Alleghany County
2027
Schedule of Values



Schedule of rules, standards, and values to be used in appraising property in Alleghany County for the reappraisal effective January 1, 2027.

ALLEGHANY COUNTY
BOARD OF COMMISSIONERS

Bill Osborne, Chair
Garrison Wagoner, Vice Chair
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Approved

_____
Date

ALLEGHANY COUNTY BOARD OF COMMISSIONERS

Signed_____
Chair, Board of Commissioners

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STATUTORY REQUIREMENTS

G S 105-286. Time for general reappraisal of Real Property.

(a) Octennial Cycle - Each county must reappraise all real property in accordance with the provisions of G.S. 105-283 and G.S. 105-317 as of January 1 of the year set out in the following schedule and every eighth year thereafter, unless the county is required to advance the date under subdivision (2) of this section or chooses to advance the date under subdivision (3) of this section.

(1) Schedule of Initial Reappraisals. Division Four – 1975: ---Alleghany

G S 105-283. Uniform appraisal standards.

All property, real and personal, shall as far as practicable be appraised or valued at its true value in money. When used in this Subchapter, the words "true value" shall be interpreted as meaning market value, that is, the price estimated in terms of money at which the property would change hands between a willing and financially able buyer and a willing seller, neither being under any compulsion to buy or to sell and both having reasonable knowledge of all the uses to which the property is adapted and for which it is capable of being used. For the purposes of this section, the acquisition of an interest in land by an entity having the power of eminent domain with respect to the interest acquired shall not be considered competent evidence of the true value in money of comparable land.

G S 105-317. Appraisal of real property; adoption of schedules, standards, and rules.

(a) Whenever any real property is appraised, it shall be the duty of the persons making appraisals:

(1) In determining the true value of land, to consider as to each tract, parcel, or lot separately listed at least its advantages and disadvantages as to location; zoning; quality of soil; waterpower; water privileges; dedication as a nature preserve; conservation or preservation agreements; mineral, quarry, or other valuable deposits; fertility; adaptability for agricultural, timber-producing, commercial, industrial, or other uses; past income; probable future income; and any other factors that may affect its value except growing crops of a seasonal or annual nature.

(2) In determining the true value of a building or other improvement, to consider at least its location; type of construction; age; replacement cost; cost; adaptability for residence, commercial, industrial, or other uses; past income; probable future income; and any other factors that may affect its value.

(3) To appraise partially completed buildings in accordance with the degree of completion on January 1.

(b) In preparation for each revaluation of real property required by G.S. 105-286, it shall be the duty of the assessor to see that:

(1) Uniform schedules of values, standards, and rules to be used in appraising real property at its true value and at its present-use value are prepared and are sufficiently detailed to enable those making appraisals to adhere to them in appraising real property.

(2) Repealed by Session Laws 1981, c. 678, s. 1.

(3) A separate property record be prepared for each tract, parcel, lot, or group of contiguous lots, which record shall show the information required for compliance with the provisions of G.S. 105-309 insofar as they deal with real property, as well as that required by this section. (The purpose of this subdivision is to require that individual property records be maintained in sufficient detail to enable property owners to ascertain the method, rules, and standards of value by which property is appraised).

(4) The property characteristics considered in appraising each lot, parcel, tract, building, structure and improvement, in accordance with the schedules of values, standards, and rules, be accurately recorded on the appropriate property record.

(5) Upon the request of the owner, the board of equalization and review, or the board of county commissioners, any particular lot, parcel, tract, building, structure or improvement be actually visited and observed to verify the accuracy of property characteristics on record for that property.

(6) Each lot, parcel, tract, building, structure and improvement be separately appraised by a competent appraiser, either one appointed under the provisions of G.S. 105-296 or one employed under the provisions of G.S. 105-299.

(7) Notice is given in writing to the owner that he is entitled to have an actual visitation and observation of his property to verify the accuracy of property characteristics on record for that property.

(c) The values, standards, and rules required by subdivision (b)(1) shall be reviewed and approved by the board of county commissioners before January 1 of the year they are applied. The board of county commissioners may approve the schedules of values, standards, and rules to be used in appraising real property at its true value and at its present-use value either separately or simultaneously. Notice of the receipt and adoption by the board of county commissioners of either or both the true value and present-use value schedules, standards, and rules, and notice of a property owner's right to comment on and contest the schedules, standards, and rules shall be given as follows:

(1) The assessor shall submit the proposed schedules, standards, and rules to the board of county commissioners not less than 21 days before the meeting at which they will be considered by the board. On the same day that they are submitted to the board for its consideration, the assessor shall file a copy of the proposed schedules, standards, and rules in his office where they shall remain available for public inspection.

(2) Upon receipt of the proposed schedules, standards, and rules, the board of commissioners shall publish a statement in a newspaper having general circulation in the county stating:

a. That the proposed schedules, standards, and rules to be used in appraising real property in the county have been submitted to the board of county commissioners and are available for public inspection in the assessor's office; and

b. The time and place of a public hearing on the proposed schedules, standards, and rules that shall be held by the board of county commissioners at least seven days before adopting the final schedules, standards, and rules.

(3) When the board of county commissioners approves the final schedules, standards, and rules, it shall issue an order adopting them. Notice of this order shall be published once a week for four successive weeks in a newspaper having general circulation in the county, with the last publication being not less than seven days before the last day for challenging the validity of the schedules, standards, and rules by appeal to the Property Tax Commission. The notice shall state:

a. That the schedules, standards, and rules to be used in the next scheduled reappraisal of real property in the county have been adopted and are open to examination in the office of the assessor; and

b. That a property owner who asserts that the schedules, standards, and rules are invalid may except the order and appeal therefrom to the Property Tax Commission within 30 days of the date when the notice of the order adopting the schedules, standards, and rules was first published.

(d) Before the board of county commissioners adopts the schedules of values, standards, and rules, the assessor may collect data needed to apply the schedules, standards, and rules to each parcel in the county

105-309. What the abstract shall contain.

(a) Each person whose duty it is to list property for taxation shall file each year with the assessor a tax list or abstract showing, as of the date prescribed by G.S. 105-285(b), the information required by this section. Subject to the provisions of subdivisions (a)(1) and (a)(2), below, each person whose duty it is to list property for taxation shall file a separate abstract.

(1) Tenants by the entirety shall file a single abstract listing the real property so held, together with all personal property they own jointly.

(2) Tenants in common shall file a single abstract listing the real property so held, together with all personal property that they own jointly, unless, as provided in G.S. 105-302(c)(9), the assessor allows them to list their undivided interests in the real property on separate abstracts.

(b) Each abstract shall show the taxpayer's name; residence address; and, if required by the assessor, business address.

(1) An individual trading under a firm name shall show his name and address and also the name and address of his business firm.

(2) An unincorporated association shall show both the name and address of the association and the names and addresses of its principal officers.

(3) A partnership shall show both the name and address of the partnership and the names and addresses of its full partners.

(c) Each tract, parcel, or lot of real property owned or controlled in the county shall be listed in accordance with the following instructions:

(1) Real property not divided into lots shall be described by giving:

a. The township in which located.

b. The total number of acres in the tract, or, if smaller than one acre, the dimensions of the parcel.

c. The tract name (if any), the names of at least two adjoining landowners, a reference to the tract's designation on any map maintained in the office of the assessor or on file in the office of the register of deeds, or some other description sufficient to identify and locate the property by parol testimony.

d. If applicable, the number of acres of:

1. Cleared land;
2. Woods and timberland;
3. Land containing mineral or quarry deposits;
4. Land susceptible of development for waterpower;
5. Wasteland.

e. The portion of the tract or parcel located within the boundaries of any municipality.

(2) Real property divided into lots shall be described by giving:

a. The township in which located.

b. The dimensions of the lot.

c. The location of the lot, including its street number (if any).

d. The lot's designation on any map maintained in the office of the assessor or on file in the office of the register of deeds, or some description sufficient to identify and locate the property by parol testimony.

e. The portion of the lot located within the boundaries of any municipality.

(3) In conjunction with the listing of any real property under subdivisions (c)(1) and (c)(2), above, there shall be given a short description of any buildings and other improvements thereon that belong to the owner of the land.

(4) Buildings and other improvements having a value in excess of one hundred dollars ($100.00) that have been acquired, begun, erected, damaged, or destroyed since the time of the last appraisal of property shall be described.

(5) If some person other than the owner of a tract, parcel, or lot shall own any buildings or other improvements thereon or separate rights (such as mineral, quarry, timber, waterpower, or other rights) therein, that fact shall be specified on the abstract on which the land is listed, together with the name and address of the owner of the buildings, other improvements, or rights.

a. Buildings, other improvements, and separate rights owned by a taxpayer with respect to the lands of another shall be listed separately and identified

so as to indicate the name of the owner thereof and the tract, parcel, or lot on which the buildings or other improvements are situated or to which the separate rights appertain.

b. In accordance with the provisions of G.S. 105-302(c)(11), buildings or other improvements or separate rights owned by a taxpayer with respect to the lands of another may be listed either in the name of the owner of the buildings, other improvements, or rights, or in the name of the owner of the land.

(d) Personal property shall be listed to indicate the township and municipality, if any, in which it is taxable and shall be itemized by the taxpayer in such detail as may be prescribed by an abstract form approved by the Department of Revenue. The assessor may require additional information as follows:

(1) If the assessor considers it necessary to obtain a complete listing of personal property, the assessor may require a taxpayer to submit additional information, inventories, or itemized lists of personal property.

(2) At the request of the assessor, the taxpayer shall furnish any information the taxpayer has with respect to the true value of the personal property the taxpayer is required to list.

(e) At the end of the abstract each person whose duty it is to list property for taxation shall sign the affirmation required by G.S. 105-310.

(f) The assessor must print a homestead tax relief notice on each abstract or on an information sheet distributed with the abstract. The abstract or sheet must include the address and telephone number of the assessor below the notice required by this section. The notice must be in the form required by the Department of Revenue designed to notify the taxpayer of his or her rights and responsibilities under the homestead property tax exclusion provided in G.S. 105-277.1 and the property tax homestead circuit breaker provided in G.S. 105-277.1B.

(g) Any person who fails to give the notice required by G.S. 105-309(f) shall not only be subject to loss of the exemption, but also to the penalties provided by G.S. 105-312, and also if willful to the penalty provided in G.S. 105-310. For the purpose of determining whether a penalty is levied, whenever a taxpayer has received an exemption under G.S. 105-277.1 for one taxable year but the property of taxpayer is not eligible for the exemption the next year, notice given of that fact to the assessor on or before April 15 shall be considered as timely filed. (1939, c. 310, s. 900; 1941, c. 221, s. 1; 1953, c. 970, s. 6; 1955, c. 34; 1971, c. 806, s. 1; 1973, c. 448, s. 2; c. 476, s. 193; 1975, c. 881, s. 3; 1977, c. 666, s. 2; 1979, c. 846, s. 2; 1981, c. 54, ss. 4-6; c. 1052, s. 1; 1985, c. 656, ss. 47, 51; 1985 (Reg. Sess., 1986), c. 947, s. 9; c. 982, s. 23; 1987, c. 43, s. 6; c. 45, s. 1; 1993, c. 360, s. 2; 1996, 2nd Ex. Sess., c. 18, s. 15.1(b); 1998-98, s. 111; 2001-308, s. 2; 2007-484, s. 43.7T(b); 2007-497, s. 2.5; 2014-3, s. 14.20(a).)

G S 105-302. In whose name real property is to be listed.

(c)(11) When land is owned by one party and improvements thereon or special rights (such as mineral, timber, quarry, waterpower, or similar rights) therein are owned by another party, the parties shall list their interests separately unless, in accordance with contractual relations between them, both the land and the improvements and special rights are listed in the name of the owner of the land.

G S 105-296. Powers and duties of assessor.

(b) Within budgeted appropriations, he shall employ listers, appraisers, and clerical assistants necessary to carry out the listing, appraisal, assessing, and billing functions required by law. The assessor may allocate responsibility among such employees by territory, by subject matter, or on any other reasonable basis. Each person employed by the assessor as a real property appraiser or personal property appraiser shall during the first year of employment and at least every other year thereafter attend a course of instruction in his area of work. At the end of the first year of their employment, such persons shall also achieve a passing score on a comprehensive examination in property tax administration conducted by the Department of Revenue.

G S 105-299. Employment of experts.

The board of county commissioners may employ appraisal firms, mapping firms or other persons or firms having expertise in one or more of the duties of the assessor to assist him or her in the performance of such duties. The county may make available to such persons any information it has that will facilitate the performance of a contract entered into pursuant to this section. Persons receiving such information shall be subject to the provisions of G.S. 105-289(e) and G.S. 105-259 regarding the use and disclosure of information provided to them by the county. Any person employed by an appraisal firm whose duties include the appraisal of property for the county shall be required to demonstrate that he or she is qualified to carry out such duties by achieving a passing grade on a comprehensive examination in the appraisal of property administered by the Department of Revenue. In the employment of such firms, primary consideration shall be given to the firms registered with the Department of Revenue pursuant to the provisions of G.S. 105-289(i). A copy of the specifications to be submitted to potential bidders and a copy of the proposed contract may be sent by the board to the Department of Revenue for review before the invitation or acceptance of any bids. Contracts for the employment of such firms or persons shall be deemed to be contracts for personal services and shall not be subject to the provisions of Article 8, Chapter 143, of the General Statutes.

Note: The Machinery Act of North Carolina has been provided as an integral part of these Uniform Schedules of Value, Standards, and Rules. All applicable statutes not recited in this text are included by reference.

APPRAISAL THEORY

An appraisal, in itself, is nothing more than an opinion of value. This does not imply, however, that one opinion is necessarily as good as another; there are valid and accurate appraisals, and there are invalid and inaccurate appraisals. The validity of an appraisal can be measured against the supporting evidence from which it was derived, and its accuracy against that very thing it is supposed to predict - the actual behavior of the market. Each is fully contingent upon the ability of the appraiser to record adequate data and to interpret that data into an indication of value.

Appraising real property, like the solving of any problem, is an exercise in reasoning. It is a discipline, and like any discipline, it is founded on fundamental economic and social principles. From these principles, certain premises which, when applied to the valuation of property, serve to explain the reaction of the market. This section concerns itself with those concepts and principles basic to the property valuation process. One cannot overstate the necessity of having a workable understanding of them.

THE BUNDLE OF RIGHTS

Real estate and real property are often used interchangeably. In most cases, real estate pertains to the land or fixed improvements to the land such as structures and other appurtenances, whereas real property encompasses all the interests, benefits and rights enjoyed by the ownership of the real estate.

Real property ownership involves the Bundle of Rights Theory which asserts that the owner has the right to enter it, use it, sell it, lease it, give it away, or do none of the above, as he/she so chooses. The law guarantees these rights, but they are subject to certain governmental and private restrictions.

The Governmental restrictions are found in its power to:

- tax property
- take property by condemnation for the benefit of the public, providing that just compensation is made to the owner (Eminent Domain)
- police property by enforcing any regulations deemed necessary to promote the safety, health, morals and general welfare of the public
- provide for the reversion of ownership to the state in cases where a competent heir to the property cannot be ascertained (Escheat)

Private restrictions imposed upon property are often in the form of agreements incorporated into the deed. The deed also spells out precisely which rights of the total bundle of rights the buyer is acquiring.

Since value is related to each of these rights, the appraiser should know precisely which rights are involved in his appraisal.

Appraisals for Ad Valorem tax purposes generally assume the property is owned in "Fee Simple," meaning that the total bundle of rights is considered to be intact.

THE NATURE AND MEANING OF VALUE

An appraisal is an opinion or estimate of value. The concept of value is basic to the appraisal process and calls for a thorough understanding. The American Institute of Real Estate Appraisers' Appraisal Terminology Handbook, 1981 edition, offers the following definitions of value:

"The measure of value is the amount (for example, of money) which the potential purchaser probably will pay for possession of the thing desired."

"The ratio of exchange of one commodity for another, for example, one bushel of wheat in terms of a given number of bushels of corn; thus, the value of one thing may be expressed in terms of another thing. Money is the common denominator by which value is measured."

"It is the power of acquiring commodities in exchange, generally with a comparison of utilities - the utility of the commodity parted with (money) and that of the commodity acquired in the exchange (property)."

"Value depends upon the relation of an object to unsatisfied needs; that is, supply and demand."

"Value is the present worth of future benefits arising out of ownership to typical users and investors."

With these definitions, one can see that value is not an intrinsic characteristic of the commodity itself. On the contrary, value is determined by people, created by desire, modified by varying degrees of desire, and reduced by lack of desire. Throughout the definitions a relationship between the purchase and the commodity (property) is implied; this relationship is "value". A purchaser desires a property because it is a useful commodity in that it has utility. Utility is a prerequisite to value, but utility standing alone does not sufficiently cause value. If a great supply of a useful commodity exists, as for example air, needs would be automatically satisfied, desire would not be aroused, and therefore value would not be created. Therefore, besides having utility, to effectively arouse desire, the commodity must also be scarce.

One additional factor is necessary to complete the value equation - the ability to become a buyer. A translation must be made of desire into a unit of exchange; a buyer must have purchasing power. The relationship is now complete - the commodity has utility and is relatively scarce, it arouses desire, and the buyer is able to satisfy that desire by trading for it-value is created. The question is how much value, and herein lays the job of the appraiser.

Numerous definitions of value have been offered, some simple and some complex. It would seem though that any valid definition of value would necessarily embody the elements of utility, desire, scarcity, and purchasing power. Furthermore, the concept of value very rarely stands alone. Instead, it is generally prefixed by a descriptive term that serves to relate it to a specific appraisal purpose or activity such as "loan value". Since

appraisals are made for a variety of reasons, it is important for the appraiser to clarify the specific purpose for the appraisal and the type of value that he seeks to estimate.

For Ad Valorem Tax purposes, the value sought is generally market value. The descriptive term "market" indicates the activity of buyers and sellers. Market Value is the justifiable price, or that price which an informed and intelligent buyer, fully aware of the existence of competing properties, and not being compelled to act, would be justified in paying for a particular property.

VALUE IN USE AS OPPOSED TO VALUE IN EXCHANGE

We have stated that there are a number of qualifying distinctions made in reference to the meaning of value. One of the most common and probably the most important relative to the purpose of this manual is the distinction between value in use and value in exchange. We have defined market value as a justifiable price which buyers, in general, will pay in the market. The question arises then as to the value of property which, by nature of its special and highly unique design, is useful to the present owner, but relatively less useful to buyers in the market. One can readily see that such a property's utility value may differ greatly from its potential sales price. It is even possible that no market for such a property exists. Such a property is said to have value in use, which refers to the actual value of a commodity to a specific person, as opposed to value in exchange, which aligns itself with market value, referring to the dollar value of a commodity to buyers in general.

PRICE, COST AND VALUE

Another key distinction is the difference between price, cost, and value. The price is simply what is being asked for by the seller. This price may be in line with market value, or it may be unrealistically high or low. Property is said to be overpriced or underpriced when price does not correspond to value.

Likewise, cost is simply what was paid for the property. Cost indicates that there was a buyer willing to pay what the seller was asking, but this is no guarantee of value. Perhaps the price was too high, but the buyer was naïve and was willing to pay it, resulting in a cost that does not reflect value. Perhaps the price was too low because the seller was uninformed, and the buyer gladly paid it, resulting in a cost that does not reflect value. Once again, we must not confuse the cost with value.

This difference between cost and value has led to the axiom, "one sale does not make a market." A market is the whole universe of property offered for sale (prices), buyers offering to purchase (offers), and agreements to sell property (costs). Within this market, a trend emerges in prices, offers, and costs. These costs (individual sales), when taken as a whole, indicate true market value. Individual sales most commonly follow this market trend; however, outliers will exist that are both higher and lower than what is typical of the market. When reviewing a single sale, in isolation of the larger universe of properties that have sold, it is impossible to know if that sale is in line with the market trend or an outlier. Thus, all that a single sale tells us is cost, not value. Value arises when the many sales of the market are taken together to determine an average, typical and likely amount for which the property could be sold.

THE PRINCIPLE OF SUPPLY AND DEMAND

Among the forces which constantly operate to influence supply and demand are population growth, new techniques in transportation, purchasing power, price levels, wage rates, taxation, governmental controls, and scarcity. A sudden population growth in an area would create an increase in demand for housing. If the demand increased at a higher rate than the supply, this could soon be a scarcity of housing. If the demand was backed up by purchasing power, rentals and sale prices would tend to increase and ultimately reach a level which would tend to stimulate more builders to compete for the potential profits and thus serve to increase the supply toward the level of demand. As the supply is increased, demand began to taper off. This would cause rentals and sale prices to level off. When builders, due to increases in labor and material rates, are no longer able to build cheaply enough to meet the new level of prices and rents, competition would tend to taper off and supply would level off. The cycle is then complete.

Balance occurs when reasonable competition serves to coordinate supply with demand. When competition continues unchecked to produce a volume that exceeds the demand, the net returns to investors are no longer adequate to pay all the costs of ownership, resulting in loss rather than profit and consequently, a decline in values.

A community may well support two shopping centers, but the addition of a third shopping center may increase the supply to excess. If this occurs, one of two effects are caused; either the net dollar return to all the shopping centers will be reduced below that level necessary to support the investment, or one of the shopping centers will flourish at the others' expense.

THE PRINCIPLE OF HIGHEST AND BEST USE

The highest and best use for a property is that use which will produce the highest net return to the land for a given period of time within the limits of those uses which are legally permissible, physically possible, and financially feasible.

On a community-wide basis, the major determining factor in highest and best use is the maximum quantity of land that can be devoted to a specific use and still yield a satisfactory return. Once a suitable basic use has been chosen for a specific property, each increment of capital investment to the existing or planned improvement will increase the net return to the land only up to a certain point; after this point is reached; the net return to the land begins to diminish. This is the point at which the land is at its highest and best use.

For example, in planning a high-rise office building, each additional upper floor represents an extra capital expenditure that must yield a certain return to the investor. This return will be dependent upon the levels of economic rent that the market will bear at the time. An optimum number of floors can be calculated above which the income yield requirements of additional expenditures will no longer be satisfactorily met. This, notwithstanding the possibility of other more particular considerations, should determine the number of stories of the building.

Detailed analysis of this type is rarely thrust upon the property tax appraiser. Generally, the tax appraiser will find the most prudent course of action is to consider the present use and follow development rather than anticipate it.

THE PRINCIPLE OF CHANGE

The impact of change on the value of real property manifests itself in the life cycle of a neighborhood. The cycle is characterized by three stages of evolution: the development and growth evidenced by improving values; the leveling off stage evidenced by static values; and finally, the stage of infiltration of decay evidenced by declining values.

The highest and best use today is not necessarily the highest and best use tomorrow. The highest and best use of the land often lies in a succession of uses. A declining single-family residential neighborhood may be ripe for multi-family, commercial or industrial development. Whether it is or not depends upon the relationship of present or anticipated future demand with existing supply.

In estimating value, the appraiser is obligated to reasonably anticipate the future benefits, as well as the present benefits derived from ownership and to evaluate the property in light of the quality, quantity, and duration of these benefits based on actual data as opposed to speculative or potential benefits that may or may not occur.

THE PRINCIPLE OF SUBSTITUTION

Value is created by the marketplace. It is the function of translating demand into a commodity of exchange. When the benefits and advantages derived from two properties are equal, the lowest priced property receives the greatest demand, and rightfully so. The informed buyer is not justified in paying anything more for a property than it would cost to acquire an equally desirable property. That is to say that the value of a property is established as that amount for which equally desirable comparable properties are bought and sold in the market. Herein lies an approach to value and the basis of the valuation process.

THE PRINCIPLE OF ANTICIPATION

Value is not solely reflective of the present benefits of the property assessed, but also comprehends the future benefits expected to be derived from the property. As such, an income stream expected to continue for a number of years, or an anticipated future change of highest-and-best use are considered when making a buying or selling decision in the present. The present worth of future benefits should be reflected in the valuation. Note that it is not the actual benefit that is eventually realized, but the anticipation or expectation of that benefit that creates present value.

