin used to prevent condensation in walls and floors.

Veneer -Usually decorative, surface layer covering common material base.

Vinyl asbestos tile - Plastic and asbestos fiber mixture floor covering similar to vinyl tile, but much harder and more brittle.

Vinyl tile – Very flexible plastic or plastic-surfaced floor tile known for its durability and ease of cleaning.

Walk-through stall – stall where cows enters, holds for milking, then passes through when finished.