THE PRINCIPLE OF BALANCE

The principle of balance may be applied to an individual property, to a neighborhood, or to the larger community. This principle states that the maximum return (or value) is achieved when all value factors are in balance, proportional, and complementary to one another. This is related to the principle of increasing and decreasing returns.

Applied to an individual property, this would indicate that the greatest value will be achieved when the improvement is proportionate to the land, and the quality, size and type of improvement components are proportionate and complementary to one another. For example, a two-bedroom house with a three-car garage would be disproportionate and out of balance. A retail center with insufficient land to provide adequate parking for the improvements would be disproportionate and out of balance.

Applied to a neighborhood, this would indicate that the greatest value will be achieved when the various improvements throughout the neighborhood are proportionate and complementary. A large, well-maintained, high-quality home surrounded by small, poorly maintained, low-quality homes is out of balance and will not be as valuable as if surrounded by similar size and quality homes. A gas station/used tire center placed in the middle of a residential development is not complementary and will tend to reduce values.

Applied to a larger community, this would indicate that the greatest value will be achieved when the various uses of land are proportionate and complementary. For example, residential neighborhoods supported by grocery stores and other retail, gas stations, dining, employment centers, schools, medical services, connecting infrastructure, etc. Should any of these uses become disproportionate or be located in ways that are not complementary, value will be diminished.

THE PRINCIPLE OF COMPETITION

The existence of economic profit drives competition. When a certain endeavor proves to be more profitable than average, market participants are drawn to participate in it to secure these excess profits. This increase in supply decreases the unit price of goods or services and profits begin to fall. As profits continue to drop below equilibrium, there is an economic disincentive to continue production, and market participants begin to exit the market for more profitable activities.

The principle of competition is related to the principle and supply and demand and states that an increase in market competition results in decreased prices while decreased market competition results in increased prices (all other factors held constant). Thus, when a certain type of property becomes oversaturated within a market, excess competition will result in a reduced value. Conversely, when a certain type of property becomes scarce within a market, value will tend to increase.

THE PRINCIPLE OF CONFORMITY

The principle of conformity is a special case of the principle of balance and related to the principles of progression and regression. It states that the value of property is influenced by its surroundings. Property which generally conforms to its surroundings (being of a similar type, age, quality, condition, etc.) will tend to be favored by the market while property which is out of conformity may be penalized.

THE PRINCIPLE OF CONSISTENT USE

The principle of consistent use states that the land and improvements must be valued according to the same use. Land valued according to one use with improvements valued according to another (inconsistent) use is a logical inconsistency which will result in an irrational value conclusion. For example, land valued according to current zoning with a commercial use which still supports a non-conforming residential structure must also value the structure according to the commercial use (which may call for the structure's demolition). Should the structure be valued according to its non-conforming residential use, the land must be valued according to this residential use as well. The use that yields the greater return is the highest and best use and reflects the true market value of the property.

THE PRINCIPLE OF CONTRIBUTION

The principle of contribution states that the value of a component of a property is determined by its contribution to the value of the whole property. Thus, an improvement may cost $10,000 but only increase the value of the property $7,000. Likewise, an improvement may cost $10,000 but increase the value of the property to $15,000. It is the increase in the total value of the property and not the cost of the improvement that determines the value.

THE PRINCIPLE OF INCREASING AND DECREASING RETURNS

The principle of increasing and decreasing returns states that increased investment to expand the scale of an improvement will result in increased return on investment, but only up to a point. Beyond that point, diminished marginal returns occur in which additional units of production result in falling return on investment.

For example, an investor purchases a property at foreclosure for $50,000, invests $5,000 to "freshen it up" and is now able to sell the property for $65,000 (18% profit). That same investor could have spent $15,000 on moderate renovations and sold for $80,000 (23% profit). The investor could also have spent $30,000 in extensive renovations and sold for $95,000 (19% profit). In this example, investing more results in an increasing return up to $15,000 of renovation. Beyond this point, additional investment results in a decreasing return.

THE PRINCIPLES OF PROGRESSION AND REGRESSION

The principle of progression states that a lower value improvement surrounded by higher value improvements will experience increased value by association. Thus, a home that would normally bring $120,000 located in a neighborhood of homes which typically sell for $180,000 might be able to bring $140,000.

The principle of regression states that a higher value improvement surrounded by lower value improvements will experience decreased value by association. Thus, a home that would normally bring $120,000 located in a neighborhood of homes which typically sell for $70,000 might only bring $105,000.

THE PRINCIPLE OF SURPLUS PRODUCTIVITY

The principle of surplus productivity states that the income produced from a given property, less the costs of labor, management and capital, equals the income attributed to the land. As a result, land value is heavily influenced by the cost of labor, management and capital.

TRADITIONAL APPROACHES TO VALUE

In the preceding paragraphs, it has been stated that value is an elusive item that occurs in many different forms, and that the forces and influences which combine to create, sustain, or destroy value are numerous and varied. It is the appraiser's function to define the type of value sought, to compile and to analyze all related data, and giving due consideration to all the factors which may influence the value, to process and translate that data into a final opinion or *estimate of value*. This he must do for each property he/she is to appraise.

The processing of this data into a conclusion of value generally takes the form of three recognized approaches to value: The Cost Approach, the Sales Comparison Approach and the Income Approach. Underlying each of the approaches is the principle that the justifiable price of a property is no more than the cost of acquiring and/or reproducing an equally desirable substitute property. The use of one or all three approaches in the valuation of a property is determined by the quantity, quality, and accuracy of the data available to the appraiser.

The *COST APPROACH* involves making an estimate of the depreciated cost of reproducing or replacing the building and site improvements. *Reproduction Cost* refers to the cost at a given point in time of reproducing a replica property, whereas *Replacement Cost* refers to the cost of producing improvements of equal utility. Depreciation is deducted from this cost new for loss in value caused by physical deterioration, and functional or economic obsolescence. To this depreciated cost is then added the estimated value of the land, resulting in an indication of value derived by the Cost Approach.

The significance of the Cost Approach lies in its extent of application-it is the one approach that can be used on all types of construction. It is a starting point for appraisers, and therefore it is a very effective “yardstick” in any equalization program for Ad Valorem taxes. Its widest application is in the appraisal of properties where the lack of adequate market and income data preclude the reasonable application of the other traditional approaches.

The *SALES COMPARISON APPROACH* involves the compiling of sales and offerings of properties that are comparable to the property being appraised. These sales and offerings are then adjusted for any dissimilarity, and a value range obtained by comparison of said properties. The approach is reliable to the extent that the properties are comparable, and the appraiser's judgment of proper adjustments is sound. The procedure for using this approach is essentially the same for all types of property with the only difference being the elements of comparison.

The significance of this approach lies in its ability to produce estimates of value, which directly reflect the attitude of the market. Its application is contingent upon the availability of comparable sales and therefore finds its widest range in the appraisal of vacant land and residential properties.

The *INCOME APPROACH* measures the present worth of the future benefits of a property by the capitalization of the net income stream over the remaining economic life of the property. The approach involves making an estimate of the "effective gross income" of a property, derived by deducing the appropriate vacant and collection losses from its estimated economic rent, as evidenced by the yield of comparable properties. From this figure then is deducted applicable operating expenses, the cost of insurance, and reserve allowances for replacements resulting in an estimate of net income, which may then be capitalized into an indication of value.
The approach obviously has its basic application in the appraisals of properties universally bought and sold on their ability to generate and maintain a stream of income for their owners. The effectiveness of the approach lies in the appraiser's ability to relate to the changing economic environment and to analyze income yields in terms of their relative quality and durability.

APPLYING THE COST APPROACH

If the highest and best use of a property is its present use, a valid indication of value may be derived by estimating the value of the land, and adding the land value to the depreciated value of the structures on the land; the resulting equation being:

	Estimated Land Value
+	Estimated Replacement Cost New of Structures
-	Estimated Depreciation
=	Indication of Property Value

Since estimating the land value is covered in a separate section, this section will address itself to the two remaining elements, Replacement Cost and Depreciation.

REPLACEMENT COST

Replacement Cost is the current cost of producing an improvement of equal utility to the subject property; it may or may not be the cost of reproducing a replica property. The distinction being drawn is one between *Replacement Cost*, which refers to a substitute property of equal utility, as opposed to *Reproduction Cost*, which refers to a substitute replica property. In a particular situation the two concepts may be interchangeable, but they are not necessarily so. They both, however, have application in the Cost Approach to value, the difference being reconciled in the consideration of depreciation allowances.

In actual practice, outside of a few historic type communities in this country, developers and builders, for obvious economic reasons, replace buildings, not reproduce them. It logically follows that if an appraiser's job is to measure the actions of knowledgeable persons in the market place, the use of proper replacement costs should provide an accurate point of beginning in the valuation of most improvements.

The replacement cost includes the total cost of construction incurred by the builder whether preliminary to, during the course of, or after completion of the construction of a particular building. Among these are material, labor, all subcontracts, builders' overhead and profit, architectural and engineering fees, consultation fees, survey and permit fees, legal fees, taxes, insurance, and the cost of interim financing.

ESTIMATING REPLACEMENT COST

There are various methods that may be employed to estimate replacement cost new. The methods widely used in the appraisal field are the quantity-survey method, the unit-in-place or component part-in-place method, and the model method.

The *Quantity-Survey Method* involves a detailed itemized estimate of the quantities of various materials used, labor and equipment requirements, architect and engineering fees, contractor's overhead and profit, and other related costs. This method is primarily employed by contractors and cost estimators for bidding and budgetary purposes and is much too laborious and costly to be effective in every day appraisal work, especially in the mass appraisal field. The method, however, does have its place in that it is used to develop certain unit-in-place costs which can be more readily applied to estimating for appraisal purposes.

The *Unit-in-Place Method* is employed by establishing in-place cost estimates (including material, labor, overhead and profit) for various structural components. The prices established for the specified components are related to their most common units of measurement such as cost per yard of excavation, cost per lineal foot of footings, and cost per square foot of floor covering.

The unit prices can then be multiplied by the respective quantities of each as they are found in the composition of the subject building to derive the whole dollar component cost, the sum of which is equal to the estimated cost of the entire building, providing of course, that due consideration is given to all other indirect costs which may be applicable. The component part-in-place method of using basic units can also be extended to establish prices for larger components in-place such as complete structural floors (including the finish flooring, sub-floor, joists and framing) which are likely to occur repeatedly in a number of buildings.

The *Model Method* is still a further extension, in that unit-in-place costs are used to develop base unit square foot or cubic foot costs for total specified representative structures in place, which may then serve as “models” to derive the base unit cost of comparable structures to be appraised. The base unit cost of the model most representative of the subject building is applied to the subject building and appropriate tables of additions and deductions are used to adjust the base cost of the subject building to account for any significant variations between it and the model.

Developed and applied properly, these pricing techniques will assist the appraiser in arriving at valid and accurate estimates of replacement cost new as of a given time. The cost generally represents the upper limit of value of a structure. The difference between its replacement cost new and its present value is depreciation. The final step in completing the Cost Approach then is to estimate the amount of depreciation and deduct said amount from the replacement cost new.

DEPRECIATION

Simply stated, depreciation can be defined as "a loss in value from all causes." As applied to real estate, it represents the loss in value between market value and the sum of the replacement cost new of the improvements plus the land value as of a given time. The causes for the loss in value may be divided into three broad classifications: Physical Deterioration, Functional Obsolescence, and Economic Obsolescence.

Physical Deterioration pertains to the wearing out of the various building components, referring to both short-life and long-life terms, through the action of the elements, age, and use. The condition may be considered either "curable" or "incurable", depending upon whether it may or may not be practical and economically feasible to cure the deficiency by repair and replacement.

Functional Obsolescence is a condition caused by either inadequacies or over-adequacies in design, style, composition, or arrangement inherent to the structure itself, which tends to lessen its usefulness. Like physical deterioration, the condition may be considered either curable or incurable. Some of the more common examples of functional obsolescence are excessive wall and ceiling heights, excessive structural construction, surplus capacity, ineffective layouts, and inadequate building services.

Economic Obsolescence is a condition caused by factors extraneous to the property itself, such as changes in population characteristics and economic trends, encroachment of inharmonious land uses, excessive taxes, and governmental restrictions. The condition is generally incurable in that the causes lie outside the property owner's realm of control.

ESTIMATING DEPRECIATION

An estimate of depreciation represents an opinion of the appraiser as to the degree that the present and future appeal of a property has been diminished by deterioration and obsolescence. Of the three estimates necessary to the cost approach, it is the one most difficult to make. The accuracy of the estimate will be a product of the appraiser's experience in recognizing the symptoms of deterioration and obsolescence and the ability to exercise sound judgment in equating all observations to the proper monetary allowance to be deducted from the replacement cost new. There are several acceptable methods that may be employed:

Physical deterioration and/or functional obsolescence can be measured by observing and comparing the physical condition and/or functional deficiencies of the subject property as of a given time with either an actual or hypothetical, comparable, new and properly planned structure.

Curable physical deterioration and functional obsolescence can be measured by estimating the cost of restoring each item of depreciation to a physical condition as good as new, or estimating the cost of eliminating the functional deficiency.

Functional and economic obsolescence can be measured by capitalizing the estimated loss in rental due to the structural deficiency, or lack of market demand.

Total accrued depreciation may be estimated by first estimating the total useful life of a structure and then translating its present condition, desirability, and usefulness into an effective age (rather than an actual age) which would represent that portion of its total life (percentage) which has been used up.

Total accrued depreciation may also be estimated by deriving the amount of depreciation recognized by purchasers as evidenced in the prices paid for property in the marketplace; the loss of value being the difference between the cost of replacing the structure now and its actual selling price (total property selling price less the estimated value of the land).

APPLYING THE SALES COMPARISON APPROACH

An indication of the value of a property can be derived through analysis of the selling prices of comparable properties. The use of this technique, often referred to as the "sales comparison approach" or "market approach", involves the selection of a sufficient number of valid comparable sales and the adjustment of each sale to the subject property to account for variations in time, location, site and structural characteristics.

SELECTING VALID COMPARABLES

Since market value has been defined as the price which an informed and intelligent buyer, fully aware of the existence of competing properties and not being compelled to act is justified in paying for a particular property, it follows that if market value is to be derived from analyzing comparable sales, that the sales must represent valid "arms-length" transactions. Due consideration must be given to the conditions and circumstances of each sale before selecting the sales for analysis. Some examples of sales that do not normally reflect valid market conditions are as follows:

- Sales in connection with: foreclosures, bankruptcies, condemnations and other legal actions.
- Sales to or by federal, state, county and local governmental agencies.
- Sales to or by religious, charitable or benevolent tax-exempt agencies.
- Sales involving family transfers, or "love and affection."
- Sales involving intra-corporate affiliations.
- Sales involving the retention of life interests.
- Sales involving cemetery lots.
- Sales involving mineral or timber rights, and access or drainage rights.
- Sales involving the transfer of part interests.

In addition to selecting valid market transactions, it is equally important to select properties that are truly comparable to the property under assessment. For instance, sales involving both real property and personal property or chattels may not be used unless the sale can be adjusted to reflect only the real property transaction, nor can sales of non-operating or deficient industrial plants be validly compared with operating plants. The comparable sales and subject properties must exhibit the same use, and the site and structural characteristics must exhibit an acceptable degree of comparability.

PROCESSING COMPARABLE SALES

All comparable sales must be adjusted to the subject property to account for variations in time and location. The other major elements of comparison will differ depending upon the type of property being appraised. In selecting these elements, the appraiser must consider the same factors that influence the prospective buyers of particular types of properties.

The typical homebuyer is interested in the property's capacity to provide the family with a place to live. A primary concern is with the living area, utility area, number of rooms, number of baths, age, structural quality and condition, and the presence of a modern kitchen and recreational conveniences of the house. Equally important is the location and neighborhood, including the proximity to and the quality of schools, public transportation, and recreational and shopping facilities.

In addition to the residential amenities, the buyer of agricultural property is primarily interested in the productive capacity of the land, the accessibility to the marketplace, and the condition and functional utility of the farm buildings and structures on the land.

The typical buyer of commercial property, including warehouses and certain light industrial plants, is primarily concerned with its capability to produce revenue. Of special interest will be the age, design and structural quality and condition of the improvements, the parking facilities, and the location relative to transportation, labor markets and trade centers.

In applying the sales comparison approach to commercial/industrial property, the appraiser will generally find it difficult to locate a sufficient number of comparable sales, especially of properties that are truly comparable in their entirety. It will, therefore, generally be necessary to select smaller units of comparison such as price per square foot, per unit, per room, etc. In doing so, great care must be exercised in selecting a unit of comparison that represents a logical common denominator for the properties being compared. A unit of comparison that is commonly used and proven to be fairly effective is the Gross Rent Multiplier, generally referred to as G.R.M., which is derived by dividing the gross annual income into the sales price. Using such units of comparison enables the appraiser to compare two properties that are similar in use and structural features but differ significantly in size and other characteristics.

Having selected the major factors of comparison, it remains for the appraiser to adjust each of the factors to the subject property. In comparing the site, adjustments for size, location, accessibility, and site improvements must be made. In comparing the structures, adjustments for size, quality, design, condition, and significant structural and mechanical components also must be made. The adjusted selling prices of the comparable properties will establish a range in value in which the value of the subject property will fall. Further analysis of the factors should enable the appraiser to narrow the range down to the value level that is most applicable to the subject property.

APPLYING THE INCOME APPROACH

INTRODUCTION

The market value of income producing property is no more than the amount of investment required to produce a comparably desirable return; and since the market can be analyzed in order to determine the net return actually anticipated by investors, it follows that the value of income producing property can be derived from the income which it is capable of producing. What is involved is an estimate of income through the collection and analysis of available economic data, the development of a property capitalization rate, and the processing of the net income into an indication of value by employing one or more of the acceptable capitalization methods and techniques.

THE PRINCIPLES OF CAPITALIZATION

Capitalization is the process for converting the net income produced by property into an indication of value. Through the years of appraisal history, a number of procedures have been recognized and employed by appraisal authorities in determining the value of real estate by the income approach. Although present-day practice recommends only certain methods, we will at least touch on the other approaches to value - even though they may not be accepted in today's appraisal scene because they do not accurately reflect the current market conditions.

EXPLORING THE RENTAL MARKET

The starting point for the appraiser is an investigation of current economic rent in a specific area in order to establish a sound basis for estimating the gross income that should be returned from competitive properties. The appraiser must make a distinction between economic rent (the rent which property is normally expected to produce on the open market) and control rent (the rent which property is actually realizing at the time of the appraisal due to lease terms established sometime in the past).

The first step then is to obtain specific income and expense data on properties that best typify normal market activity. This data is necessary to develop local guidelines for establishing the economic rent and related expenses for various types of properties.

The next step is to similarly collect income and expense data on individual properties, and to evaluate the data against the established guidelines. The collection of income and expense data (I & E) is an essential phase in the valuation of commercial properties. The appraiser is primarily concerned with the potential earning power of the property. The objective is to estimate its expected net income. Income and Expense Statements of past years are valuable only to the extent that they serve this end. The statements must not only be complete and accurate, but must also stand the test of market validity. Consideration of the following factors should assist the appraiser in evaluating the income and expense (I & E) data in order to arrive at an accurate and realistic estimate of net income.

QUESTIONS RELATING TO INCOME DATA

A. Was the reported income produced entirely by the subject property? Very often the rent will include an amount attributable to one or more additional parcels of real estate. In this case, it would be necessary to obtain the proper allocations of rent.

B. Was the income attributable to the subject property as it physically existed at the time of the appraisal, or did the appraisal include the value of leasehold improvements and remodeling for which the tenant paid in addition to rent? If so, it may be necessary to adjust the income to reflect economic rent.

C. Does the reported income represent a full year's return? It is often advisable to obtain both monthly and annual amounts as verification.

D. Does the income reflect current economic rent? Is either part or all of the income predicated on old leases? If so, what are the provisions for renewal options and rates?

E. Does the reported income reflect 100% occupancy? What percentage of occupancy does it reflect? Is this percentage typical of this type of property, or is it due to special non-recurring causes?

F. Does the income include rental for all marketable space? Does it include an allowance for space, if any, which is either owner or manager occupied? Is the allowance realistic?

G. Is the income attributable directly to the real estate and conventional amenities? Is some of the income derived from furnishings and appliances? If so, it will be necessary to adjust the income or make provisions for reserves to eventually replace them, whichever local custom dictates.

H. In many properties an actual rental does not exist because the real estate is owner occupied. In this event it is necessary to obtain other information to provide a basis to estimate economic rent. The information required pertains to the business operation using the property. Proper analysis of the annual operating statements of the business, including gross sales or receipts, can provide an accurate estimate of economic rent. Information requirements for a few of the more common property uses are as follows:

Retail Stores	The annual net gross sales. (Gross sales less returned merchandise).
Hotels and Motels	The annual operating statement of the business. If retail or office space is leased in these properties, obtain the actual rent paid.
Theaters	The annual gross receipts (including admissions and concessions) and seating capacity.
Automobile Parking	The annual gross receipts.

ANALYSIS OF EXPENSE DATA

The appraiser must consider only those expenses that are applicable to the cost of ownership; that is, those expenses that are normally owner incurred. Any portion of the expenses incurred directly or indirectly by the tenant should not be considered. Each expense item must stand the test of both legitimacy and accuracy. How do they compare with the established guidelines and norms? Are they consistent with the expenses incurred by comparable properties?

Management - refers to the cost of administration. These charges should realistically reflect what a real estate management company would actually charge to manage the property. If no management fee is shown on the statement; an allowance must be made, by the appraiser. On the other hand, if excessive management charges are reported, as is often the case, the appraiser must disregard the reported charges and use an amount that he deems appropriate and consistent with comparable type properties. The cost of management bears a relationship with the risk of ownership and will generally range between 4 to 10% of the gross income.

General expenses - may include such items as the cost of services and supplies not charged to a particular category. Unemployment and F.I.C.A. taxes, Workmen's Compensation, and other employee insurance plans are usually legitimate deductions when employees are a part of the building operation.

Reimbursed expenses - refer to the cost associated with the maintenance of public or common areas of the commercial property. This expense is passed on to the tenants and should, therefore, only be considered when the amount of reimbursement is included as income.

Miscellaneous expenses - is the “catch-all” category for incidentals. This item should reflect a very nominal percentage of the income. If expenses reported seem to be excessive, the appraiser must examine the figures carefully in order to determine if they are legitimate expenses, and if so, to allocate them to their proper category.

Cleaning expenses - are legitimate charges. They are for such items as general housekeeping and maid service, and include the total cost of labor and related supplies. All or a portion of the cleaning services may be provided by outside firms working on a “contract” basis. Cleaning expenses vary considerably and are particularly significant in operations such as offices and hotels. “Rule of thumb” norms for various operations are made available through national management associations. The appraiser should have little difficulty in establishing local guidelines.

Utilities - are generally legitimate expenses and if reported accurately, need very little reconstruction by the appraiser, other than to determine if the charges are consistent with comparable properties. Local utility companies can provide the appraiser with definite guidelines.

Heat and Air Conditioning - costs are often reported separately and in addition to utilities. The expenses would include the cost of fuel other than the above-mentioned utilities, and may include, especially in large installations, the cost of related supplies, inspection fees, and maintenance charges. These are generally legitimate costs, and the same precautions prescribed for “utilities” are in order.

Elevator expenses - including the cost of repairs and services, are legitimate deductions, and are generally handled through service contracts. These fees can generally be regarded as fairly stable annual recurring expenses.

Decorating and minor alterations - are necessary to maintain the income stream of many commercial properties. In this respect they are legitimate expenses. However, careful scrutiny of these figures is required. Owners tend to include the cost of major alterations and remodeling which are, in fact, capital expenditures, and as such are not legitimate operating expenses.

Repairs and Maintenance - expenses reported for any given year, are not necessarily a true indication of the average or typical annual expense for these items. For example, a statement could reflect a substantial expenditure for a specific year (possibly because the roof was replaced and/or several items of deferred maintenance were corrected); yet the statement for the following year may indicate that repairs and maintenance charges were practically nil. It is necessary for the appraiser to either obtain complete economic history on each property in order to make a proper judgment as to the average annual expense for these items, or include a proper allowance based on norms for the type and age of the improvements to cover annual expenses. Since it is neither possible nor practical to obtain enough economic history on every property, the latter method is generally used and the amounts reported for repairs and maintenance are then estimated by the appraiser.

Insurance - Caution must be used in accepting insurance expense figures. Cost shown may be for more than one year, or may be for blanket policies including more than one building. It is generally more effective for the appraiser to establish his own guidelines for insurance. He must also be careful to include only items applicable to the real estate. Fire extended coverage and owner's liability are the main insurance expense items. Separate coverage on special component parts of the buildings, such as elevators and plate glass, are also legitimate expenses.

Real Estate Taxes - In making appraisals for tax purposes, the appraiser must exclude the actual amount reported for real estate taxes. Since future taxes will be based on his appraised value, the appraiser must express the taxes as a factor of the estimated value. This can be done, by including an additional percentage in the capitalization rate to account for real estate taxes.

Depreciation - The figure shown for depreciation on an operating statement is a “bookkeeping figure” which the owner uses for Internal Revenue purposes and should not be considered in the income approach. This reflects a tax advantage that is one of the benefits of ownership.

Interest - Although interest is considered a legitimate expense, it is always included in the Capitalization Rate. Most property is appraised as if it were “free and clear”; however, the appraiser does consider the interest of a current mortgage in the Capitalization Rate build-up.

Land Rent - When appraising for real estate tax purposes, only the sum of the leasehold and the leased fee is usually considered. Land rent is not deducted as an expense. Considered separately, rent from a ground lease would be an expense to the leasehold interest and an income to the leased fee. However, if land were rented from another property to supply additional parking for example, that land rent would be an allowable expense.

It is obvious that there is some expense items encountered on operating statements that the appraiser should not consider as allowable. This is because he is interested in legitimate cash expenses only. Income statements are usually designed for income tax purposes where credit can be taken for borrowing costs and theoretical depreciation losses.

It is virtually impossible and certainly not always practical to obtain a complete economic history on every commercial property being appraised. On many properties, however, detailed economic information can be obtained through the use of Income and Expense forms. One must realistically recognize the fact that the data obtainable on some properties is definitely limited.

In most cases, the gross income and a list of the services and amenities furnished can be obtained during the data gathering operation. However, in order to insure a sound appraisal, it may be necessary to estimate the fixed and operating expenses. This is best accomplished by setting guidelines for expenses, based on a percent of Effective Gross Income or a cost per square foot of leased area. These percentages or costs will vary depending on the services supplied and the type of property.

CAPITALIZATION METHODS

The most prominent methods of capitalization are Direct, Straight Line, Sinking Fund, and Annuity. Each of these is a valid method for capitalizing income into an indication of value. The basis for their validity lies in the action of the market, which indicates that the value of income producing property can be derived by equating the net income with the net return anticipated by informed investors. This can be expressed in terms of a simple equation:

Value = Net Income divided by Capitalization Rate

The *Straight Line* and *Sinking Fund* methods are both actual forms of Straight Capitalization, with one using Straight Line recapture and the other using Sinking Fund recapture. Both methods follow the same basic principles as Direct Capitalization, differing only in that they provide for separate capitalization rates for land and buildings; the building rate differing from the land rate in that it includes an allowance for recapture.

Straight Line Capitalization allows for "recapture" based on remaining economic life of the building - implying that at the end of that period of time, there would be a zero-improvement value. There are three fallacies in this thinking. First, the potential buyer (investor) has no intention of holding the property that long. The average investment period might be ten years. Second, the investor anticipates that at the end of that period he will either get all his money back or will make a profit. And third, is the depreciation allowance possible in connection with federal income taxes.

Depreciation allowances begin to "run out" between seven and ten years, so the advantages of owning the property are reduced considerably. A prudent owner may choose to sell the property at this point and re-invest in another property so that he may begin the depreciation cycle again and continue to take full advantage of the favorable tax laws.

For these reasons, the Straight-Line Capitalization Method does not usually follow what the market indicates.

Straight Line recapture calls for the return of investment capital in equal increments or percentage allowances spread over the estimated remaining economic life of the building.

Sinking Fund recapture calls for the return of invested capital in one lump sum at the termination of the estimated remaining economic life of the building. This is accomplished by providing for the annual return of a sufficient amount needed to invest and annually re-invest in "safe" interest-bearing accounts, such as government bonds or certificates of deposit, which will ultimately yield the entire capital investment during the course of the building's economic life.

Annuity Capitalization lends itself to the valuation of long-term leases. In this method, the appraiser determines, by the use of annuity tables, the present value of the right to receive a certain specified income over stipulated duration of the lease. In addition to the value of the income stream, the appraiser must also consider the value that the property will have once it reverts back to the owner at the termination of the lease. This reversion is valued by discounting its anticipated value against its present-day worth. The total property value then is the sum of the capitalized income stream plus the present worth of the reversion value.

CURRENT TECHNIQUES

There are two methods, however, that do lend themselves to an accurate measure of market value based on potential income. These are Direct Capitalization, utilizing the Direct Comparison Method of Rate Selection, and Mortgage Equity Capitalization.

In *Direct Capitalization*, the appraiser determines a single "overall" capitalization rate. This is done through analysis of actual market sales of similar types of properties. He develops the net income of each property, and divides the net income by the sales price to arrive at an overall rate to provide an indication of value.

Mortgage Equity Capitalization is a form of direct capitalization with the major difference in the two approaches being the development of the overall capitalization rate.

In this method, equity yields and mortgage terms are considered influencing factors in construction of the interest rate. In addition, a plus or minus adjustment is required to compensate for anticipated depreciation or appreciation. This adjustment can be related to the recapture provisions used in other capitalization methods and techniques.

RESIDUAL TECHNIQUES

It can readily be seen that any one of the factors of the Capitalization Equation (Value = Net Income divided by Capitalization Rate) can be determined if the other two factors are known. Furthermore, since the value of property is the sum of the land value plus the building value, it holds that either of these can be determined if the other is known. The uses of these mathematical formulas in capitalizing income into an indication of value are referred to as the residual techniques, or more specifically, the property residual, the building residual, and the land residual techniques.

The *Property Residual Technique* is an application of Direct Capitalization. In this technique, the total net income is divided by an overall capitalization rate (which provides for the return on the total investment) to arrive at an indicated value for the property. This technique has received more popular support in recent years because it closely reflects the market. With this technique, the capitalization rate may be developed by either "direct comparison" in the market or by the Mortgage Equity Method.

The *Building Residual Technique* requires the value of the land to be a known factor. The amount of net income required to earn an appropriate rate of return on the land investment is deducted from the total net income. The remainder of the net income (residual) is divided by the building capitalization rate (which is composed of a percentage for the return on the investment, plus a percentage for the recapture of the investment) to arrive at an indicated value for the building.

The *Land Residual Technique* requires the value of the building to be a known factor. The amount of net income required to provide both a proper return on and the recapture of the investment is deducted from the total net income. The remainder of the net income (residual) is then divided by the land capitalization rate (which is composed of a percentage for the return on the investment) to arrive at an indicated value for the land.

MORTGAGE EQUITY METHOD EXAMPLE

For purposes of illustration, assume an investment financed with a 70% loan at 14.0% interest. The term of the mortgage is 20 years, paid off in level monthly payments. The total annual cost for principal and interest on such a loan can be determined by referring to the mortgage equity tables. Select the Constant Annual percent for an interest rate of 14.0% and a term of 20 years. Note that the constant is 14.92% of the amount borrowed, or .92% more than the interest rate alone.

Assume that the equity investor will not be satisfied with less than a 18% yield. The income necessary to satisfy both Lender and Equity can now be shown. The product of the percent portion and the rate equals the weighted rate. The total of each weighted rate equals the weighted average.

	PORTION	**RATE**	**WEIGHTED RATE**
Mortgage loan (principle interest)	70%	.1492	= .1044
Equity (down payment)	30%	.18	= .0540
Weighted Average	100%		.1584

Note that the "constant annual percent" is used for the rate of the loan.

Since there is a gain in equity's position through the years by the loan being paid off little by little, it is necessary to calculate the credit for "Equity Build-Up". Assume that the investor plans to hold the property for ten years. Since the mortgage is for 20 years, only a portion of the principal will be paid off and this amount must be discounted, as it won't be received for ten years. From the Table of Loan Balance and Debt Reduction, at the end of ten years for a 20-year mortgage at 14%, the figure is .199108. Consulting the sinking fund tables indicates that the discount factor for 18% and 10 years is .0425.

The credit for Equity Build-Up can now be deducted from the basic rate, thus:

.199108		70%		.0425	= .0059
(% of loan paid in 10 yrs.)	x	(loan rate)	X	(sinking fund 18% for 10 yrs.)	
Resulting Net Rate					= .1525

LAND VALUATION TECHNIQUES

In making appraisals for Ad Valorem Tax purposes, it is generally necessary to estimate separate values for the land and the improvements on the land. In actuality, the two are not separated and the final estimate of the property as a single unit must be given prime consideration. However, in arriving at that final estimate of value, aside from the requirements for property tax appraisals, there are certain other reasons for making a separate estimate of value for the land:

An estimate of land value is required in the application of the Cost Approach.

An estimate of land value is required to be deducted from the total property sales price in order to derive indications of depreciation through market-data analysis. (Depreciation being equal to the difference between the replacement cost new of a structure and the actual price paid in the marketplace for the structure.)

As land is not a depreciable item, a separate estimate of land value is required for bookkeeping and accounting purposes; likewise, the total capitalization rate applicable to land will differ from the rate applicable to the improvements on the land.

Since land may or may not be used to its highest potential, the value of land may be completely independent of the existing improvements on the land.

Real Estate is valued in terms of its highest and best use. The highest and best use of the land (or site), if vacant and available for use, may be different from the highest and best use of the improved property. This will be true when the improvement is not an appropriate use and yet contributes to total property value in excess of the value of the site. Highest and Best Use (Highest and Most Profitable Use; Optimum Use) is that reasonable and probable use which will support the highest present value as of the date of the appraisal. Alternatively, it is the most profitable likely use to which a property can be put. It may be measured in terms of the present worth of the highest net return that the property can be expected to produce over a stipulated long run period of time. (American Institute of Real Estate Appraisers' Appraisal Terminology Handbook, 1981 edition.)

As appraisers' opinions are based on data derived from the market, it is necessary to study and adapt, if possible, procedures used by those closest to everyday transactions.

COMPARABLE SALES METHOD

The most frequently used method in estimating the value of land is the comparable sales method in which land values are derived from analyzing the selling prices of similar sites. This method is in essence the application of the sales comparison approach to value and all the considerations pertaining thereto are equally applicable here.

The appraiser must select comparable and valid market transactions, and must weigh and give due consideration to all the factors significant to value, adjusting each to the subject property. The comparable sites must be used in the same way as is the subject property, and subjected to the same zoning regulations and restrictions. It is also preferable, whenever possible, to select comparable sales from the same or a similar neighborhood.

The major adjustments will be to account for variations in time, location, and physical characteristics to include size, shape, topography, landscaping, access, as well as other factors which may significantly influence the selling price, such as the productivity of farmland.

Although it is always preferable to use sales of unimproved lots for comparison, it is not always possible to do so. Older neighborhoods are not likely to yield a sufficient number of representative sales of unimproved lots to permit a valid analysis. In such cases, in order to arrive at an estimate of land values using the comparable sales approach, it is necessary to consider improved property sales and to estimate the portion of the selling price applicable to the structure. The procedure would be to estimate the replacement cost of the buildings as of the date of sale, estimate the accrued depreciation and deduct that amount from the replacement cost resulting in the estimated selling price of the buildings, which can be deducted from the total selling price of the property to derive the portion of the selling price which can be allocated to the land. The equation is as follows:

	Selling Price of Property
-	Estimated Depreciated Value of Buildings
=	Indication of Land Value

In some of these older neighborhoods, vacant lots will exist often as a result of fire or normal deterioration. Since the desirability as a new building site is restricted, value is generally determined by adjoining property owners who have a desire for additional land area.

In order to apply the comparable sales method, it is necessary to establish a common unit of comparison. The units generally used in the valuation of land are price per front foot, price per square foot, price per acre, price per lot or site or home site price per apartment unit, and price per motel unit. The selection of any one particular unit depends upon the type of property being appraised... frontage or per lot value being commonly used for platted, uniform type residential lots, and square footage and acreage for larger, unplatted tracts, as well as irregularly shaped lots lacking in uniformity. Use of square footage is especially desirable in Central Business Districts where the entire lot maintains the same level of value: depth factor adjustments tend to distort this concept. Commercial arteries are also best valued on a square foot basis.

The utility of a site will vary with the frontage, width, depth, and overall area. Similarly, the unit land values should be adjusted to account for differences in size and shape between the comparable and the subject property. Since such an adjustment is generally necessary for each lot, it is beneficial that the appraiser adopts and/or develops standardized procedures for adjusting the lot size and the unit values to account for the variations. It is not uncommon for all lots within a development to market at the same price. Should data indicate this, it is necessary to make alterations or adjustments to maintain this value level. In some cases, a “site value” concept has advantages. Site value tables provide uniform pricing of standard sized lots within homogenous neighborhoods or subdivisions. Some of the techniques commonly employed are as follows:

Standard lot sizing techniques provide for the adjustment of the frontage, width, and depth of irregular shaped lots to make the units of measurement more comparable with uniform rectangular lots. Increment and decrement adjustments can be applied to account for size differences.

Standard Depth Tables provide for the adjustment of front foot unit values to account for variations in depth from a predetermined norm.

Frontage Tables provide for the adjustment of front footage unit values to account for variations in the relative utility value of excessive or insufficient frontage as compared to a predetermined norm.

Acreage or Square Footage Tables provide for the adjustment of unit values to account for variations in the relative utility value of excessive or insufficient land sizes as compared to a predetermined norm.

During the process of adjusting the comparable sales to account for variations between them and the subject property, the appraiser must exercise great care to include all significant factors and to properly consider the impact of each of the factors upon the total value. If done properly, the adjusted selling prices of the comparable properties will establish a range in value in which the value of the subject property will fall. Further analysis of the factors should enable the appraiser to narrow the range down to the value level that is most applicable to the subject property.

THE SOIL PRODUCTIVITY METHOD

This method involves the classification of agricultural tracts according to a productivity index, and establishing corresponding unit land values either by the analysis of comparable sales or the capitalization of income yields. The method requires a great deal of data and time, and its application, for ad valorem tax purposes, is generally limited to the appraisal of predominantly agricultural jurisdictions, in which soil productivity is either the primary influence to buyers and sellers, or in which soil productivity is the legal basis for the assessment of farm land.

There is a second condition which presupposes the use of the soil productivity method: the availability of current soil maps and related data. Soil productivity refers to the capacity of a soil to produce crops. Its productive capacity is basically dependent upon the properties and characteristics inherent in the soil; the prevailing environmental and climatic conditions; and the level of management input. Since the appraiser, for tax purposes, generally is neither provided with the time nor the resources to survey, analyze, and classify the varied numbers of soils, the use of the method is solely contingent upon the availability of reliable soil maps and data compiled from scientific soil surveys. Such surveys are generally conducted and reported under the auspices of the agricultural departments at the various state universities.

Providing then, that the value of the farm land as evidenced in the market place, or as mandated by law, is directly related to its capacity to produce, and that current soil maps and related data are available, it follows that soil productivity should be given prime consideration in the valuation of farm land.

The following is a suggested procedure for establishing unit land values based upon the relative productivity of the soil.

1. Obtain soil maps. Soil maps prepared by soil surveyors should provide an accurate inventory of the soil resources of an area. The soil mapping units delineated on the maps provide a basis for soil-use suggestions and for crop-yield and/or soil productivity estimates.

2. Obtain or develop soil productivity index ratings for each soil mapping unit. Soil productivity is generally expressed in terms of yield per acre. In developing a soil productivity approach to value, it is necessary to compare the productivity of different soils and different yields. A productivity index provides the statistical means of expressing the productivity of different soils in relative units of comparison.

   Table 1 shows the calculation of a productivity index for Muscatine silt loam at a high management level. The yield estimates are related to a base yield. The same base yield is used for all soils, but the crop-yield estimates and acreage ratio will vary with each soil. The acreage ratio is an expression of the percentage of the time that a particular crop is grown. Management level is held constant. Thus, the soil productivity index provides a measure of the soil contribution in crop production. Such ratings may be prepared for cropland, pasture, and timber.

TABLE 1. EXAMPLE CALCULATION OF SOIL.PROOUCTIVITY INDEX

CROP	(1) Average Yield (Per Acre)	(2) Base Yield (Index- 100)	(3) Relative Yield (1)/(2)	(4) Acreage Ratio	(5) Cost Contribution (3) x (4)
Corn	145 Bu	90 Bu	161%	.55	88
Soybeans	46 Bu	30 Bu	153%	.30	46
Wheat	56 Bu	30 Bu	186%	.08	15
Oats	86 Bu	60 Bu.	143%	.07	10

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The Soil. Productivity Index (Sum of Crop Contribution) = 159 Rounded to the nearest multiple of 5 = 160

3. Determine appropriate soil-use categories. Separate soil-use categories may be established for each significant use. However, in many areas, it is often more practical to consider only cropland, and to establish the necessary guidelines for adjusting land in timber, brush, or pasture accordingly.

4. Compile data on the selling prices and/or income yields or agricultural land in representative soil areas.

5. Either obtain or measure and record the acreage of each soil-use mapping unit category for each tract of land in the sampling compiled in Step 4. If measured, a planimeter, grid, electric area calculator, aerial photography scale measurement or GPS device should be used.

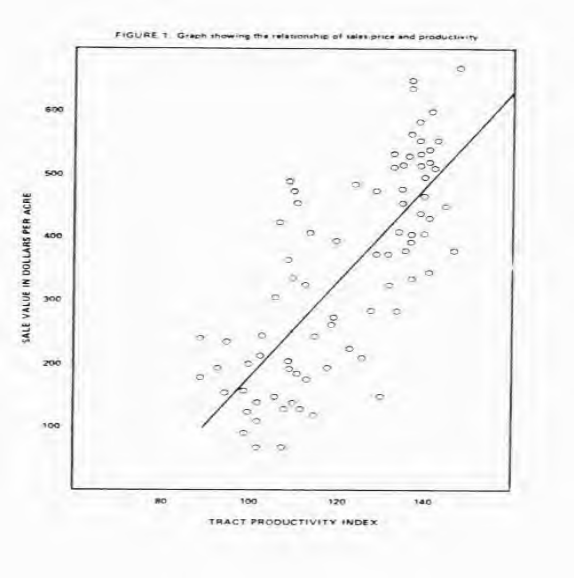
6. Calculate a tract-productivity index for each tract of land in the sampling. A tract-productivity index may be calculated by using the acreage and soil-productivity index for each soil-mapping unit in a tract. The acreage is multiplied by the soil-productivity index to obtain a soil contribution for each mapping unit. The soil contributions are added together, and the resulting sum is divided by the number of acres in the tract. The result is a weighted index of the soil productivity of the tract. Table 2 shows an example calculation.

TABLE 2 EXAMPLE CALCULATION OF TRACT PRODUCTIVITY INDEX

(1) Soil	(2) Mapping Unit (From Soil Map) 68	(3) Acreage	(4) Soil Productivity Index 150	(5) Soil Contribution (3) x (4)
Stable	AO	14		2100
Denny	45 AO	2	110	220
Muscatine	41 AO	17	160	2720
Tama	36 C2	7	130	910
Totals	-	40	-	5950

Tract Productivity Index = Sum of (5) / Sum of (3) = 5950/40 = 149

7. Determine the relationship of productivity and selling price and/or income yields per acre for each of the tracts included in the sampling. A curve (or graph) may be prepared by plotting the measure of dollar value along the vertical axis, and the productivity along the horizontal axis as shown in Figure 1.



8. Either obtain or measure and record the acreage of each soil-use mapping unit category for each tract of agricultural land to be appraised.

9. Calculate a tract productivity index for each tract of agricultural land to be appraised and determine an estimate of its value from the graph generated in Step 7. Once the productivity of the tract is known, the base value of the tract can be determined from such a graph, or if preferred, a table can be prepared from the graph showing the tract productivity in one column and the estimated corresponding base unit level values in an adjoining column.

Note: the base unit land values obtained in Step 9 will often require adjustments to account for factors such as location, accessibility, special soil conditions, etc., which influence land value, but which cannot be measured by productivity.

In such cases where soil productivity is a prime factor in determining the value of the land (as indicated by the linear relationship between selling prices and soil productivity in Figure 1), the procedural steps outlined above should provide a sound basis for establishing equitable values.

It should be noted, however, that the procedure is not a formula for appraising farm land, but only a method of establishing unit values based upon a soil productivity index. Soil productivity is but one value-influencing factor to be considered, and depending upon the area in which the farm land is located, it may or may not have significant bearing upon the market value of the property.

In the final analysis, each farm appraisal must stand the test of comparison with competing properties. Intelligent buyers may be assumed to know of the existence of similar properties as well as the bidding prices or asking prices for such properties. It is also reasonable to assume that well informed buyers of competing properties have examined the characteristics of the property, in a practical, if not scientific way before establishing the value of the property to them as investors.

Similarly, the appraiser must rely heavily upon the comparison process in determining the relationship of a farm property of unknown value, but of known characteristics (subject farm); to comparable farms of known value as well as known characteristics (bench-mark farms). Each value-influencing factor must be analyzed in order to determine its individual contribution to the overall value. In the process, consideration must be given to such factors as the time and condition of the sale, the size of the property, the suitability and productivity of the soil, the value of the buildings, the location of the property in relation to market accessibility, and the location of the property in relation to its suitability for higher land uses.

Only after determining the contribution value of each of these factors can the appraiser determine the proper basis or criteria for establishing unit land values which will accurately reflect the action of the market.

THE LAND RESIDUAL TECHNIQUE

In the absence of sufficient market data, income-producing land may be valued by determining the portion of the net income attributable to the land and capitalizing the net income into an indication of value. The procedure is as follows:

1. Determine the highest and best use of the land, which may be either its present use or hypothetical use.

2. Estimate the net income which the property can be expected to yield.

3. Estimate the replacement cost new of the improvements.

4. If the case involves the present use, estimate the proper allowance for depreciation, and deduct that amount from the replacement cost new of the improvements to arrive at an estimate of their depreciated value.

5. Develop appropriate capitalization rates.

6. Calculate the income requirements of the improvements, and deduct the amount from the total net income to derive that portion of the income that can be said to be attributable to the land.

7. Capitalize the residual income attributable to the land to an indication of value.

RATIO METHOD

A technique useful for establishing broad indications of land values is a "typical" allocation or ratio method. In this technique, the ratio of the land value to the total value of improved properties is observed in situations where there is good market and/or cost evidence to support both the land values and total values. This market abstract ratio is then applied to similar properties where the total values are known, but the allocation of values between land and improvements are not known. The ratio is usually expressed as a percentage that represents the portion of the total improved value that is land value, or as a formula:

$$\frac{\text{Total Land Value}}{\text{Property Value}} \times 100\% = \%\ \text{Land Is of Total Property Value Total}$$

This technique can be used on most types of improved properties, with important exceptions being farms and recreational facilities, provided that the necessary market and/or cost information is available. In actual practice, available market information limits this technique primarily to residential properties, and to a much lesser extent, commercial and industrial properties such as apartments, offices, shopping centers, and warehouses. The ratio technique cannot give exact indications of land values. It is nevertheless useful, especially when used in conjunction with other techniques of estimating land values because it provides an indication of the reasonableness of the final estimate of land value.

The ratio should be extracted from available market information and applied to closely similar properties. It should be noted that any factor that affects the value could also affect the ratio of values. Zoning is particularly important because it may require more or less improvements be made to the land, or may require a larger or smaller minimum size. This tends to have a bearing on the land values, and may influence the ratio of values considerably from community to community.

The following is an example of a residential land valuation situation: This is a fictional subdivision.

Typical Lot Sale Price (most lots equivalent)				$30,000	
Improved Lot Sales (range)				$130,000 to $150,000	
Indicated Ratio	$\frac{\$30,000}{150,000}$	To	$\frac{30,000}{130,000}$	X 100%	20% to 23%

Similar subdivision, but 100% developed

Typical Lot Sale Price (most lots equivalent)	Unavailable
Improved Lot Sales (range)	$170,000 to $210,000
Broadest Indicated Range of Lot Values (20% x $170,000 to 23% x $210,000)	$34,000 to $48,300
Narrowest Indicated Range of Lot Values (23% x $170,000 to 20% x $210,000)	$39,100 to $42,000

If both lots and improvements vary considerably, the broadest range is most appropriate. If most lots vary little and are judged equivalent, but the improvements vary somewhat, the narrowest range is appropriate. Most subdivisions exhibit a combination of the two ranges, showing a narrow typical range, but a wider actual range of land values.

MASS APPRAISING

In preceding sections, we have outlined the fundamental concepts, principles, and valuation techniques underlying the Appraisal Process. We will now approach the problem at hand-the reappraisal of certain specified real property within a total taxing jurisdiction, be it an entire county or any subdivision thereof - and to structure a systematic mass appraisal program to effect the appraisal of said properties in such a way as to yield valid, accurate, and equitable property valuations at a reasonable cost dictated by budgetary limitations, and within a time span totally compatible with assessing administration needs.

The key elements of the program are validity, accuracy, equity, economy, and efficiency. To be effective, the program must:

- incorporate the application of proven and professionally acceptable techniques and procedures;
- provide for the compilation of complete and accurate data and the processing of that data into an indication of value approximating the prices actually being paid in the marketplace;
- provide the necessary standardization measures and quality controls essential to promoting and maintaining uniformity throughout the jurisdiction;
- provide the appropriate production controls necessary to execute each phase of the operation in accordance with a carefully planned budget and work schedule; and –
- provide techniques especially designed to streamline each phase of the operation, eliminating superfluous functions, and reducing the complexities inherent in the Appraisal Process to more simplified but equally effective procedures.

In summary, the objective of an individual appraisal is to arrive at an opinion of value, the key elements being the validity of the approach and the accuracy of the estimate. The objective of a mass appraisal for tax purposes is essentially the same. However, in addition to being valid and accurate, the value of each property must be equitable to that of each other property, and what's more, these valid, accurate, and equitable valuations must be generated as economically and efficiently as possible.

OVERVIEW

The prime objective of mass appraisals for tax purposes is to equalize property values. Not only must the value of one residential property be equalized with another, but it must also be equalized with each agricultural, commercial, and industrial property within the political unit.

The common denominator or the basis for equalization is market value: that price which an informed and intelligent person, fully aware of the existence of competing properties and not being compelled to act, is justified in paying for a particular property.

The job of the appraiser is to arrive at a reasonable estimate of that justified price. To accomplish this, the coordination of approaches to the valuation of the various classes of property must be made so that they are related one to another in such a way as to reflect the motives of the prospective purchasers of each type of property.

A prospective purchaser of a residential property is primarily interested in its capacity to render service to the family as a place to live. Its location, size, quality, design, age, condition, desirability and usefulness are the primary factors to be considered in making a selection. By relying heavily upon powers of observation and inherent intelligence, knowing what could be afforded and simply comparing what is available, one property will eventually stand out to be more appealing than another. So it is likewise the job of the appraisers to evaluate the relative degree of appeal of one property to another for tax purposes.

The prospective purchaser of agricultural property will be motivated somewhat differently. The primary interest will be in the productive capabilities of the land. It is reasonable to assume that the purchaser will be familiar, at least in a general way, with the productive capacity of the farm. It might be expected that the prudent investor will have compared one farm's capabilities against another. Accordingly, the appraiser for local tax equalization purposes must rely heavily upon prices being paid for comparable farmland in the community.

The prospective purchaser of commercial property is primarily interested in the potential net return and tax shelter the property will provide. That price which is justified to pay for the property is a measure of the prospects for a net return from the investment. Real estate, as an investment then, must not only compete with other real estate, but also with stocks, bonds, annuities, and other similar investment areas. The commercial appraiser must explore the rental market and compare the income-producing capabilities of one property to another.

The prospective purchaser of industrial property is primarily interested in the overall utility value of the property. Of course, in evaluating the overall utility, individual consideration must be given to the land and each improvement thereon. Industrial buildings are generally of special purpose design, and as such, cannot readily be divorced from the operation for which they were built. As long as the operation remains effective, the building will hold its value; if the operation becomes obsolete, the building likewise becomes obsolete. The upper limit of its value is its replacement cost new, and its present-day value is some measure of its present-day usefulness in relation to the purpose for which it was originally designed.

Any effective approach to valuations for tax purposes must be patterned in such a way as to reflect the “modus operandi” of buyers in the marketplace. As indicated above, the motives influencing prospective buyers tend to differ depending upon the type of property involved. It follows that the appraiser's approach to value must differ accordingly.

The residential appraiser must rely heavily upon the market data approach to value-analyzing the selling prices of comparable properties and considering the very same factors of location, size, quality, design, age, condition, desirability, and usefulness, which were considered by the buyer.

The commercial appraiser will find that since commercial property is not bought and sold as frequently as residential property, the sales market cannot be readily established. By relying heavily on the income approach to value, the net economic rent that the property is capable of yielding can be determined, and the amount of investment required to effect that net return at a rate commensurate with that normally expected by investors could also be determined. This can only be achieved through a comprehensive study of the income-producing capabilities of comparable properties and an analysis of present-day investment practices.

The industrial appraiser will not be able to rely on the sales comparison approach because of the absence of comparable sales, each sale generally reflecting different circumstances and conditions. Also, it is not possible to rely upon the income approach again because of the absence of comparable investments, and because of the inability to accurately determine the contribution of each unit of production to the overall income produced. Therefore, by relying heavily on the cost approach to value, a determination must be made of the upper limit or replacement cost new of each improvement and the subsequent loss of value resulting overall from physical, functional and economic factors.

The fact that there are different approaches to value, some of which are more applicable to one class of property than to another, does not, by any means, preclude equalization between classes. Remember that the objective in each approach is to arrive at a price which an informed and intelligent person, fully aware of the existence of competing properties and not being compelled to act, is justified in paying for any one particular property. Underlying, and fundamental to each of the approaches is the comparison process. Regardless of whether the principal criteria are actual selling prices, income-producing capabilities, or functional usefulness, like properties must be treated alike. The primary objective is equalization. The various approaches to value, although valid in themselves, must nevertheless be coordinated one to the other in such a way as to produce values that are not only valid and accurate, but are also equitable. The same “yardstick” of values must be applied to all properties, and must be applied by systematic and uniform procedures.

It is obvious that sales on all properties are not required to effectively apply the sales comparison approach. The same is true regarding any other approach. What is needed is a comprehensive record of all the significant physical and economic characteristics of each property in order to compare the properties of “unknown” values with the properties of “known” values. All significant differences between properties must in some measure, either positively or negatively, be reflected in the final estimate of value.

Each property must be given individual treatment, but the treatment must be uniform and standardized, and essentially no different than that given to any other property. All the factors affecting value must be analyzed and evaluated for each and every property within the entire political unit. It is only by doing this that equalization between properties and between classes of properties can be ultimately affected.

All this, at best, is an oversimplification of the equalization process underlying the entire Mass Appraisal Program. The program itself consists of various operational phases, and its success depends primarily upon the systematic coordination of collecting and recording data, analyzing the data, and processing the data to an indication of value.

DATA INVENTORY

Basic to the appraisal process is the collecting and recording of pertinent data. The data will consist of general supporting data, referring to the data required to develop the elements essential to the valuation process; neighborhood data, referring to information regarding pre-delineated neighborhood units; and specific property data, referring to the data compiled for each parcel of property to be processed into an indication of value by the cost, sales comparison and/or income approach.

The data must be comprehensive enough to allow for the adequate consideration of all factors that significantly affect property values. In keeping with the economics of a mass appraisal program, it is costly and impractical to collect, maintain, and process data of no or marginal contribution to the desired objectives. The axiom "too much data is better than insufficient data" does not apply. What does apply is the proper amount of data, no more or no less, which is necessary to provide the database necessary to generate the desired output.

Cost data must be sufficient enough to develop or select and validate the pricing schedules and cost tables required to compute the replacement cost new of improvements needed to apply the cost approach to value.

In collecting cost data, the data collector should record the parcel identification number, property address, and date of completion, construction cost, builder name, source of information, structural characteristics, and other information pertinent analysis. Cost information may be recorded on the same form (unassigned property record card) used to record specific property data.

The principal sources for obtaining cost data are builders, suppliers, and developers, and it is generally advisable to collect cost data in conjunction with new construction pick-ups. Additionally, cost services such as RS Means and Marshall & Swift may be consulted to determine estimates of current costs.

Sales data must be sufficient enough to provide a representative sampling of comparable sales needed to apply the sales comparison approach, to derive unit land values and depreciation indicators needed to apply the cost approach, and to derive gross rent multipliers and elements of the capitalization rate needed to apply the income approach.

All sales data should include the parcel identification number, property qualification code, month and year of sale, selling price, source of information, (i.e., buyer, seller, agent, deed, etc.), and a reliable judgment as to whether or not the sale is representative of a true arm's length transaction.

Sales data should be recorded on the same form (unassigned property record card) used to record specific property data, and verified during the property-listing phase.

The principal source for obtaining sales data is the County Register of Deeds Office, MLS, Sales Letters, Fee Appraisers and the real estate transfer returns. Other sources may include developers, realtors, lending institutions, and individual owners during the listing phase of the operation.

Income and expense data must be sufficient enough to derive capitalization rates and accurate estimates of net income needed to apply the income approach. Income and expense data should include both general data regarding existing financial attitudes and practices, and specific data regarding the actual incomes and expenses realized by specific properties.

The general data should include such information as equity return expectations, gross rentals, vacancy and operating cost expectations and trends, prevailing property management costs, and prevailing mortgage costs.

Specific data should include the parcel identification number, property address (or building ID), source of information, the amount of equity, the mortgage and lease terms, and an itemized account of the annual gross income, vacancy loss, and operating expenses for the most recent two-year period.

The general data should be documented in conjunction with the development of capitalization procedural guidelines. The specific data, since it is often considered confidential and not subject to public access, should be recorded on special forms, designed in such a way as to accommodate the property owner or agent thereof in submitting the required information. The forms should also have space reserved for the appraiser's analysis and calculations.

The principal sources for obtaining the general financial data are investors, lending institutions, fee appraisers and property managers. The primary sources for obtaining specific data are the individual property owners and/or tenants during the listing phase of the operation.

Neighborhood data. At the earliest feasible time during the data inventory phase of the operation, and after a thorough consideration of the living environment and economic characteristics of the overall county, or any political sub-division thereof, the appraisal staff should delineate the larger jurisdictions into smaller “neighborhood units,” each exhibiting a high degree of homogeneity in residential amenities, land use, economic trends, and housing characteristics such as structural quality, age, and condition. The neighborhood delineation should be outlined on an index (or comparable) map and each assigned an arbitrary Neighborhood Identification Code, which when combined with the parcel identification numbering system, will serve to uniquely identify it from other neighborhoods.

Neighborhood data must be comprehensive enough to permit the adequate consideration of value-influencing factors to determine the variations in selling prices and income yields attributable to benefits arising from the location of one specific property as compared to another. The data should include the taxing district, the school district, the neighborhood identification code, special reasons for delineation (other than obvious physical and economic boundaries), and various neighborhood characteristics such as the type (urban, suburban, etc.), the predominant class (residential, commercial, etc.), the trend (whether it is declining, improving, or relatively stable), its accessibility to the central business district, shopping centers, interstate highways and primary transportation terminals, its housing characteristics, the estimated range of selling prices for residentially-improved properties, and a rating of its relative durability.

All neighborhood data should be recorded on a specially designed form during the delineation phase.

Specific property data must be comprehensive enough to provide the data base needed to process each parcel of property to an indication of value, to generate the tax roll requirements, to generate other specified output, and to provide the assessing officials with a permanent record to facilitate maintenance functions and to administer taxpayer assistance and grievance proceedings.

The data should include the parcel identification number, ownership and mailing address, legal description, property address, property classification code, local zoning code, neighborhood identification code, site characteristics, and structural characteristics.

All the data should be recorded on a single, specially designed property record card customized to meet individual assessing needs. Each card should be designed and formatted in such a way as to accommodate the listing of information and to facilitate data processing. In addition to the property data items noted above, space must be provided for a building sketch, land and building computations, summarization, and memoranda. In keeping with the economy and efficiency of a mass appraisal program, the card should be formatted to minimize writing. The descriptive data should be comprehensive enough to be suitable for listing any type of land and improvement data regardless of class, with the possible exception of large industrial, institutional, and utility complexes that require lengthy descriptions. In these cases, it will generally be necessary to use a specially designed supplemental property record document, keyed and indexed to the corresponding property record card. The property record card should be made a permanent part of the assessing system, and used not only in conjunction with the revaluation, but also to update the property records for subsequent assessments.

The specific property data should be compiled from existing assessing records and field inspections. The parcel identification number, ownership, mailing address, and legal description may be obtained from existing tax rolls. Property classification codes may also be obtained from existing tax rolls (whenever available) and verified in the field. Local zoning codes may be obtained from existing zoning maps. Neighborhood identification codes may be obtained from the neighborhood delineation maps. Lot sizes and acreage may be obtained from existing tax maps. The property address, and the site and structural characteristics may be obtained by making a physical inspection of each property.

In transferring lot sizes from the tax maps to the property record cards, the personnel performing the tasks must be specially trained in the use of standardized lot sizing techniques which are necessary to adjust irregular shaped lots and abnormal depths to account for variations from predetermined norms. In regard to acreage, the total acreage may be transferred, but the acreage breakdowns required to affect the valuation of agricultural, residential, forestry, commercial, and industrial properties must be obtained and verified by personal observation and aerial photographs.

Field inspections must be conducted by qualified data collectors under the close supervision of the appraisal staff. During this phase of the operation, the data collectors must visit each property and attempt personal contact with the occupant. In the course of the inspection, the following procedures must be adhered to:

- Identification of the property.
- Recording the property address.
- Interviewing the occupant of the building and recording all pertinent data.
- Inspection of the interior of the building (if vacant and open) and recording of all pertinent physical data.
- Measuring and inspecting the exterior of the building, as well as all other improvements on the property, and recording the story height, and the dimensions and/or size of each.
- Recording a sketch of the principal building(s), consisting of a plan view showing the main portion of the structure along with any significant attached exterior features, such as porches, etc. All components must be identified and the exterior dimensions shown for each.
- Selection of and recording the proper quality grade of the improvement.
- Selection of and recording the proper adjustments for all field priced items.
- Reviewing the property record card for completeness and accuracy.

After the field inspection is completed, the property record cards must be submitted to clerical personnel to review the cards for completeness, calculate the areas, and make any necessary mathematical extensions.

Complete and accurate data is essential to the program. Definite standardized data collection and recording procedures must be followed if these objectives are to be met.

PROCESSING THE DATA

This phase of the operation involves the analysis of data compiled during the data inventory phase and the processing of that data to an indication of value through the use of the cost, market, and income approaches to value.

During the analytical phase, it will be necessary to analyze cost, market, and income data in order to provide a basis for validating the appropriate cost schedules and tables required to compute the replacement cost new of all buildings and structures; for establishing comparative unit land values for each class of property; for establishing the appropriate depreciation tables and guidelines for each class of property; and for developing gross rent multipliers, economic rent and operating expense norms, capitalization rate tables and other related standards and norms required to effect the mass appraisal of all the property within an entire political unit on an equitable basis.

After establishing the appropriate standards and norms, it remains to analyze the specific data compiled for each property by giving due consideration to the factors influencing the value of that particular property as compared to another, and then to process the data into an indication of value by employing the techniques described in the section of the manual dealing with the application of the traditional approaches to value.

Anyone, or all three of the approaches, if applied properly, should lead to an indication of market value; of primary concern is applying the approaches on an equitable basis. This will require the coordinated effort of a number of individual appraisers, each appraiser acting as a member of a team, with the team effort directed toward a valid, accurate and equitable appraisal of each property within the political unit. Each property must be physically reviewed, during which time the following procedures must be adhered to.

- Verification of the characteristics recorded on the property record card.
- Certification that the proper schedules and cost tables were used in computing the replacement cost of each building and structure.
- Determination of the proper quality grade and design factor to be applied to each building to account for variations from the base specifications.
- Making a judgment of the overall condition, desirability, and usefulness of each improvement in order to arrive at a sound allowance for depreciation.
- Capitalization of net income capabilities into an indication of value in order to determine the loss of value attributable to functional and economic obsolescence.
- Addition of the depreciated value of all improvements to the land value, and reviewing the total property value in relation to the value of comparable properties.

At the completion of the review phase, the property record cards must be, once again, submitted to clerical personnel for final mathematical calculations and extensions, and a final check for completeness and accuracy. Once the final values have been established for each property, the entire program should be evaluated in terms of its primary objectives: do the values approximately have a satisfactory level of market value, and what's more important, are the values equitable? Satisfactory answers to these questions can best be obtained through a statistical analysis of recent sales in an appraisal-to-sale ratio study, if sufficient sales are available.

To perform the study, it is necessary to take a representative sampling of recent valid sales and compute the appraisal-to-sale ratio for each of the sales. If the sample is representative, the computed median appraisal-to-sale ratio will give an indication of how close the appraisals within each district approximate the market value. This provides, of course, that the sales included represent true market transactions. It is then necessary to determine the deviation of each individual appraisal-to-sale ratio from the median ratio, and to compute either the average or the standard deviation, which will give an indication of the degree of equity within each individual district. What remains then is to compare the statistical measures across property classes in order to determine those areas, if any, which need to be further investigated, revising the appraisal, if necessary, to attain a satisfactory level of value and equity throughout the entire jurisdiction.

The techniques and procedures set forth herein, if applied skillfully, should yield highly accurate and equitable property valuations, and should provide a sound property tax base. It should be noted, however, that no program, regardless of how skillfully administered, can ever be expected to be error-free. The appraisal must be fine-tuned, and this can best be done by giving the taxpayer an opportunity to question the value placed upon the property and to produce evidence that the value is inaccurate or inequitable. During this time, the significant errors will be brought to light, and taking the proper corrective action will serve to further the objectives of the program. What's important in the final analysis is to use all these measures as well as any other resources available to affect the highest degree of accuracy and equity possible.

COMPONENTS OF A REAPPRAISAL

To accomplish the task of valuing all parcels within a county as of the January 1 reappraisal date, the methodology of mass appraisal rather than the methodology of single-property appraisals must be utilized. Mass appraisal is the systematic appraisal of groups of properties as neighborhoods. This is accomplished by using standardized procedures and statistical testing. In a mass appraisal system, the assessor must make valuation judgments about groups of properties rather than single properties. The assessor must be able to develop, support and explain standardized adjustments in a valuation model among use classes, construction types, neighborhoods, and other property groups. The guide used for this is the uniform schedule of values. The schedule of values is made up of schedules, standards, rules, tables, and other factors used to apply the correct value to parcels. The schedule of values serves as the county's mass appraisal model and is implemented by means of a computer assisted mass appraisal system (CAMA). Incorporated in the schedule may be building cost figures derived from national data that have been adjusted to reflect local costs, local cost studies, qualifying arms-length sales, and income and expense formulas. This schedule of values sets forth values for appropriate unit of measurement for use in appraising land and buildings. For example, land may be valued by a set amount per square foot, lot, acre, or home-site, depending on the highest and best use, while a dwelling is typically valued using an established amount per square foot. The land unit per appropriate unit of measurement also will vary depending on the neighborhood in which the land is situated. Factors that warrant adjustments are also set forth in the schedule of values for various types of property. The schedule typically authorizes adjustments to land value based on factors such as home-site size, excess acreage, road frontage, topography, zoning, the presence of easements, and other factors. A county's schedule also typically prescribes ranges of characteristics and corresponding percentage adjustments for recognized factors.

Mass appraisal for ad valorem purposes entails many of the same principles as an independent fee, single-property appraisal. Mass appraisal techniques, however, emphasize valuation of modules (expressed as equations, tables and schedules), standards of practice, and statistical quality control. A reassessment program consists of these subsystems:

1. A data management system
2. A sales analysis system
3. A valuation system
4. An administrative system

These subsystems are independent of each other. For example, the valuation system uses information maintained in the sales analysis and data management systems and produces output (valuations) required by the administrative system in the production of tax bills.

DATA MANAGEMENT SYSTEM

The data management system has components for collection, entry, editing, organization, conversion, storage, and security of property characteristics and ownership. Quality control of this system is very important because the accuracy of the values determined depends on the reliability of the data from which they are generated. In addition, data collection, conversion, and maintenance are the most expensive aspects of any reappraisal program. Special care must be given to the thought and planning required of managing logic to minimize cost.

Data maintenance is the protocol for creating new parcels, capturing and valuing new construction, and making changes to the current property database. The maintenance protocol consists of three components:

1. County land records system: the daily creation of new parcels from the recording of "splits" (dividing an existing parcel), combining existing parcels, and the recording of new subdivision plats feeds the second component.
2. Permits and inspections: as the appraisal staff receives notice of new permits and inspections, property record cards are accessed, and new data is collected. Staff receives this information and monitors the construction progress and make determinations of the percentage of construction completed as of January 1 for each calendar year.
3. Periodic re-inspection of all properties: routine field visits are supplemented with information obtained from the latest Orthophotography and provided by property owners as part of the annual listing abstracts and requests from taxpayers for review or appeal.

SALES ANALYSIS SYSTEM

The sales analysis system has components for sales data collection, sales screening and processing, ratio studies, and sales reporting. Assessment/sales ratio studies are the primary tool for measuring mass appraisal performance. They are invaluable for monitoring appraisal results, identifying reappraisal priorities, adjusting valuations to the market, and assisting the administrative system in planning and scheduling.

Ratio studies and sales reports draw on values produced by the valuation system and on property characteristics maintained in data management.

VALUATION SYSTEM

The valuation system (CAMA) consists of mass appraisal applications of the three approaches to value and/or allows for various adjustments that recognize specific aspects of each approach. The three approaches are:

1. Cost Approach: Requires maintenance and application of computerized cost schedules and equations, depreciation schedules, and indexing factors. This data comes from contractors, building material suppliers, etc.
2. Sales Comparison Approach: Applications include multiple regression analysis and model building for automated comparable sales analysis.
3. Income Approach: Will require income multipliers and overall rates. The information to generate this comes from rental, leasing, sales, etc., data provided by owners and tenants.

The optimum results of the valuation system will be to consider all three approaches to value, as appropriate to property type, and determine which method(s) produces the best results for the final appraisal. Properly executed, any of the three approaches to value will yield creditable results; however, the sales comparison and income approaches are highly dependent on available data. Of the three approaches, only the cost approach can be uniformly applied with limited data.

The economy can affect the number of arm's length sales occurring in the market. A general county-wide reappraisal depends on data being available from a wide variety of sources to properly apply each of the three approaches to value. Even when an abundance of relevant data is available for applying the sales comparison approach and the income approach, that data may also be utilized in refining the cost approach. In the absence of relevant data prior to the final determination of reappraisal values, the cost approach becomes the more reliable approach for all property types. Below is a comparison of the three approaches to value and when it is best to apply them.

RESIDENTIAL	COMMERCIAL	INDUSTRIAL/ SPECIAL PURPOSE
1.Sales Comparison	1.Sales Comparison	1.Cost
2.Cost	2.Income	2.Sales Comparison
3.Income	3.Cost	3.Income

REPLACEMENT COST

ESTIMATING REPLACEMENT COST NEW

The informed buyer is not justified in paying anything more for a property than what it would cost him/her to acquire an equally desirable substitute property. Likewise, the upper limit of value of most improvements is the cost of reproducing an equally desirable substitute improvement. It follows, then, that a uniform starting point for an Equalization Program is to determine the Replacement Cost New of each and every improvement.

REPLACEMENT COST

Replacement Cost is the current cost of producing an improvement of equal utility to the subject property; it may or may not be the cost of reproducing a replica property. The distinction being drawn is one between Replacement Cost, which refers to a substitute property of equal utility, as opposed to Reproduction Cost, which refers to a substitute replica property.

The Replacement Cost of an improvement includes the total cost of construction incurred by the builder, whether preliminary to, during the course of, or after completion of its construction. Among these are materials, labor, all sub-contracts, builder's overhead and profit, architectural and engineering fees, consultation fees, survey and permit fees, legal fees, taxes, insurance and the cost of interim financing.

PRICING SCHEDULES

Pricing schedules and related cost tables are included in this manual to assist the appraiser in arriving at accurate estimation of Replacement Cost New. They have been developed by applying unit-in-place costs to the construction of specified hypothetical or model buildings. Application of the schedules involves the selection of the model which most nearly resembles the subject building and adjusting its price to compensate for all significant variations.

Pricing schedules are included for various types of Residential, Agricultural, Institutional, Commercial and Industrial structures.

Cost adjustments for the variations which are most frequently encountered in a particular type of building are included. Adjustments for other variations may be made by using either the other Feature Cost Tables or other appropriate schedules.

SELECTING THE PROPER QUALITY GRADE

The quality of materials and workmanship is the one most significant variable to be considered in estimating the replacement cost of a structure. Two buildings may be built from the same general plan, each offering exactly the same facilities and with the same specific features, but with widely different costs due entirely to the quality of materials and workmanship used in their construction. For instance, the cost of a dwelling constructed of high-quality materials and with the best of workmanship throughout can be more than twice that of one built from the same floor plan, but with inferior materials and workmanship.

The schedules included in this manual have been developed to provide the appraiser with a range of grades comprehensive enough to distinguish all significant variations in the quality of

materials and workmanship which may be encountered; the basic specifications for each grade as to the type of facility furnished remain relatively consistent throughout, and the primary criterion for establishing the grade being the overall quality of materials and workmanship.

The majority of buildings erected fall within a definite class of construction, involving the use of average quality of materials with average quality of workmanship. This type of construction being the most common, it can readily be distinguished by the layman as well as the professional appraiser. Consequently, better or inferior quality of construction can be comparatively observed. The quality grading system and pricing schedules in this manual are keyed to this obvious condition; the basic grade being representative of that cost of construction using average quality of materials with average quality workmanship. The principal Quality Grade classifications are as follows:

Grade X	**Excellent Quality**
Grade A	**Very Good Quality**
Grade B	**Good Quality**
Grade C	**Average Quality**
Grade D	**Fair Quality**
Grade E	**Inferior Quality**

The six grades listed above will cover the entire range of construction quality, from the poorest quality to the finest quality.

The general quality specifications for each grade are as follows:

X Grade	Buildings generally have an exceptional architectural style and design, constructed with excellent quality materials and custom workmanship. Superior quality interior finish, built-in features, deluxe heating system, plumbing and lighting fixtures.
A Grade	Architecturally attractive building constructed with excellent quality materials and workmanship throughout, featuring very good quality interior finish and built-in features. Deluxe grade heating and cooling systems, and very good grade plumbing and lighting fixtures.
B Grade	Buildings constructed with good quality materials and above average workmanship throughout. Moderate architectural treatment. Good quality interior finish and built-in features. Good grade heating, plumbing and lighting fixtures.
C Grade	Buildings constructed with average quality materials and workmanship throughout, conforming to the base specifications used to develop the pricing schedule. Minimal architectural treatment. Average quality interior finish and built-in features. Standard grade heating, plumbing and lighting fixtures.
D Grade	Buildings are constructed with economy quality materials and fair workmanship throughout. Void of architectural treatment. Fair quality interior finish and built-in features. Low grade heating, plumbing and lighting fixtures.
E Grade	Buildings constructed with a substandard grade of materials, usually “culls”, “seconds” and poor- quality workmanship; resulting from unskilled, inexperienced, “do-it-yourself” type labor. Low grade heating, plumbing, and lighting fixtures.

In order to facilitate using this grading system, and again to promote and maintain uniformity in approach, the value relationship of grade to grade as just described has been incorporated into the development of the base specifications relating to each schedule used in the manual.

Note: The appraiser must exercise extreme caution not to confuse the concepts “quality” and “condition” when selecting the proper grade. This is especially applicable to older buildings, wherein a deteriorated condition can have a noticeable effect on their physical appearance. A building will always retain its initial grade of construction, regardless of its existing deteriorated condition. The Quality Grade ultimately selected must reflect that original built-in quality, and the selection of that grade cannot be influenced in any way by the physical condition of the building.

APPLYING THE PROPER GRADE FACTOR

Grading would be a relatively simple process if all buildings were built to conform to the quality grade specifications outlined above. The fact is, however, that this ideal condition does not exist. It is not unusual for any conventional building to be built incorporating construction qualities that fall between the established grade levels. The grading system in this manual has been designed in such a way as to provide the appraiser with a method for accounting for such variations by establishing intermediate grades.

If the Subject building is judged to be of a better or inferior quality than the actual grade levels, a grade factor of plus (+) or minus (-) should be applied, i.e., C+ would be better than a straight "C" Grade, B- poorer than a straight "B" Grade, etc.

There is rarely a clear-cut designation of a specific grade factor. The appraiser will generally select a range, such as C+ to B-, and then weigh the various quality factors exhibited in the construction in order to select the proper factor.

PRICING SCHEDULES AND COST TABLES

The pricing schedules and cost tables are to aid the appraiser in arriving at accurate and uniform valuations. Used properly, they should prove to be an invaluable tool. Quality valuations, however, are not the product of schedules and tables themselves, but rather of the appraiser's ability to use them effectively. It should also be noted that the schedules and tables in the manual have been developed primarily for mass appraisal and tax equalization purposes. They have, therefore, been designed to provide the appraiser with an uncomplicated, fast, and effective method of arriving at an accurate estimate of replacement costs. Field tests have proven to be both accurate and reliable, and when applied properly, highly effective in achieving realistic replacement costs.

ALL PRICING SCHEDULES AND COST TABLES ARE LOCATED AT THE BACK OF THE MANUAL.

RESIDENTIAL CLASSIFICATION STANDARDS

QUALITY GRADE OR CLASS

The quality grade of materials and workmanship is the one most significant variable to be considered in estimating the replacement cost of a structure. Two buildings may be built from the same general plan, each offering exactly the same facilities and with the same specific features, but with widely different cost due entirely to the quality of materials and workmanship used in their construction. For instance, the cost of a dwelling constructed of high-quality materials and with the best of workmanship throughout can be more than twice that of one built from the same floor plan, but with inferior materials and workmanship prevailing.

The following schedule has been developed to distinguish between variations in cost. This schedule represents a full range of conventional dwelling construction. The basic specifications for each grade as to type of facilities furnished is relatively constant; that is, each has a specific type of heating system, two bathrooms, kitchen unit, and other typical living facilities, but with variable quality of materials and workmanship prevailing.

The basic grade represents the cost of construction using average quality materials, with average workmanship. The majority of dwellings erected fall within a class above and a class below the base grade of ‘C.’ The layman or professional appraiser can readily distinguish between these classes. The three classes of grade of quality for this group of dwelling have been established as follows:

Grade C+	Average Quality	108%
Grade C	Average Quality	100%
Grade C-	Average Quality	92%

In order to justify variation in cost, maintain uniformity, and retain complete control throughout the cost range, we have established these base grades. The pricing spread between each grade is based upon the use of better grade materials and higher quality workmanship.

To cover the entire range of dwelling construction, three additional classes of dwellings above the base grade dwelling must be considered along with two grade classes of dwelling below the base grade.

The three base grades above are:

Grade X	Average Quality	225%
Grade A	Average Quality	162%
Grade B	Average Quality	126%

The 'X' and 'A' Grade dwellings incorporate the best quality of materials and workmanship.
The prestige-type and the mansion, or country estate-type homes, are usually in this classification. Grade B dwellings boast moderate architectural style and design, generally include the custom-built homes. Grade A dwellings are of average architectural style and design and are generally custom-built homes.

The two base grades below are:

Grade D	Average Quality	78%
Grade E	Average Quality	50%

The dwelling of the cheapest quality construction built of inferior grade materials and workmanship is the Grade E quality.

These six established base grades or classes of quality will cover the entire range of dwelling construction, from the cheapest to the finest in quality.

USE OF INTERMEDIATE GRADES

As stated earlier, the grading method is based on Grade C as the base standard of quality and design. A factor of the highest grade level to the lowest grade level is established by means of grade factor multipliers. Since not all dwellings are constructed to fall into one of the precise grade levels with no adjustments, it becomes necessary to further refine our grading system. It is not unusual for conventional houses to be built incorporating qualities that fall above or below these established grades. If the house that is being appraised does not fall exactly on a specific grade, but should be classified within that grade, the use of grade factor symbols (+ or -) will accomplish this adjustment in the Grade X, A, B, C, D and E classes.

The appraiser must use extreme caution not to confuse quality and condition when establishing grades for older houses in which a deteriorated condition may have a noticeable effect on their appearance. Grades should be based on the initial quality when new, and not influenced by physical condition. Proper grading must reflect replacement cost of new buildings. A house should always retain its initial grade of construction, regardless of its present deteriorated condition.

Grade X Quality Dwellings
These homes are unique, architecturally designed and custom built by contractors who specialize in excellent quality construction, Extensive detail is given to ornamentation with the use of excellent grade materials and skilled craftsmanship. Homes of this type are located in areas that are specifically developed for this level of quality. They are not typically found in conventional subdivisions.

Residential: Quality Grade 'X'





Grade A Quality Dwellings
These homes are architecturally designed and custom built by contractors who specialize in very good quality construction. Extensive detail is given to ornamentation with the use of good grade materials and skilled craftsmanship. Homes of this type are located in areas that are specifically developed for this level of quality, including more exclusive neighborhoods.

Residential: Quality Grade 'A'





Grade B Quality Dwellings
These homes are architecturally designed and built by contractors who specialize in good quality construction. Much detail is given to ornamentation with the use of good grade materials and skilled workmanship. Custom-built homes normally fall into this category.

Residential Quality Grade 'B'





Grade C Quality Dwellings
These homes are designed and built by contractors who specialize in average quality construction. Adequate detail is given to ornamentation with the use of average grade materials and typical workmanship. Homes of this type are generally located in areas that are specifically developed for this level of quality. These homes represent the prevalent quality.

Residential Quality Grade 'C'





Grade D Quality Dwellings
These homes are usually mass-produced and built of lower quality materials with expense-saving construction. Limited detail is given to ornamentation with the use of below-average materials and workmanship. Economy built homes would normally fall into this classification.

Residential: Quality Grade 'D'





Grade E Quality Dwellings
These homes are constructed of low-quality materials and usually designed not to exceed minimal building code. Little detail is given to interior or exterior finish. They are usually built for functional use only. Homes of this type are not specifically located within developments but may be built as in-fill housing.

Residential: Quality Grade 'E'





RESIDENTIAL COST SCHEDULES

The Cost Approach to value lends itself best to property valuation for tax purposes for two principle reasons:
1) Appraisals for Ad Valorem purposes require separate land value estimates.
2) The Cost Approach can be applied to all classes of property.
The use of one approach to the exclusion of others is contrary to the appraisal process. The approach outlined in this manual includes cost schedules, which have been developed and are supported through analysis and incorporation of economic factors indicated by all three approaches to value: Cost, Income, and Market.

The Cost Schedules are based on a model residence constructed using typical components, average quality workmanship and materials, consisting of thirteen hundred (1300) square feet, one full bath (four fixtures), central heating system and a crawl space.

DWELLING PRICING SCHEDULE

The 'Dwelling Pricing Schedule' is to be used for computing the replacement cost new of all single-family dwellings, and certain multiple-family dwellings not exceeding four living units. 'C' Grade base prices are provided for 1story, 1.5 story, 1.75 story, 2 story, 2.5 story, 2.75 story and 3 story dwellings off frame exterior wall construction, along with tables of base price adjustments, additions and other features.

General Application

The general application of the pricing schedule is to select the base price that is most representative of the subject dwelling, and to adjust that base price to account for any variations between the subject dwelling and the model.

DWELLING COMPUTATION

BASE PRICE- This is the assessed value of the main section of the dwelling. The system first goes to the “dwelling data” section of the property record card and receives the story height, ground floor area and exterior walls data. This information is then taken to Table 301, “Residential Dwelling Pricing Schedules.” See Valuation Details Page below. Base prices are given for sizes at 100 square foot intervals. It is therefore necessary to interpolate for sizes falling between those intervals. This number is then multiplied by the modifier from Table 300 to yield the value listed the Base Price.

PLUMBING ADJUSTMENT - Plumbing adjustments are based upon the number of bathrooms listed under dwelling data. The system assumes one full bathroom (three fixtures) to yield a zero value. More than one full bathroom will add value as a plumbing adjustment. Conversely, less than one will yield a negative adjustment. A half bath is equal to two fixtures, and the system bases the adjustment upon number of fixtures. Therefore, a house with two and a half bathrooms will receive an adjustment for five additional fixtures. The amount per fixture is listed in Table 309, “Residential Other Features”. Value number 1 is multiplied by the Table 300 modifier times the number of additional fixtures to produce the plumbing adjustment.

HEAT/CENTRAL A/C ADJUSTMENT – The system assumes basic heat without central air conditioning to produce a zero value. Central A/C will add value and a home without heat will receive the opposite effect. Table 301. “Residential Pricing Schedules,” is used. HVAC is based upon square footage of the base area, 3 or 4. This value is also multiplied by the modifier.

BASEMENT ADJUSTMENT- The system assumes a crawl space to yield zero value. Thus, the base price includes a crawl space. If the main area contains no crawl space or basement of any type a value is subtracted with this entry. Table 302, "Residential Basements and Attics" contains the adjustment variables for this entry. Table 302 list square footage of ground floor area and shows variable for a house built on piers or a slab, crawl space or partial basement. This basement adjustment variable is then multiplied by the modifier from Table 300.

FINISHED BASEMENT LIVING AREA - If the residence has a partially or fully finished basement there will be value added since the base price assumes a crawl space basement only. Look under "dwelling data" on the property record card for "Finished Basement Living Area."
This square footage times the value in Table 309, Finished Basements, times the modifier from Table 300 will yield the value of Finished Basement Living Area.

BASEMENT RECREATION AREA - This adjustment adds value to a residence which contains a recreation area in the basement. This is an area partially finished for recreation, yet not completely finished as living area. The square footage is listed under "dwelling data," multiplied times both the modifier and the factor in Table 309 above Recreation Room will equal the added value for "Basement Recreation Area."

BASEMENT GARAGE – A portion of an unfinished basement may have garage doors and parking area for one or two cars. The number by "Basement Garage" under "Dwelling Data" (1 or 2) is multiplied by the Table 309 value above "Basement Garage" times the Table 300 modifier. The product is the value to be added.

FIREPLACES– The system adds value for each masonry fireplace stack and opening. The numbers under "Dwelling Data", "Fireplace Stacks/Openings" are multiplied by their corresponding values from Table 309 times the modifier to yield the value added for fireplaces.

EXTRA KITCHENS- One kitchen is included in the base price. Each extra kitchen will be valued from Table 309.

ADDITIONS – The "Base Price" value listed on the PRC is for the main area of the residence only. Additions that make up the residence are valued and added on this line. On the PRC, above the "Cost Value" area, is the "Addition Data." The system can calculate a value for sub-areas on four separate levels (stories). The values for "Living Area Additions" are listed in Table 304, "Residential Living Area Additions." Table 305, "Residential Porches/Patios/Utility Sheds" lists factors for sub-areas that are unheated, such as porches, decks, etc.

SUBTOTALS – This is a summation of all values under "Dwelling Computations."

GRADE FACTOR – The quality grade, a factor based upon quality of workmanship and material for this particular residence, is listed on the PRC under "Dwelling Data." The system takes this grade to Table 303, "Residential Grade Factors," which lists the grades in the table. A "C" grade house is considered average, with a factor of 1.0, and thus, has no influence on value. "B" grade has a corresponding factor greater than 1.0, and therefore causes a positive influence

on value. The system carries the factor back to the PRC and inserts in on the "Grade Factor" line.

C & D FACTOR (COST AND DESIGN) – Design characteristics, positive or negative, which influence value, yet are not accounted for by the grade factor can be valued here with the insertion of a C & D factor. A factor greater than 1.0 will raise value, while a factor less than 1.0 will, of course, have the opposite effect. This factor is generally used on an individual or neighborhood adjustment basis, and is not listed in any table.

REPLACEMENT COST NEW (RCN) - This variable is the replacement value for this residence to be rebuilt new, at its current location, considering the grade and design factors. The equation is: (Subtotal * Grade Factor * C & D Factor) = RCN. The Subtotal is multiplied by the grade factor, and the product then multiplied by the C & D Factor to yield the "Replacement Cost New."

PERCENT GOOD - The replacement cost new is then depreciated to reflect physical, functional and economic depreciation the structure has been subject to. The "Percent Good" is based upon two items listed under "Dwelling Data" - "Year Built/Effective Year" and "Condition/Desirability/Utility." The effective year may be more recent than the actual year built to reflect expansions, remodeling and improvements accomplished during the dwelling's history. The effective year is the year the residence is depreciated back to. Subtract this year from the "Assessment Year" listed in Table 300 to achieve the number of years of depreciation. The number of years carries to Table 307, "Percent Good Table – Dwelling" where number of years are listed with row 1 being zero years, i.e., a new home. The"Condition/Desirability/Utility" variable is also taken to Table 307 and listed. Item #1 is excellent condition, 2 is very good, followed by good, and then average. Fair is listed as #5, then poor, very poor and unsound condition types. Follow the year to the condition type to look up the "Percent Good" used in this appraisal. Multiply the value from Table 307 by .01 to express as a percent, and move the resulting value to the property record card as the "Percent Good."

MARKET ADJUSTMENT – A market adjustment factor, positive or negative, may be applied to reflect value trends in segments, markets or neighborhoods throughout the county. These values are applied on an individual neighborhood basis.

RCNLD – The "Replacement Cost New Less Depreciation" (RCNLD) is the total assessed value of the residence considering all attributes and influence factors applicable. The equation used is: ((Replacement Cost New * Percent Good) * Market Adjustment) = RCNLD.
The "Building Value" listed on the PRC is the summation of values of all residences and all detached (outbuildings) structures appraised as Real Estate on the parcel. Thus, after an explanation of the system valuation of outbuildings, you will come back for this RCNLD value.

LOCAL MODIFIER – The County base set of schedules used for 2027 have been recalculated to reflect current market conditions. Therefore, the Local modifier in Table 300 has been set to 1.

OUTBUILDING DATA – These are structures appraised as Real Estate that are detached from the residence(s). The OBXF type is identified by a four-character code listed on the PRC. OBXF structures can be manually valued or calculated using the tables.

OUTBUILDING CODES AND DESCRIPTIONS

CODE	DESCRIPTION
AB1	BANK BARN
AB2	FLAT BARN
AB3	STABLE
AB4	RIDING ARENA
AC1C	CENTRAL AIR
AC1R	CORN CRIB
AC7	AC7
AD1	DAIRY BARN
AD2	FEED/WASTE BARN
AG1	GRAIN BIN
AH1	1S POULTRY HSE FRM
AH2	2S POULTRY HSE FRM
AH5	2S POULTRY HSE CB
AL1	LEAN TO
AL1C	LEAN TO-COMMERCIAL
AM1	MILK HSE ATTACHED
AM3	MILK HSE DETACHED
AM5	MILK PARLOR
AO1	POTATO STG UND
AO2	POTATO STG ABV
AO3	TOBACCO BARN
AP1	POLE BRN-MTL 4 SD
AP1C	POLE BARN, METAL, 4 SD
AP2	POLE BRN-FRM 4 SD
AP2C	POLE BARN, FRAME, 4SD
AP3	POLE BRN-MTL 1 OPEN
AP3C	POLE BARN, METAL 1 OPEN

CODE	DESCRIPTION
AP4	POLE BRN-FRM 1 OPEN
AP4C	POLE BARN, FRAME, 1 OPEN
AP5	POLE BRN-MTL 4 OPEN
AP5C	POLE BARN, METAL, 4 OPEN
AP6	POLE BRN-FRM 4 OPEN
AP6C	POLE BARN, FRAME, 4 OPEN
AQ1	QUONSET BLDG
AR1	GRANARY
AS1	CNC SILO W/ROOF
AS2	CNC SILO W/O ROOF
AS4	PORCELAIN SILO
AS5	PREFAB STEEL SILO
AS6	PREFAB STEEL SILO/HIGH
AT1	TRENCH SILO-CNCR
AT2	TRENCH SILO-DIRT
AX1	PREFAB STEEL BLDG
AX1C	PREFAB STEEL BLDG-COMM
BD1	BOAT DOCK WD
BH1	BOAT HOUSE OPEN
BH2	BOAT HOUSE ENC
BK1	BULK HEAD
CBH	BATH HOUSE, COMMERCIAL
CC3	CARPORT, PREFAB, COMMERCIA
CG1	GARAGE, FRAME, COMMERCIAL
CG2	GARAGE, MSNRY, COMMERCIAL
CI1C	ASPHALT OR BLACKTOP P
CI1R	ASPHALT OR BLACKTOP P
CI2C	CONCRETE PAVIING
CI2R	PAVING
CI3C	ASPHALT/CONCRETE PAV
CI3R	CONC SLAB/PATIO

CODE	DESCRIPTION
CP5	CANOPY ONLY
CP5R	CANOPY ONLY - RES
CP6	CANOPY ROOF/SLAB
CP6R	CANOPY, ROOF/SLAB
CP7	CANOPY ECON
CP8	CANOPY AVG
CP9	CANOPY GD
CS6	SHOP BLDG, COMMERCIAL
DFP	DETACHED FIREPLC
DFPC	DETACHED FIREPLACE
EC1	CHURCH FIN
ED1	DORM FIN
EE1	COURTHOUSE FIN
EP1C	POST OFFICE FIN
EP1R	ENC PORCH-FRAME
EP2C	POST OFFICE UNFIN
EP2R	ENC PORCH-MASONRY
FN1	FENCE CHAIN
FN3	FENCE STOCKADE
FN5	FENCE BASKETWEAVE
FP1	14X12 DOOR
GB1	GAZEBO
GB1C	GAZEBO-COMM
GC2	GOLF COURSE GD
GC5	GOLF COURSE PAR THRE
GC6	GOLF COURSE MINIATURE
GC7	GOLF COURSE ELABORAT
GH1C	GREENHOUSE ECOM
GH1R	GREENHSE-WD FRAME W
GH2C	GREENHOUSE AVG
GH2R	GREENHSE-METAL W/ GLA

CODE	DESCRIPTION
GH3C	GREENHOUSE GD
GH3R	GREENHSE-WD W/ PLAST
KF1	KIOSK
LT3	LIGHT - POLE MOUNTED
LT3R	LIGHT, POLE MOUNTED
LT5	LIGHT - MERCURY VAPOR
MH5	MOBILE HOME PARK SITE
MHA	MH ATTACHMENT
MHE	MH ENCL PRCH
MHF	MH FOUNDATION
MHH	MH HOOKUP
MHR	MH ROOF
MSC	MSC
ODK1	OUTDOOR KITCHEN - AVE
ODK2	OUTDOOR KITCHEN - CUS
OP1	OPN PRCH FRM
OP1C	OPEN PORCH, FRAME
OP2	OPN PRCH MAS
OP2C	OPEN PORCH, MASONRY
PA1	ASPHALT PKG < 5000SF
PA2	ASPHALT SERVICE
PB1	PLUMBING FIXTURE
PC1	PAVING CONCRETE
PC2	PC2
PC3	PC3
RB1	BOAT HSE FRM/CB
RB2	BOAT HSE MSNRY
RBH	BATH HSE
RBHC	BATH HOUSE-COMM
RC1C	CARPORT
RC1R	CARPORT

CODE	DESCRIPTION
RC2	CANOPY
RC3	CARPORT - PREFAB
RC3C	CARPORT-PREFAB-COMM
RD1	BOAT DCK/LT
RD2	BOAT DCK/MED
RD3	BOAT DCK/HVY
REL	ELEVATOR - RES
RFO	OFFICE - RES
RG1	GARAGE FRM/CV
RG1C	GARAGE-FRM/CV-COMM
RG2	GARAGE MSNRY
RG3	GARAGE UNF ATTIC
RG4C	GARAGE FRAME
RG4R	GARAGE-FIN ATTIC
RG5C	GARAGE MASONRY
RG5R	GARAGE-1/2S
RG6	GARAGE 1 STY
RG7	GARAGE 1 STY STG
RK1	DOG KENNEL
RL1	STUDIO
RM1	MH SINGLE WD
RM2	MH DOUBLE WD
RO1	OLD DWELLING
RP2	POOL PREFAB PLST LINER
RP3	POOL REINFRCD CNCR
RP4	POOL FIBERGLASS
RP5	POOL GUNITE
RR1C	TRACK RAILROAD
RR1R	RURAL RETAIL STORE
RS1C	UTILITY FRAME
RS1R	SHED-FRAME

CODE	DESCRIPTION
RS2C	UTILITY METAL
RS2R	SHED-METAL
RS3C	UTITILY STONE
RS3R	BUFFALO BARN
RS4	METAL BLDG
RS6	SHOP
RS6C	SHOP-COMMERCIAL
RV1	RV HKUP FULL
RV2	RV HKUP H2O/ELC
RV3	RV HKP ELC
RV4	RV TENT
SC1	COMM SWIM POOL
SH1	SHED FRAME
SH1R	SHED, FRAME
SH2	SHED ALUMIN
SH3	SHED METAL
SH3R	SHED, METAL
SH4	SHED QUONSET
SH5	LUMBER SHED 2 SIDES OP
SH6	LUMBER SHED 4 SIDES OP
SM1	MH SCRN PRCH
SM2	MH ADDITION
SM3	MH CANOPY/CRPT
SM4	MH SKIRTING
SM5	MH WOOD DECK
SM6	MH ATTCHD 1 STY
SM7	MH OPEN PORCH
SM8	MH BSMNT
SM9	MH FOUNDATION
SS1	SPRINKLER WET
TC1C	TENNIS COURT-ASPH

CODE	DESCRIPTION
TC1R	TENNIS COURT-ASPHALT
TC2C	TENNIS COURT-CONC
TC2R	TENNIS COURT-CONC
TC3C	TENNIS COURT-CLAY
TC3R	TENNIS COURT-CLAY
TC4	TENNIS COURT-PLATFORM
TN1	TANK ELV STEEL
TN2	TANK STEEL BULK
TN5	TANK STEEL PREFAB
TN5C	TANK, STEEL
TR1	RESTROOM-FR/CB
TR1C	RESTROOM, FR/CB
TR2	RESTROOM-STONE
TR2C	RESTROOM, STONE
TT1	TOWER RADIO
TT1C	TOWER, RADIO
WD1	WOOD DECK
WD1C	WOOD DECK-COMM

MANUFACTURED HOUSING

Manufactured housing can be single wide mobile homes, double wide mobile homes or modular homes. These structures are designed with a steel undercarriage and wheel assemblies for transporting to the site. Note: Modular homes have wood joists rather than a steel undercarriage and for mass appraisal purposes are considered to be like stick-built homes. NCGS 105-273(13), in defining real property, provides for the inclusion of manufactured housing as follows: "Real property, real estate and land" mean not only the land itself, but also buildings, structures, improvements and permanent fixtures thereon, and all rights and privileges belonging or in any way appertaining thereto." These terms also mean a manufactured home as defined in NCGS 143-143.9(6) if it is a residential structure- has the moving hitch, wheels and axles removed; is placed upon a permanent foundation either on land owned by the owner of the manufactured home or on land in which the owner of the manufactured home has a leasehold interest pursuant to a lease with a primary term of at least 20 years for the real property on which the manufactured home is affixed and where the lease expressly provides for disposition of the manufactured home upon termination of the leas. A manufactured home as defined in NCGS 143-143.9(6) that does not meet all of these conditions is considered tangible personal property.

The following guidelines should be used when estimating replacement costs

The wheel and hitch assemblies are usually removed at the building site location. The hitch is not included in the overall dimensions when calculating the actual square footage.

Manufactured homes built in the USA after June 15, 1976, must meet Federal Standards outlined in Title VI, Housing and Community Development Act of 1974. A HUD seal certifying these standards must be displayed on each unit. This section will be used for the purpose of appraising replacement costs for those built prior to its enactment, as well as those built after 1976.

Manufactured homes are generally the only type of factory-produced houses to be priced from this section and are referred to as single wide and double wide manufactured homes.

Factory produced homes consist of single or multi wide units, either 13 feet or greater in width and at least thirty-two feet or greater in length. These units are transported on their own wheel assemblies to the building site. The units are then set up on a permanent or semi-permanent foundation with utilities attached. Utilities such as water, electricity, sewer or septic tank are included in the building site (land) cost, not the factory home cost.

Manufactured homes are usually described in terms of length and width (ex: 14x74) and are priced accordingly. Although most units are sold furnished, furnishings and appliances are not included in the base rate schedules for tax purposes.

Items such as wood decks, stoops, porches, patios, etc. are add-ons and are valued according to the residential outbuilding schedule.

MANUFACTURED HOME CLASSIFICATION STANDARDS

All manufactured homes not meeting the requirements of a modular home are to be considered using the term "manufactured home" for mass appraisal purposes. NCGS 105-273(13), in defining real property, provides for the inclusion of manufactured homes. Also, NCGS 105-316.7 defines mobile home and manufactured home.

Any manufactured home will be considered *real property* and will be valued in accordance with the schedule of values if the owner of the land and the owner of the home placed upon the land are the same, having the towing hitch and axle assembly removed and placed upon a permanent foundation as required by the Alleghany County Building Inspections Department.

If the owner of the manufactured home does not own the land it occupies, the home will be considered a *personal property* item. If the manufactured home is considered a personal item, it will be noted within the notes section of the property record card and listed for tax purposes accordingly.



Double Wide Manufactured Home



Single Wide Manufactured Home

MODULAR HOME CLASSIFICATION STANDARDS

All homes constructed in a factory may be considered a manufactured home, but only those that meet or exceed the NC State Residential Building code may be considered modular homes. NCGS 105-164.3(21b) defines modular home as a "factory-built structure that is designed to be used as a dwelling, is manufactured in accordance with the specifications for modular homes under the NC State Residential Building Code (NCSRBC), and bears a seal or label issued by the Department of Insurance pursuant to GS 143-139.1". Also, in addition to NCSRBC, modular homes may be required to be constructed to local and/or regional building codes. North Carolina addresses the construction and definition of modular homes under the NC State Building Code Volume VIII-Modular Construction Regulations. The quality of modular homes is considered to be the same as site-built homes per memorandum from the NC Department of Insurance. For mass appraisal purposes, structures that are considered modular must meet current general statute requirements. Note: All homes classified as modular will be considered as real property, even if on someone else's land.





STORY HEIGHT

ONE STORY
The one-story dwelling has all regular living spaces on one level. These structures may have basement and/or attic areas depending on location and preference of prospective owners.

Some advantages of the one-story dwellings include: the ability to add patios, porches and decks to virtually any room; the absence of stairs where no basement or attic exists; the easy maintenance of usually low-pitched roofs and short exterior walls. Most one-story dwellings have a low and long appearance, which is pleasing to a large number of potentia1 owners.

ONE-AND ONE-HALF, AND ONE-AND THREE-QUARTER STORY
The one-and-one-half and One-and three-quarter story dwelling is essentially one-story with a steeper roof allowing for expansion of the attic. Dormers are usually added to provide additional interior wall height, light and ventilation. This has two distinct advantages: economy in cost per unit of habitable living space and built-in expandability.

TWO-STORY AND ABOVE
The two-story dwelling is the most economically built of the basic residential structure styles. The structure may be built with or without basement and/or attic areas. It requires smaller site space and has a smaller roof and foundation. Heating and cooling the two-story dwelling is simple and comparatively economical.

SPLIT-LEVEL / BI-LEVEL
The split-level dwelling is a variation of the one-story dwelling with basement area. It was designed for sloping or hilly sites and takes advantage of what might otherwise be a troublesome difference in elevation. The split-level makes efficient use of space. The general arrangement of the structure separates sleeping, living and recreation areas on different levels. The bi-level with the split-foyer dwelling is a popular variation of the split-level and is generally constructed with full basement area.

LAND SCHEDULES

LAND VALUATION GUIDELINES

Land values across Alleghany County are as varied as the properties they reflect. The use of a wide range of land types and rates to effectively value these properties is a necessity.

Specific land values are based on typical rates for classes of property and land types within a defined neighborhood or pricing area. Base rates are established to accommodate the majority of land types found within these areas.

Each tract of land is analyzed to determine the necessary land segment types and appropriate rates.

LAND VALUATION ADJUSTMENTS

The technique of land pricing, as described in other sections of this manual, provides for the development of unit land rates for all classes of real property within a given area or neighborhood. These land rates are developed from verified, recent sales and are expected to reflect market value for various prevalent land types as of the effective valuation date for each given area.
Land rates will be developed for parcels in the following Categories:
Square Footage
Gross Lot/Value
Acreage
Units/Single Lot

It is significant to point out that assigned land rates are based on typical or normal conditions for that class of property and land type within a specific neighborhood or area. It is likely that some number of specific parcels within a neighborhood will have unique factors affecting the value of that land parcel. These "Land Influences Factors" may affect the value of a specific parcel beneficially or detrimentally (i.e., plus or minus compared to the norm for the neighborhood). Proper appraisal practice indicates that a land rate adjustment or "Land Influence Factor" should be applied by the review appraiser to properly reflect the unique considerations for a parcel with significant physical or economic characteristics, deviating from the normal conditions reflected by the neighborhood land rates.

The primary goal of a Revaluation Program is equalization; it is strongly recommended that users of this manual exercise proper judgment and caution in the application of land influence factors.

Land Influence Factor Guidelines

Code 1-Undeveloped
By definition, each selected type rate such as primary lot, home site, primary site, secondary site, etc., include provisions for normal site improvements to the land as site preparation, typical utility service (water, sewer or septic disposal, electricity) and typical landscaping, driveways and walks. Therefore, it is not necessary or desirable to apply an unimproved land factor to lots, home sites, primary or secondary sites. Those parcels lacking site improvements should be classified in the appropriate undeveloped, residual, etc.

Code 2-Waterfront or Water Influence
This factor is normally a positive adjustment for lots or parcels where the land value is significantly enhanced by being located on a significant stream, river or other body of water.

Code 3-Topography
This category allows the reviewer's judgment of the degree of difficulty due to poor topography in erecting a suitable improvement on the subject parcel.
Normally if a suitable improvement is present on the subject lot, the topography problem has been corrected. Therefore, an improved lot normally should have no allowance for topography. However, a topography influence may need to be applied in significant cases of unimproved lots or tracts where poor topography represents an actual detriment to the presumed utilization of the parcel.

Topography factors include irregular land contour, poor drainage, potential subsidence, subsurface rock ledge, potential erosion, and flood plain areas.

Code 4-Shape /Size
The shape/size factor is normally a negative adjustment to account for loss of value due to highly irregular shape or insufficient size for the presumed utilization of the parcel.

Utilizing the shape/size factor is a review judgment and may apply to all land types. The basis for any factor is a negative adjustment reducing the subject lot value to the amount and degree of land utility applicable for the presumed utilization.

Code 5-Easments or Restrictions
A negative land influence adjustment for restrictions is applicable for cases where the property is subject to a legal or physical restriction to its utilization. Typical examples would include:
Utility easements, such as power lines and sewer lines
Zoning or deed restrictions to the property, limiting the utilization to a less than normal use for typical lots in the neighborhood
Physical barriers to the property (bridges, highway medians, fences or abutment)

Code 8-View Influence
This factor is normally a positive adjustment for lots or parcels where the land value is significantly enhanced by the presence of a scenic or waterfront view when compared to similar lots in the area where no significant view is present. This factor could also apply to golf course or riparian lots.

VIEW INFLUENCE FACTOR GUIDE

CONDITION	FACTOR
Normal - The view is considered common to the area, and market evidence indicates actual value enhancement exists	**0%**
Minor - The subject property has a moderate enhancement due to an appealing view, and market evidence supports value enhancement	**+15% to 45%**
Major - The subject property has a significant enhancement due to an appealing view. Further, the view enhancement is not common to similar lots in the area and there is little or no potential for obstruction of the view by other structures	**+45% to 99%**
Negative - For properties with less than normal or typical views, the appraiser should apply negative factors to the affected properties as indicated by market analysis and evidence	**-15% to -75%**

CONSERVATION EASEMENTS

A conservation easement is a voluntary restriction of one's real property rights in favor of a tax-exempt conservancy organization for the purpose of preserving land from development and for future benefit as scenic areas, wildlife habitat, and open space for a sustainable natural environment.

Due to the uniqueness of both land and property owner, it is necessary to tailor a conservation easement equally as unique. Each conservation easement must be reviewed and analyzed to determine the relinquished rights as well as the allowable exceptions in order to equitably reflect the value for the property. The Alleghany County Tax Office, with the support of the North Carolina Department of Revenue -Property Tax Division, has decided to consider the issue of conservation easements on an individual case basis working through the appraisal process, notifying the property owner of the results of the assessment and allowing an adequate period of time for both discussion and appeal of the valuation.

All pertinent data that might be shared by either the conservation easement grantor or grantee will be considered by the Alleghany County Tax Office in the appraisal of any property encumbered by a conservation easement.

GS 105-317. Appraisal of real: adoption of schedules, standards, and rules. (a) Whenever any real property is appraised it shall be the duty of the persons making appraisals: (1) In determining the true value of land to consider as to each tract, parcel, or lot separately listed as least its advantages and disadvantages as to location: zoning; quality of soil; waterpower; water privileges; dedication as a nature preserve; conservation or preservation agreements; mineral, quarry, or other valuable deposits; fertility; adaptability for agricultural, timber-producing, commercial, industrial, or other uses; past income; probable future income; and any other factors that may affect its value except growing crops of a seasonal or annual nature.

Base Rate Land Valuation Technique

The Base Rate Land Valuation Technique allows the appraiser to establish land rates using either a price per acre, price per square foot or price per lot for each parcel located within an individual neighborhood unit. This method also allows the appraiser to develop base land sizes for each land segment type within the neighborhood. Incremental and decremental rates are developed as a percentage of the Base Land Rates to allow for size adjustments for those parcels which are either smaller or larger than the indicated base sizes established for the neighborhood.

PRIVATE CEMETERY OR BURIAL GROUND PROPERTY

Alleghany County has numerous private cemeteries that date to the late eighteenth century. Denotation and preservation of these cemeteries is an important and on-going effort on the part of many interested individuals and organizations. According to North Carolina General Statute 105-278.2(a), real property set apart for burial purposes shall be exempt from taxation unless it is owned and held for purposes of sale or rental or sale of burial rights therein.

MINERALS

Any substance obtained by mining or fracking that occurs in nature, usually comprising inorganic substances, such as quartz, feldspar, etc. as well as certain natural products of organic origin such as asphalt, coal, gas, natural gas and oil. Mining refers to the excavation made in the earth for the purpose of extracting ores, coal, and precious stones, etc. either by excavation or washing the soil. Fracking refers to the procedure of using naturally created fractures or by creating fractures in rocks and rock formations by injecting fluid into cracks to force openings to allow flow out of the formation. These natural substances of commercial value, such as iron ore, coal, quartz, feldspar, asphalt, gas, natural gas and oil, etc. that is obtained by mining, quarrying, drilling or fracking shall be valued at market value and applied to the owner for ad-valorem taxation by this schedule. Market value as far as practicable is appraised or valued at its true value in money by using at least one of the three common appraisal methods, cost approach, market approach or income approach.

All rights and interest in minerals associated in underlying land, whether owned by the landowner or created by or arising under deed, lease, reservation of rights, or otherwise, which rights or interest are owned by a person other than the owner of the land, shall be assessed and taxed separately to the owner of such rights or interest in the same manner as other real estate. The taxes on separate rights or interest in real property owned by one other than the owner of the land, whether or not listed separately from the land, shall be a lien on both the separate rights and on the land.

When land is owned by one party and improvements thereon or special rights (such as mineral, timber, quarry, waterpower, or similar tights) therein are owned by another party, the parties shall list their interest separately.

SOLAR FARMS
G.S. 105-275(45) –Property classified and excluded form tax base….
80% of the appraised value of solar electric systems is excluded as exempt use. *Solar Energy Electric System* means "all equipment used directly and indirectly for the conversion of solar energy to electricity."

Solar panels and other equipment shall be valued as business personal property at a rate of 20% of value. The land associated with this equipment will be valued at a range of $100 - $ 50,000 per acre based on the principal of highest and best use.

CELL TOWERS
For listing purposes, 1.00 acre will be designated to support the cell tower and associated components required to run cellular operations.
The cellular components are listed as personal property. They usually consist of the cell tower, individual company's cellular antenna, operating equipment, equipment shelters and security fencing. Give any information attained about the cellular components to business personal property appraiser.
The land supporting the cell tower will be valued as a cell tower site.

LAND VALUATION GUIDE
VACANT LAND:
<= 2.0 acres Undeveloped
>2.0 acres Natural Land

IMPROVED LAND:
<=2.0 acres Primary
Mountain View (if applicable)
Waterfront (if applicable)
Secondary (if applicable), etc.
>2.0 acres 1st acre is primary or other as above
Remainder of land is natural land

The table on the next page is a guide; the appraiser must use judgment when implementing.

ALLEGHANY COUNTY 2027 LAND VALUE RANGE

TYPE	MINIMUM	MAXIMUM
PRIMARY	$100.00	$400,000.00
SECONDARY	$100.00	$390,000.00
UNDEVELOPED	$100.00	$370,000.00
GOLF COURSE	$100.00	$2,000,000.00
RESIDUAL	$100.00	$40,000.00
WATERFRONT	$100.00	$2,000,000.00
WATER INFLUENCE	$100.00	$1,750,000.00
NATURAL LAND	$100.00	$100,000.00
MTN VIEW	$100.00	$2,000,000.00
CEMETERY	$100.00	$20,000.00
SOLAR FARM	$100.00	$50,000.00
TOWER SITE	$100.00	$100,000.00
COMMON AREA	$100.00	$1,000,000.00
COM PRIMARY	$1,000.00	$1,000,000.00
COM SECONDARY	$1,000.00	$700,000.00
COM UNDEVELOPED	$1,000.00	$700,000.00
COM RESIDUAL	$1,000.00	$500,000.00
DENR	$100.00	$500.00

COMMERCIAL & INDUSTRIAL SCHEDULES

Commercial and Industrial pricing schedules are provided for a variety of buildings based on the use of the property. The General Commercial Schedule is to be used as a guide for computing the replacement cost of mercantile type buildings, offices, and similar type structures. The Hotel/Motel/Apartment Schedule is to be used to compute the replacement cost of commercial living accommodations and associated support structures. The Industrial Schedule is to be used for computing the replacement cost of manufacturing and warehouse storage type structures. The general application of all the schedules is essentially the same; selecting the base price (per square foot) which is most representative of the subject building and adjusting the base price to account for any significant variation.

SCHEDULE FORMAT FOR BASE PRICES

The schedules designate base prices by use type for a series of perimeter-area ratios and wall types. "C" Grade base prices are provided for various finish types at different floor levels with specified floor-to-floor heights, for fire resistant construction with brick (or equal), frame (or equal), and metal superstructure walls and reinforced concrete basement walls.

Pricing adjustments for variations in both wall height and construction type (i.e., wood joist or reinforced concrete), together with prices for the various exterior walls are included. This makes it possible to select the proper base price, which is representative of the actual, floor-to-floor heights of the subject buildings for either: wood joist, fire resistant, fireproof, or pre-engineered steel construction.

The base prices are determined by selecting the appropriate square foot price for fire resistant steel frame construction by exterior wall type and use, adjusting it for variations in wall height, and making the proper deduction or addition for wood joist or fireproof construction, if necessary.

The base prices for each floor level use type include the exterior walls with normal openings, interior finish, mechanical features, and other features for that particular floor. In addition to these, each respective floor level includes the following features:

First Floor - site preparation and normal foundation construction for a building at grade level, normal parapets and coping, ground floor slab including base and cement finish, normal roof construction consisting of insulation, decking, framing, and utility service.
Basement - excavation and backfill and structural floor (for first floor) construction consisting of sub floor and framing.
Note: The cost of the basement exterior wall construction and spread footings exclude an allowance for the normal foundation construction included with the first floor.
Upper Floors - structural floor construction consisting of sub-floor and framing for each respective floor.

Normal partitions, plumbing, and lighting are included for each floor level based on use type. Adjustments may be made for the various base price components, if the quantity or quality of components is greater or less than what is considered normal for the use type.

Example: For general retail, normal is considered a cross partition (separating the sales area from the stock area) and partitions for two toilet rooms. If the store were divided into several sales areas, an addition for excessive partitions would be applicable.

Stairways (with enclosures in the finished use types) are included in the basement and upper floor prices.

CONSTRUCTION TYPES

Wood joist construction refers to non-fireproof structural floor and roof components consisting of wood sub-flooring and decking on wood joists, rafters, or pilings, and supported by either load bearing walls, timber, or steel framing.

Fire resistant construction refers to fire resistive structural floor and roof components consisting of formed concrete on steel framing; or light concrete, metal deck, flexi core, gypsum, and similar materials on steel joists and steel framing.

Fireproof construction refers to fireproof structural floor and roof components consisting of either formed or pre-cast reinforced concrete on either reinforced concrete, or fireproof structural steel framing. In a fireproof structural steel building, the fireproofing may be masonry, poured concrete, plaster, sprayed asbestos, or any similar material, which yields a high fire-resistant rating.

Pre-engineered steel construction refers to a prefabricated steel structural frame and roof components. This type of construction usually consists of concrete foundation and flooring.

QUALITY GRADE SPECIFICATIONS

The base prices are for normal "C" Grade buildings erected with average quality materials and workmanship. A Table of Quality Factors is provided to adjust the "C" Grade prices in order to account for variations in construction quality.

Grade X Buildings generally have an outstanding architectural style and design, constructed with the finest quality materials and workmanship. Superior quality interior finish, built-in features, heating system, and very good grade plumbing and lighting fixtures.

Grade A Architecturally attractive buildings constructed with excellent quality materials and workmanship; features high-quality interior finishing, built-in features, heating system, and superior grade plumbing and lighting fixtures.

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

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

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

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

Note: The quality factor selected is to represent a composite judgment of the overall grade. Generally, the quality of materials and workmanship is consistent throughout the construction of a specific building. However, since this is not always the case, it is necessary to weigh the quality of each major component in order to arrive at the proper "overall" quality grade. Particular consideration must be given to "special features" such as elevators and banking features, since variations for quality are already considered in the respective pricing tables. Equal consideration must also be given to those "additions" which are constructed of materials and workmanship inconsistent with the quality of the main building.



COMMERCIAL: AUTO DEALERSHIP



COMMERCIAL BANK



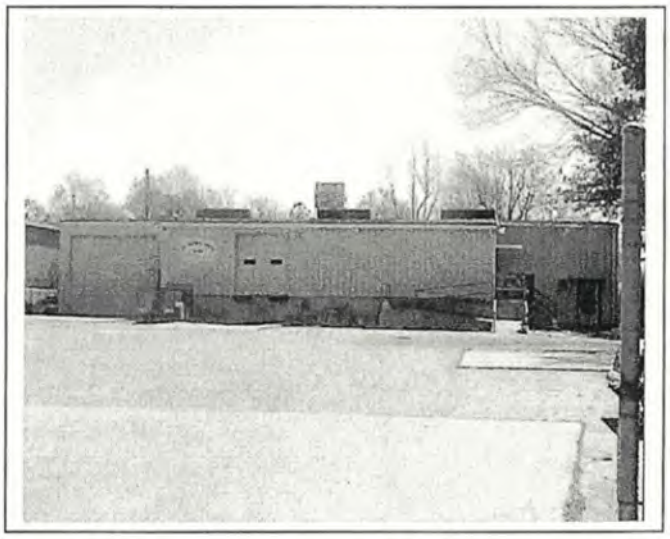
COMMERCIAL BEAUTY/BARBER SHOP



COMMERCIAL BOWLING ALLEY



COMMERCIAL CAR WASH



COMMERCIAL COLD STORAGE



COMMERCIAL: CONVENIENCE STORE



COMMERCIAL: CONVALESCENT HOME



COMMERCIAL: COUNTRY CLUB



COMMERCIAL: DAY CARE CENTER



COMMERCIAL DISCOUNT STORE



COMMERCIAL: FITNESS CENTER


COMMERCIAL: FUNERAL HOME


COMMERCIAL: MOTEL



COMMERCIAL: INDUSTRIAL



COMMERCIAL: MINI WAREHOUSE



COMMERCIAL: OFFICE BUILDING



MIXED RESIDENTIAL/COMMERCIAL



COMMERCIAL: OFFICE/WAREHOUSE



COMMERCIAL: SERVICE GARAGE



COMMERCIAL: STRIP CENTER



COMMERCIAL: SUPERMARKET

COMMERCIAL / INDUSTRIAL / EXEMPT / INSTITUTIONAL BUILDINGS

There are four distinct divisions that can be determined:
1. General Building Data
2. Interior / Exterior Data
3. Building Other Features & Attached Improvements
4. Yard Improvements & Secondary Buildings

A building is broken down into sections. Building sections are separate due to differing story height or major differences in type or quality of construction. A section can share a common wall or part of a common wall with another section or sections but otherwise could stand alone as a separate building.

Building sections are broken down into interior/exterior lines. An interior/exterior line is defined as that portion of a building section having all identical characteristics found in the interior/exterior data category of the data collection form. In other words, an interior/exterior section line consists of those stories in a building section having the following identical characteristics:

1. Dimensions (width x length, or square feet)
2. Perimeter
3. Use Type Code
4. Wall Height
5. Exterior Wall Material
6. Construction Type
7. Interior Finish Percent
8. Partitions
9. Heating System Type
10. Air Conditioning Type
11. Plumbing
12. Physical Condition
13. Functional Utility

GENERAL BUILDING DATA
Year Built
Number of Units
Structure Type
Note: When a building has been constructed for multiple purposes of use, the predominant structure type code should be chosen.

INTERIOR / EXTERIOR DATA
Dimensions (width x length, or square feet)
Partitions
Perimeter
Heating System Type
Use Type
Air Conditioning Type
Wall Height
Plumbing
Exterior Wall Material
Physical Condition
Construction Type
Functional Utility
Interior Finish Percent

Levels

Size
Enter either the dimensions (width and length) or square footage area by traversing the perimeter of the exterior walls as measured.

Use Type

Wall Height
This measurement should be made from floor to floor and *not* from floor to ceiling.
Note 1: Parapets should not be included in this measurement.
Note 2: Gable-type roofs should be measured to eaves. Other roof types, such as shed or saw-tooth, should be averaged to compute the wall height to the roofline.

Exterior Wall Material
This is exterior wall material of an interior / exterior line.
Brick Veneer to indicate a brick or stone veneer
Frame to indicate an exterior wall of wood, aluminum siding, composition siding, or shingles on siding
Concrete Block to indicate a masonry wall consisting of concrete compressed into the shape of a block and allowed to harden
Brick /Concrete Block to indicate that at least one-third of the exterior walls are of a brick or concrete material, and the rest of the exterior walls are of the other material
Tile to indicate a hard earthenware block that has been hard burned and molded

Masonry and Frame to indicate at least one-third of the exterior walls are of a frame or masonry (brick or stone) material, and the remainder of the exterior walls are of the other material
Metal (Light) to indicate walls constructed of metal panels on wood or steel frame
Metal (Heavy) to indicate walls constructed of a core of insulation covered on both sides by metal panels
Concrete, Load bearing to indicate concrete walls which support a part of the building; usually a floor or roof
Concrete, Non-Load bearing to indicate a concrete curtain wall that does not support the roof or floor
Glass to indicate walls of non-supporting glass panels set in metal frame
Glass & Masonry to indicate walls of non-supporting glass set in brick or concrete back-up
Enclosure to indicate a wood stud or concrete block office or sales enclosure wall within the interior of a building
Solar Glass to indicate a high quality tinted, heat-absorbent glass set in metal frame
Asbestos Corrugated Rigid to indicate a rigid corrugated asbestos sheet on wood or steel frame
Masonry and Metal indicate that at least one-third of the exterior walls are of a masonry (brick or stone) material and the remainder are of the other material.
Native Stone to indicate a locally quarried stone used as a load-bearing wall. The stone can be irregular shaped rubble or cut blocks set in place with mortar.

Construction Type
Type of construction of an interior/exterior line.
Wood Frame I Joist / Beam to indicate construction that incorporates wood stud, balloon or platform framing or wood post and beam framing (mill construction). This category also includes masonry structures that incorporate wood joist or plank floor systems, or wood joist, truss or rafter roof systems.
Fire Resistant to indicate buildings with exposed structural steel, or reinforced concrete columns and beams. Multiple story structures will have steel floor joists with concrete planks or a reinforced concrete floor system. Exterior walls will typically be masonry or metal and glass panels.
Fireproof to indicate typically high-rise buildings with fabricated, heavy structural steel columns and beam framing which has been enveloped in a fireproof material such as concrete or gypsum. Floors will be reinforced concrete or pre-cast concrete plank on steel joists protected by a gypsum-vermiculite plaster on metal lath ceiling. Exterior walls will be masonry or metal and glass panels.
Pre-Engineered Steel to indicate buildings framed with prefabricated steel members. The structure will incorporate metal beams, girders, columns and purlins, or light-gauge steel joists manufactured from cold-formed shapes of steel or strip steel. Multiple story buildings may have floors of wood, steel or concrete. Exterior walls will typically be pre-finished metal siding or sandwich panels.

Interior Finish Percent
Extent of interior finish expressed in percent of the base floor area. Consideration should be given to the floors, ceilings and walls.
Note: Consideration should be given to the structure type code previously entered. For example, you would not expect to find the same extent of interior finish in a warehouse that you would find in a professional building.

Partitions
Extent or partitioning of walls within the interior / exterior building line.
None indicates no partitions.
Below Normal indicates that only a few partitions have been constructed and that most similar structures feature more partitions than the subject.
Normal indicates that subject structure has about the same extent of partitioning that is found in similar structures.
Above Normal indicates that the subject structure has rather extensive partitioning when compared to similar structures having the same purpose or utility.
Note: The extent of partitioning should always be compared to what could be considered normal for structures having the same use. The use type code should be considered. For example, a structure that was constructed as a hotel but is now used as an office building will probably have more extensive partitions (3 -Above Normal) than a structure built as an office building and used as an office building.
Note: Partitions should be recorded based upon whether the amount of partitioning is normal or not normal for the particular section use type. In the event that partitioning for a particular use type is considered above or below normal, all the data collector needs to do is record the difference by using a code symbol indicating the above or below status. The pricing tables are set up to appropriately cost out 'normal,' 'below normal,' 'above normal,' or 'none' for each use type. Normal partitions for a retail store would be one partition separating the sales area from the storage area and one small office. In the event that there were more partitions, the data collector would record 'above normal.'

Heating System Type
Predominant heating system type utilized within the interior/exterior line.
NONE.
BELOW NORMAL FOR BUILDING TYPE
NORMAL FOR BUILDING TYPE
ABOVE NORMAL FOR BUILDING TYPE

Air Conditioning Type
Type of air conditioning exists within the interior/exterior line.
NONE
CENTRAL
UNIT (real property)
Note: Window air conditioners are not considered real property and should be considered as '0 - None.'

Plumbing
Extent and adequacy of the plumbing and piping system within the interior/exterior line.
NONE
BELOW NORMAL
NORMAL
ABOVE NORMAL
Note: Consideration must be given to the structural use. For example, motels naturally have more extensive plumbing systems than retail stores.

Physical Condition / Functional Condition
The physical condition of the interior/exterior line in relation to its age of completion. Consideration should include foundation, frame, exterior walls, roof, heating, air conditioning, lighting, electrical systems, plumbing, internal walls and floor finish.
UNSOUND, building is unsound and practically unfit for use. Cost to cure is not practical.
POOR, definite deterioration is obvious, undesirable and barely useable.
FAIR, marked wear and deterioration but the property is usable for commercial or industrial purposes; could be characterized as "needing work."
AVERAGE, shows only minor signs of physical deterioration due to normal wear and tear. There are few indications of deferred maintenance and no significant repairs or replacements necessary.
GOOD, shows new or 'like new' condition. There are no deficiencies in material or construction, and no signs of deferred maintenance.
EXCELLENT, building is in perfect condition. Very attractive and highly desirable.

COMMERCIAL/INDUSTRIAL COMMON CAUSES OF OBSOLESCENCE

In the final analysis an estimate of depreciation or value loss represents an opinion of the appraiser to the degree that the present and future appeal of a property has been diminished by deterioration and obsolescence. The accuracy of the estimate will be a product of the appraiser's experience in recognizing the symptoms of deterioration and obsolescence and his ability to exercise sound judgment in equating his observations to the proper monetary allowance to be deducted from the replacement cost new. The following tables have been provided as guidelines to assist the appraiser in arriving at the resultant estimate of the diminishing value of improvements after subtracting all forms of depreciation. Following is a listing of some of the most common sources of functional and economic obsolescence which should further assist him in arriving at a reasonable estimate of obsolescence.

Common Causes of Functional Obsolescence

- Effects of corrosion created by manufacturing, processing, or storing of chemicals
- Poor ratio of land area to building area
- Inadequate parking, and/or truck and railroad loading and unloading facilities
- High maintenance cost resulting from mixed building constructions and/or the use of obsolescent building materials
- Insufficient and inadequate elevator service
- Excessive or deficient floor load capacity
- An unattractive appearance that is inconsistent with present use and surrounding properties
- Foundational and structural failures due to poor soil conditions, poor design, excessive loading, poor maintenance, excessive vibration of building and process equipment
- Inadequate power distribution, heating, ventilation, air condition, or lighting systems
- Inadequate or unsuitable utility space
- Poor proportion of office, rental, or manufacturing, and warehouse space
- Limited use and excessive material and product handling costs caused by irregular and inefficient floor plans, varying floor elevations, inadequate clearance, and cut up interiors with small bays and excessive number of walls, post and columns
- Multi-story design when single-story would be more efficient and economical

Common Causes of Economic Obsolescence

- Zoning laws or other regulations which affect the usage and operation of the property
- Building code requirements which set current acceptable construction standards
- Market acceptability of the product or services for which the property was constructed or is currently used
- Profitability of the operation of the property and the justifiable investment which the business would support
- Termination of the need for the property due to actual or probable changes in economic or social conditions

OUTBUILDINGS, YARD IMPROVEMENTS & SECONDARY BUILDINGS

There are numerous types of yard improvements and secondary buildings which may be encountered on commercial and industrial properties.

Structure Code - Type of yard improvement or secondary improvement being described

Size - Enter either the dimensions (width and length) or square footage area of the item being described.

Physical / Functional Condition - Physical/ functional condition of the yard improvement or secondary building being described.

UNSOUND, building is unsound and practically unfit for use. Cost to cure is not practical.
POOR, definite deterioration is obvious, undesirable, and barely useable.
FAIR, marked wear and deterioration but the property is usable for commercial or industrial purposes; could be characterized as "needing work."
AVERAGE shows only minor signs of physical deterioration due to normal wear and tear. There are few indications of deferred maintenance and no significant repairs or replacements necessary.
GOOD, shows new or 'like new' condition. There are no deficiencies in material or construction, and no signs of deferred maintenance.
EXCELLENT, the building is in perfect condition. Very attractive and highly desirable.

GOLF COURSES

Golf courses are designed and built in a variety of types and sizes. The pricing schedules in this section are provided as a guide to assist the appraiser in arriving at a reasonable and equitable estimate of the cost of developing the various types of courses.

REGULATION COURSES

A regulation golf course usually consists of 18 holes of varied length. There are generally four short holes, 130 to 200 yards (par 3); ten average holes 350 to 450 yards (par 4); and four long holes 450 to 650 yards (par 5). Average costs per hole are given for six grades of courses; the general specifications are as follows:

GC2	Excellent golf course designed for private or public play consisting of 18 holes designed for championship, professional, advanced or competitive play with a par rating 71 to 72 and yardage of 5,900 – 7,300 yards. Terrain is generally rolling with wide fairways and man made or natural hazards, well maintained landscaping, tees, greens and fairways of very good quality.
GC5	Average or simple designed golf course consisting of 9 to 18 holes designed for recreational or occasional golfers; with a par rating of 68 to 72 and yardage ranging from 5,500 to 7,000 yards. Terrain is generally flat with narrow fairways; little maintenance, very few hazards, tees, and greens are fair to average quality.
GC6	Fair or minimal golf course quality simply developed on open natural or flat terrain, few bunkers, small tees and greens
GC7	Elaborate miniature golf course.

BASE PRICE COMPONENTS

The costs per hole have been developed to include the cost of normal on-course improvements and do not include the cost of land, clubhouse, or any recreational facilities.

The base price components are as follows:

Grading and Clearing includes the removal of brush and trees from the fairways, greens, or tees; landscaping and the seeding of grass.

Sprinkler System includes water sources, pumps, piping, and sprinkler heads.

Greens include the building, seeding and care of the greens.

Tee Boxes include the building and care of the tees.

Bunkers include the building and care of the bunkers.

Service and Cart Roads include base preparation, paving, and bridges over hazards.

Architect's Fees include all plans and supervision during construction.

DEPRECIATION

Depreciation, as discussed in this manual, is the loss of value from any and all reasons. The appraiser is expected to recognize and estimate the extent of this loss for each property that he appraises. There are three primary factors which contribute to depreciation: physical deterioration, functional obsolescence, and economic obsolescence.

Physical deterioration results from the passing of time, the action of the elements, and from general wear and tear. The appraiser must use his judgment in making an opinion of how much loss in value the property has accrued through physical depreciation. Ordinarily, physical depreciation occurs slowly. It begins at the start of construction and continues until the building has no useful life remaining. The physical life of a building depends upon the amount and quality of maintenance, as well as the quality of workmanship and materials used in the construction. Buildings constructed to strict specifications with good quality materials will have a much longer useful life than one built without good workmanship or materials.

Functional obsolescence results from the inability of the property to be adequately utilized for its intended or current purpose. Examples of functional depreciation include inadequacy, over-capacity, changes in the artistic design of surrounding properties, architecture, type and sizes of rooms, layout and design, traffic patterns, performance standards, etc.; Functional obsolescence results from factors **within** the property itself.

Economic depreciation results from the impairment of useful life or desirability arising from sources **outside** the property, such as environmental changes or economic forces which affect supply and demand relationships in the open market. Examples of economic obsolescence include neighborhood changes, zoning changes, encroachments, lack of utilities, and natural hazards.

Depreciation schedules were established on a useful life basis. It is impossible to design tables to meet potential depreciation impacts correlating with each unique improvement. The appraiser should use the tables and schedules found in each section of this manual as a guide in making a decision for each property. The calculation for depreciation is:

Total Replacement Cost New x Depreciation Factor x Condition Factor = Value

Effective age of a property is its age as compared with other properties performing like functions. It is an age which reflects a true remaining life for the property, considering the typical life expectancy of buildings of its class and usage. Effective age can fluctuate year by year or remain somewhat stable in the absence of any major renewals or excessive deterioration.

PERCENT GOOD SCHEDULES AND TABLES

It is often advisable to develop schedules and tables to be used as a guide for the appraiser to determine value. The use of such tables is especially applicable in mass appraisals for tax equalization purposes where it is essential to establish and maintain uniformity. Percent Good tables, however, based on actual age alone are impractical. Remodeling, for instance, has the effect of prolonging the remaining life of a building, thus making its effective age considerably different than its actual age. Consideration must be given to all the factors operating to influence the overall condition, desirability, and degree of usefulness of each structure.

PERCENT GOOD (DWELLINGS)

CDU RATING SYSTEM

As houses grow older, they wear out; they become less desirable, less useful. This universal decline in value is called depreciation, and appraisers are required to determine the degree of this loss in each property they examine. If all houses deteriorated at the same rate, this decline in value would be a simple function of the age of the structure - a certain percentage per year. However, houses depreciate at varying rates depending on the score or so of variables.

Every building is acted upon by two value reducing forces. One tends to shorten its physical life; the other shortens one’s economic life. Both forces act concurrently, overlap, and affect each other. A new house, or any type of structure for that matter, has its greatest value at the moment of completion. Life expectancy - both physical and economic - is longest on the day the key is handed over by the builder. The building is then most desirable and most useful. The future benefits which the occupant may expect to enjoy are at the maximum. From that day forward, however, decay and wear and tear act to lessen the value of the structure by curtailing its remaining capacity for use.

At the same time the house is "wearing out," it is also "going out of style." It is becoming less desirable. It is progressively becoming less useful, both from the effect of forces within the property (obsolescence), and outside of it as well (encroachment of undesirable influences such as less desirable property uses).

Neither physical decline nor functional loss is constant in their action. Deterioration is a relatively steady process offset periodically by maintenance. Worn-out elements of the building are repaired or replaced at intervals, depending upon the policy of the owner. Cheaper houses generally deteriorate faster than better ones. Obsolescence and encroachment may come slowly, or happen almost overnight. The forces which cause both deterioration and functional/economic depreciation may act and often do act simultaneously, but they are not necessarily related. A house may decline in physical condition, and yet throughout its entire life remain relatively functional.

Obviously enough, the age of a house remains an important factor in estimating accrued depreciation. A certain number of houses will receive "normal" maintenance and will experience "average" economic loss due to obsolescence and functional depreciation. These buildings will depreciate at an average rate as they grow older. Other houses will lose value at lesser or more rapid rates. CDU (Condition-Desirability-Utility) Ratings provide a logical reasoning process, by means of which normal age depreciation may be modified according to the appraiser's best determination of the relative loss of value in a structure, as compared with the average loss that might be expected. Thus, the age of a dwelling is an unreliable indicator of the degree of depreciation from its cost new. For houses depreciate not merely because they grow older - but because they wear out and become less desirable and less useful from a variety of causes.

To assist the appraiser in establishing the CDU Ratings of buildings, several simple classifications have been established. These classifications or ratings are entirely natural, and will fit the normal impressions of the appraiser as he examines a building. Following is a tabulation of CDU Ratings, with their accompanying definitions of the observed physical condition of the building, and its degree of desirability and usefulness for its age and for its type.

CDU RATING GUIDE

	Definition
• *Excellent*	*Building is in perfect condition; very attractive and highly desirable.*
• *Very Good*	*Slight evidence of deterioration; still attractive and quite desirable.*
• *Good*	*Minor deterioration visible; slightly less attractive and desirable, but useful.*
• *Average*	*Normal wear and tear is apparent; average attractiveness and desirability.*
• *Fair*	*Marked deterioration, but quite usable; rather unattractive and undesirable.*
• *Poor*	*Definite deterioration is obvious; definitely undesirable, and barely usable.*
• *Very Poor*	*Condition approaches unsoundness; extremely undesirable and barely usable.*
• *Unsound*	*Building is definitely unsound and practically unfit for use.*

Age is reflected as an index of the normal deterioration and obsolescence in a structure which may be expected over the years. *Condition* represents a variable measure of the effects of maintenance and remodeling on a building. *Desirability* is a measure of the degree of appeal a particular building may have to prospective purchasers. *Utility* is a measure of the usefulness of the structure for the purpose for which it is intended to be used.

Percent good is defined as the resultant estimate of the diminishing value of an improvement, after subtracting the amount of estimated depreciation from the Replacement Cost New. For example, a structure which is estimated to be 45 percent depreciated as of a given time has a percent good of 55. Therefore, depreciation and percent good are complements of each other.

Once the CDU Rating of a building has been established through a consideration of its condition, desirability, and utility for its age and its type, reference to the Appropriate Depreciation Table will indicate the appropriate value remaining for a structure possessing these qualities, in the degree observed and noted by the appraiser.

The degree of deterioration and obsolescence, or loss of value from all causes, both within and without property, is automatically taken into account. This is accomplished by means of a simple rating of the capabilities and qualities of the structure, in precisely the same terms as would a prospective purchaser. Sound valuation theory presupposes the existence of a prospective buyer with intelligence enough to compare the advantages and disadvantages of competing properties, and to rate the property he is examining according to its relative degree of desirability and usefulness.

COMMERCIAL/INDUSTRIAL COMMON CAUSES OF OBSOLESCENCE

In the final analysis, an estimate of depreciation or value loss represents an opinion of the appraiser as to the degree that the present and future appeal of a property has been diminished by deterioration and obsolescence. The accuracy of the estimate will be a product of the appraiser's experience in recognizing the symptoms of deterioration and obsolescence and his ability to exercise sound judgment in equating his observations to the proper monetary allowance to be deducted from the replacement cost new. The following tables have been provided as guidelines to assist the appraiser in arriving at the resultant estimate of the diminishing value of improvements after subtracting all forms of depreciation. Following is a listing of some of the most common sources of functional and economic obsolescence, which should further assist him/her in arriving at a reasonable estimate of obsolescence.

Common Causes of Functional Obsolescence

- Effects of corrosion created by manufacturing, processing, or storing of chemicals
- Poor ratio of land area to building area
- Inadequate parking, and/or truck and railroad loading and unloading facilities
- High maintenance costs resulting from mixed building constructions and/or the use of obsolescent building materials
- Insufficient and inadequate elevator service
- Excessive or deficient floor load capacity
- An unattractive appearance that is inconsistent with present use and surrounding properties
- Foundational and structural failures due to poor soil conditions, poor design, excessive loading, poor maintenance, excessive vibration of building and process equipment
- Inadequate power distribution, heating, ventilation, air conditioning, or lighting systems
- Inadequate or unsuitable utility space
- Poor proportion of office, rental, or manufacturing, and warehouse space
- Limited use and excessive material and product handling costs caused by irregular and inefficient floor plans, varying floor elevations, inadequate clearance, and cut up interiors with small bays and excessive number of walls, posts and columns
- Multi-story design when single-story would be more efficient and economical

Common Causes of Economic Obsolescence

- Zoning laws or other regulations which affect the usage and operation of the property
- Building code requirements which set current acceptable construction standards
- Market acceptability of the product or services for which the property was constructed or is currently used
- Profitability of the operation of the property and the justifiable investment which the business would support
- Termination of the need for the property due to actual or probable changes in economic or social conditions

OTHER BUILDING AND YARD ITEM PERCENT GOOD GUIDELINES

The appraisal of other buildings and yard improvements for both residential and agricultural properties is a difficult task. Other buildings and yard improvements are rarely purchased or sold separately from the balance of the property. The cost of construction of a swimming pool, which is built for the convenience and comfort of a property owner, will rarely add an equivalent amount to the market value of the property. The cost of construction of a farm outbuilding that can be justified by its contribution to the farming operation will again seldom add an equivalent amount to the market value of the property.

In effect, other buildings and yard improvements have value in direct proportion to their degree of utility or usefulness. This is an extension of the principle of contribution, which affirms that the value of any factor in production is dependent upon the amount which contributes to the overall net return, irrespective of the cost of its construction. Any effective approach to the valuation of other buildings and yard improvements must reflect the action of investors. Informed farm owners and operators would not invest in buildings, which could not pay for themselves by either maintaining or adding to the required level of productivity. Homeowners would not invest in swimming pools, detached garages, etc., which would not supply the degree of comfort and/or convenience they desire.

TERMS AND DEFINITIONS

ARCHITECTURAL TERMS

Apartment hotel a building designed for non-transient residential use, divided into dwelling Units similar to an apartment house, but having such hotel apartment hotel accommodations as room furnishings, lounges, public dining room, maid service, etc.

Apartment house a multi-family residence containing three or more non-transient residential living units and generally providing them with a number of common facilities and services.

Attic an unfinished or semi-finished portion of a building lying between the highest finished story and the roof and wholly within the roof framing.

Basement a building story which is wholly or partly below the grade level

Bay (1) a horizontal area division of a building usually defined as the space between columns or division walls. (2) an internal recess formed by causing a wall to project beyond its general line.

Bay Window a window, or group of continuous windows, projecting from the main wall of a building.

Beam a long structural load-bearing member which is placed horizontally or nearly so, and which is supported at both ends or, infrequently, at intervals along its length.

Building any structure partially or wholly above ground which is designed to afford shelter to people, animals, or goods. *See also construction*.

Building, fireproof a building in which all parts carrying loads or resisting stresses and all exterior and interior walls, floors and staircases are made of incombustible materials, and in which all metallic structural members are encased in materials which remain rigid at the highest probably temperature in case its contents are burned, or which provide ample insulation from such a temperature.

Building, loft a building having three or more stories with few or no interior bearing walls and designed for storage, wholesaling, or light industrial purposes.

Building, single purpose a building designed for a specific purpose, which cannot be used for another purpose without substantial alterations; e.g. a theater or church.

Bungalow is a one-story dwelling unit which is somewhat more pretentious than a cottage

Column a structurally isolated vertical member which is a least 8 to 10 times as long as it's least lateral dimension and which is designed to carry loads. *Compare pier*

Conduit a tube, pipe, or small artificial tunnel used to enclose wires or pipes or to convey water or other fluids.

Construction, brick is a type of construction in which the exterior walls are bearing walls made of solid brick or brick and tile masonry.

Construction, brick veneer is a type of construction in which the exterior walls are one-layer brick curtain walls backed by a wood frame.

Construction, fireproof see *fireproof building*

Concrete as the floors, columns, beams, etc., are made of concrete poured around isolated steel bars or steel meshwork in such manner that the two materials act together in resisting forces.

Construction, steel frame is a type of construction in which there is a framework of steel structural members for the support of all loads and the resistance of all stresses.

Construction, wood frame is a type of construction in which there is a framework of wooded structural members for the support of all loads and the resistance of all stresses. Loosely called "frame construction".

Coping a special capping at the top of a wall, serving principally as a watershed.

Cornice a projecting element at the top of a wall, serving principally as a decoration or as part of the coping.
Cottage is a one story to two story dwelling unit of small size and humble character.
Course a uniform horizontal layer of brick, stone, shingles, or some other structural material extending continuously around a building or along a wall.
Court an open space bordered on two or more sides by the walls of a single building, or of two or more buildings, and by a lot line or a yard on any side not so bordered.
Dormer (1) relatively small structure projecting from a sloping roof. (2) a window set upright in the face of such a structure.
Dwelling any building or portion thereof designed or occupied in whole or in part as a place of residence.
Dwelling, attached a multi-family dwelling in which the dwelling units are separated vertically by means of common or party walls.
Dwelling, double a two-family dwelling in which the dwelling units are separated vertically, by means of a common or party wall. Synonymous with "semidetached dwelling".
Dwelling, duplex a two-family dwelling in which the two dwelling units are separated horizontally with a private street entrance for each.
Dwelling, multi-family a building designed as a place of residence for more than two families of households; e.g. an apartment house or tenement.
Dwelling unit is any room or group of rooms designed as the living quarters of one family or household, equipped with cooking and toilet facilities, and having an independent entrance from a public hall or from the outside.
Eaves the portion of a sloping roof which projects beyond the outside walls of a building.
Elevation a drawing which represents a projection of any one of the vertical sides or vertical cross-sections of a building or of any other object. Compare plans.
Façade the face of a building
Firewall a wall of fire-resisting material erected between two parts of a building to prevent the spread of fire from one part to the other.
Flashing small metal strips used to prevent leaking of roofs around chimneys, dormers, hips, and valleys.
Flat (1) any one floor of a building two or more stories high, each floor of which constitutes a single dwelling unit and has a private street entrance. (2) the building containing two or more floors. Compare *dwelling, duplex.*
Footing a spreading base to a wall, column, or other supporting member, which serves to widen the ground area to which structural loads are transmitted.
Foundation the structural members below grade level, or below the first tier of beams above grade level, which transmit the load of a superstructure to the ground.
Gable (1) the triangular portion of a wall between the slopes of a double sloping roof. (2) the whole of the wall contains such a triangular portion. (3) a portion of a building extending from the remainder of the building and covered with a gable roof.
Girder a large or principal beam, is used to support concentrated loads at isolated points along its length. (Girders usually support the beams and structure above).
Header (1) a structural member which is laid perpendicularly to a parallel series of similar members and against which the latter members abut. (2) a brick or other piece of masonry which is laid in a wall in such manner that its longest dimension extends along the thickness of the wall. Contrast *stretcher*

Hip (1) a sloping line along which two roof surfaces meet to form an external angle of more than 180 degrees. (2) a hip rafter. Compare *ridge; valley*.
Hotel a building designed for transient or semi-transient residential use, divided into furnished single rooms and suites, and having such accommodations as lounges, public dining rooms and maid service, etc.
Hotel, apartment see *apartment hotel*
Joist is one of a series of small parallel beams laid on edge and used to support floor and ceiling loads, and usually supported in turn by larger beams and girders.
Lintel a beam over a wall opening, such as a door or windows, designed to carry the load of the wall over such opening.
Loft a non-partitioned or relatively open upper story of a building, designed for storage, wholesaling, or light manufacturing. See also *loft building.*
Louver (or louvre) a ventilator containing slats which are placed lengthwise across the ventilator opening, each slat being slanted in such manner as to overlap the next lower slat and to permit ventilation but exclude rain.
Marquee has a flat roof-like structure which shelters a doorway, which has no floor beneath it, and which is usually supported wholly from the walls or the building.
Mezzanine is a low story formed by placing a floor between what would ordinarily be the floor and ceiling of a high story, note: the mezzanine floor frequently has a smaller area than other floors and, if present at all, is usually between the first and second stories.
Millwork all of the wooden portions of a building, whether frame construction or otherwise, which are customarily purchased in finished form from a planning mill, such as doors, windows, trim, balusters, etc.
Overhang a finished portion of a building having full story height which extends beyond the foundation wall line if part of the ground story, or beyond the exterior walls of the ground story if part of any higher story.
Overhead structure similar to overhead above ground story, such as O.H. bridge or passage, walk or addition.
Partition see *wall, partition*
Pier (1) a thick, solid mass of masonry which is fully or partially isolated from a structural standpoint and which is designed to transmit vertical loads to the earth. (2) a structure projecting from land into water for use in loading and unloading vessels. Compare column.
Pilaster a flat faced pillar projecting somewhat from, but engaged in, the wall of a building and used for decorative purposes or to help support truss and girder loads or both.
Pile a heavy timber, metallic, or masonry pillar forced into the earth to form a foundation member.
Pitch the slope of any structural member, such as a roof or rafter, usually expressed as a simple fraction representing the rise per lateral foot.
Plan a drawing representing a projection of any one of the floors or horizontal cross-sections of a building or of the horizontal plane of any other object or area. Compare elevation.
Purlin a beam running along the underside of a sloping roof surface and at right angles to the rafters, used to support the common rafters, and usually supported in turn by larger structural members, such as trusses or girders (usually run along length of building).
Rafter a structural member placed, as a rule, in a sloping position and used as the supporting element for the structural material forming the plane of the roof. See also Purlin.

Rafter, hip a rafter placed in an inclined position to support the edges of two sloping roof surfaces which meet to form an external angle of more than 180 degrees.
Rafter, valley a rafter placed in an inclined position to support the edges of two sloping roof surfaces which meet to form an external angle of less than 180 degrees.
Ramp an inclined walk or passage connecting two different floor levels and used in lieu of steps.
Residence see *dwelling*
Ridge a horizontal line along which the upper edges of two roof surfaces meet to form an external angle of more than 180 degrees. Compare *hip; valley*.
Rise (1) in general, any vertical distance. (2) Specifically, the rise of a roof being the distance between the top of an exterior wall and the peak of the roof; the rise of a stair being the distance from tread to tread.
Roof the top portion of a structure. Types of roofs include double pitch, flat, gable, gambrel, hip, lean-to, single pitch.
Roof, curb (or curbed) a roof with a ridge at the center and a double slope on each of its two sides.
Roof, flat a roof which is flat or sloped only enough to provide proper drainage.
Roof, gable a double-sloped roof having a cross section similar in general to the shape of the inverted letter "V".
Roof, gambrel a ridged roof with two slopes on each side, the lower having a steeper pitch
Roof, hip (or hipped) (1) in general, any roof having one or more hips. (2) usually, a roof with four sloping sides meeting along four hips or along four hips and a ridge. Compare *roof, pyramid*
Roof, lean-to (1) a roof having a single sloping side which is supported at the upper edge by the wall of an attached building or of a larger and higher portion of the same building (preferred). (2) any roof with a single slope. Compare *roof, flat.*
Roof, mansard a special type of curb roof in which the pitch of the upper part of each of the four equally sloping sides is small or negligible and that of the lower part is very great; a series of dormers projects from the lower part.
Roof, monitor a type of gable roof commonly found on industrial buildings – having a small, raised portion along the ridge, with openings for the admission of light and air.
Roof, pyramid, a hip roof having four sloping triangular sides, usually of equal pitch, meeting together at the peak.
Roof, ridged a roof having one or more ridges
Roof, saw tooth a roof with a series of parallel sloping surfaces interspersed between a series of vertical surfaces which rise from the lower edges of such sloping surfaces, and which contain windows for the admission of light and air.
Roof, single pitch any roof with a single slope, other than a lean-to roof.
Sash the wooden or metal framework in which the glass of a door or window is set
Sheathing the covering, usually of rough lumber, placed immediately over studding or rafters.
Sill (1) the lower horizontal part of a door-case (the threshold) or of a window. (2) the lowest horizontal structural member of a frame building, upon which the superstructure is supported.
Sleeper a structural member laid horizontally on the ground or upon a masonry base as support to a floor or other superstructures.
Specifications are a detailed description of the dimensions, materials, quantities, structural procedures, etc. applicable to a projected or completed piece of construction.

Story that portion of a building enclosed by a floor, a ceiling, and the exterior walls.
Story, ground the first story is lying wholly above the ground level. Synonymous with "first story".
Story, half (or one-half) (1) for buildings with a mansard or gambrel roof, a finished portion of a building which lies above the wall plate or cornice, and which has a usable floor area substantially less than that of the next lower story. (2) for all other buildings, a finished portion of a building which is above one or more full stores, which is wholly or partly within the roof frame, and which has one or more exterior walls substantially lower than the full height of the story.
Story, one building having no finished story above the ground story.
Stretcher a brick or other piece of masonry which is laid lengthwise in a wall.
Strut any structural member, which holds apart two or more other members by counteracting a pressure, which tends to bring them together.
Stud one of a series of small slender structural members placed vertically and used as the supporting element of exterior or interior walls. (Plural: studs or studding)
Sub floor the flooring laid directly on top of the floor joists, but beneath the finish floor
Tenement a building, usually of obsolete nature, designed primarily for non-transient residential use and divided into three or more dwelling units having common stairs, halls, and street entrances, and sometimes common bath and toilet rooms. *Compare apartment house, flat, terrace*
Terrace (1) an unroofed level area covered with grass or masonry or both raised above the surrounding ground level, and having a vertical or sloping front. (2) a multi-family dwelling in which the dwelling units are separated vertically by means of common or party walls. *Compare dwelling, row; dwelling, double*
Terra cotta is a hard baked ceramic clay molded into decorative tiles, bricks, etc. and used primarily for facing and trim on buildings.
Tie any structural member, which binds together two or more members by counteracting a stress which tends to draw them apart. Contrast *strut.*
Trim (1) the wooden portions of a plastered room, such as the doors, windows, wainscoting, and molding, or the corresponding portions of a room finished otherwise than with plaster. (2) the contrasting elements on the exterior of a building which serve no structural purpose, but are intended to enhance its appearance, e.g. the cornice. (3) Occasionally, the hardware of a house, such as locks, hinges, doorknobs, etc.
Truss a combination of structural pieces fastened together into a rigid open member which is supported at both ends and upon which loads are superimposed. Compare *girder.*
Valley a sloping line along which two roof surfaces meet to form an external angle of less than 180 degrees. Compare *hip; ridge*.
Veneer a thin ornamental or protective face which does not add appreciably to the strength of the body to which it is attached.
Wainscot (or wainscoting) (1) a wooden facing on the lower portion of a contrasting interior wall, (2) by extension, a facing of marble tile, or the like, on the lower portion of interior walls.
Wall a vertical structure serving to enclose, support, and divide; such as one of the vertical enclosing sides of a building or room.
Wall, bearing a wall designed primarily to withstand vertical pressure in addition to its own weight.

Wall, common a wall owned by one or two parties and jointly used by both, one or both of whom is entitled to such use under the provisions of ownership.
Wall, curtain a non-bearing wall which is supported by columns, beams, or other structural members, and whose primary function is to enclose space.
Wall, fire *see firewall*
Wall, partition an interior bearing or non-bearing wall which separates portions of a story. Synonymous *with partition*.
Wall, party a wall jointly used by two parties under easement agreement and erected at or upon a line separating two parcels of land held under different ownership.
Wall, retaining a wall designed primarily to withstand lateral pressures of earth or other filling or backing deposited behind it after construction.
Window, bay see *bay window*.
Window, dormer see *dormer*.
Wing a subordinate part of a building extending from the main part, or any one of two or more substantially co-ordinate parts of a building which extend out from one or more common junctions.

REAL ESTATE APPRAISAL TERMS

Abstract a computer-printed report of appraised and/or assessed values for each parcel of real property in a given taxing district.
Accrued depreciation *see depreciation*
Actual age the number of years elapsed since the original construction, as of the effective valuation date. Compare with *effective age.*
Ad valorem tax in reference to a property, a tax based upon the value of the property.
Aesthetic value a value, intangible in nature, which is attributable to the pleasing appearance of a property.
Agricultural property land and improvements devoted to or best adaptable for the production of crops, fruits, and timber, and the raising of livestock.
Air rights the right to the use of a certain specified space within the boundaries of a parcel of land and above a specified elevation.
Amenities in reference to property, the intangible benefits arising out of ownership; *amenity value* refers to the enhancement of value attributable to such amenities.
Appraisal an estimate, usually in written form, of the value of a specifically described property as of a specified date; may be used synonymously with *valuation or appraised* value.
Appraisal schedules any standardized schedules and tables used in conjunction with a revaluation program, such as replacement cost pricing schedules, depreciation tables, land depth tables, etc.
Appraised value *see appraisal.*
Appraiser one who estimates value. More specifically, one who possessed the expertise to execute or direct the execution of an appraisal.
Assessed value *see assessment.*
Assessing the act of valuing a property for the purpose of establishing a tax base.
Assessment the value of taxable property to which the tax rate is to be applied in order to computer the amount of taxes; may be used synonymously with *assessed value, taxable value and tax base.*

Assessment district an assessor's jurisdiction; it may or not be an entire tax district.
Assessment period the period of time during which the assessment of all properties within a given assessment district must be completed; the period between the tax lien dates.
Assessment ratio the ratio of assessed value to a particular standard of value, generally the appraised value. A percentage to be applied to the appraised value in order to derive the assessed value.
Assessment role the official listing of all properties within a given taxing jurisdiction by ownership, description, and location showing the corresponding assessed values for each; *also referred to as tax list, tax book, tax duplicate and tax roll.*
Assessor, the administrator charged with the assessment of property for ad valorem taxes; his precise duties differ from state to state depending upon state statutes.
Aesthetic value a value, intangible in nature, which is attributable to the pleasing appearance of a property.
Average deviation in a distribution of values, the average amount of deviation of all the values from the mean value, equal to the total amount of deviation from the mean divided by the number of deviations. As applied to an assessment-to-sale ratio distribution, the average amount which all the ratios within the distribution deviate from the mean ratio.
Base price a value or unit rate established for a certain specified model, and subject to adjustments to account for variations between that particular model and the subject property under appraisement.
Blighted area a declining area characterized by marked structural deterioration and/or environmental deficiencies.
Board of Equalization, a non-jurisdictional board charged with the responsibility of reviewing assessments across properties and taxing districts to assure that said properties and districts are assessed at a uniform level, either raising or lowering assessments accordingly; *also referred to as Board of Appeals, and Board of Review.*
Building residual technique, a building valuation technique which requires the value of the land to be a known factor; the value of the buildings can then be indicated by capitalizing the residual net income remaining after deducting the portion attributable to the land.
Capitalization is a mathematical procedure for converting the net income which a property is capable of producing into an indication of its current value. *See income approach*.
CDU rating a composite rating of the overall condition, desirability, and usefulness of a structure and used nationally as a simple, direct, and uniform method of estimating accrued depreciation.
Central business district the center of a city – in which the primary commercial, governmental and recreational activities are concentrated.
Classified property tax ad valorem property tax under which the assessment ratio varies for different property classes.
Corner influence the enhancement to the value of a property due to its corner location; most generally applicable to commercial properties.
Cost approach one of the three traditional approaches to determination of the value of a property; arrived at by estimating the value of the land, the replacement or reproduction cost new of the improvement, and the amount of accrued depreciation to the improvement. The estimated land value is then added to the estimated depreciated value of the improvements to arrive at the estimated property value. Also referred to as the "cost to market approach" to indicate that the value estimates are derived from market data abstraction and analysis.

Cost factor a factor or multiplier applied to a replacement or reproduction cost to account for variations in location and time, as well as for other elements of construction costs not otherwise considered. Synonymous with *cost multiplier*

Deed is a written instrument which conveys an interest in real property. A *quitclaim* deed conveys the interest described therein without warranty of title. A *trust* deed conveys interest described therein to a trustee. A *warranty* deed conveys the interest described therein with the provisions that the freehold is guaranteed by the grantor, his heirs, or successors.

Depreciation loss in value from all causes; may be further classified as physical, referring to the loss of value caused by physical deterioration; functional, referring to the loss of value caused by obsolescence inherent in the property itself, and economic, referring to the loss of value caused by factors extraneous to the property.

Accrued depreciation refers to the actual depreciation existing in a particular property as of a specified date. *Normal depreciation* refers to that amount of accrued depreciation one would normally expect to find in buildings of certain construction, design, quality and age.

Depreciation allowance a loss of value expressed in terms of a percentage of replacement or reproduction cost new.

Depth factor a factor or multiplier, applied to a unit land value to adjust the value in order to account for variations in depth from an adopted standard depth.

Design factor a factor or multiplier applied to a computed replacement cost as an adjustment to account for cost variations attributable to the particular design of the subject property which were not accounted for in the particular pricing schedule used.

Deterioration impairment of structural condition evidenced by the wear and tear caused by physical use and the action of the elements, also referred to as *physical depreciation*.

Economic depreciation *see depreciation*

Economic life is the life expectancy of a property during which it can be expected to be profitably utilized.

Economic obsolescence obsolescence caused by factors extraneous to the property. Also referred to as *economic depreciation*.

Economic rent the rent which a property can be expected to bring in the open market as opposed to *contract rent* or the rent the property is actually realizing at a given time.

Effective age an age assigned to a structure based upon its condition as of the effective valuation date; it may be greater or less than the structure's actual age. *Compare with actual age*

Effective gross income is the estimated gross income of a property less an appropriate allowance for vacancies and credit losses.

Effective valuation date in reference to a revaluation program, the date as of which the value estimate is applicable.

Encroachment the displacement of an existing use by another use.

Environmental deficiency a neighborhood conditions such as adverse land uses, congestion, poorly designed streets, etc., operating to cause economic obsolescence and, when coupled with excessive structural deterioration, blight.

Equalization Program a mass appraisal (or reappraisal) of all property within a given taxing jurisdiction with the goal of equalizing values in order to assure that each taxpayer is bearing only his fair share of the tax load; may be used synonymously with a *revaluation program*.

Equity in reference to property taxes, a condition in which the tax load is distributed fairly or *equitably*; opposite of inequity which refers to a condition characterized by an unfair or unequitable distribution of the tax burden. *Inequity* is a natural product of changing economic conditions, which can only be effectively cured by periodic equalization programs. In reference to value, it is that value of the property remaining after deducting all liens and charges against it.
Exempt property see *tax exemption*.
Fee appraisal see *mass appraisal.*
Field crew the total professional staff assigned to a specific appraisal project, including listers, reviewers, staff appraisers, and clerical and administrative supporting personnel.
Functional depreciation *see depreciation*
Functional Obsolescence obsolescence caused by factors inherent in the property itself. Also referred to as *functional depreciation.*
Functional utility is the composite effect of a property's usefulness and desirability upon its marketability.
Grade the classification of an improvement based upon certain construction specifications, and quality of materials and workmanship.
Grade factor a factor or multiplier applied to a base grade level for the purpose of interpolating between grades or establishing an intermediate grade.
Grantee a person to whom property is transferred and property rights are granted by deed, trust instrument, or other similar documents. Compare with g*rantor*.
Grantor a person who transfers property or grants property rights by deed, trust instrument, or other similar documents. Compare with *grantee.*
Gross area the total floor area of a building measured from the exterior of the walls.
Gross income is the scheduled annual income produced by the operation of a business or by the property itself.
Gross income multiplier a multiplier representing the relationship between the gross income of a property and its estimated value.
Gross sales the total amount of invoiced sales before making any deductions for returns, allowances, etc.
Ground lease a document entitling the lessee certain specified rights relating to the use of the land.
Ground rent net rent from a ground lease; that portion of the total rent which is attributable to the land only.
Improved land land developed for use by the erection of buildings and other improvements.
Income approach one of the three traditional approaches to determination of value; measures the present worth of the future benefits of a property by the capitalization of its net income stream over its remaining economic life. The approach involves making an estimate of the potential net income the property may be expected to yield, and capitalizing that income into an indication of value.
Income property a property primarily used to produce a monetary income.
Industrial Park is a subdivision designed and developed to accommodate specific types of industry.
Industrial property land, improvements, and/or machinery used or adaptable for use in the production of goods either for materials, or by changing other materials and products. i.e. assembling, processing and manufacturing… as well as the supporting auxiliary facilities thereof.

Inequity *see equity.*
Influence factor is a factor serving either devalue or enhance the value of a particular parcel of land, or portions thereof, relative to the norm for which the base unit values were established; generally expressed in terms of percentage adjustment.
Institutional Property land and improvements used in conjunction with providing public services and generally owned and operated by the government or other nonprofit organizations.
Interest rate the rate of return from an investment.
Land classification the classification of land based upon its capabilities for use; and/or production.
Land contract a purchase contract wherein the grantee takes possession of the property with the grantor retaining the deed to the property until the terms of the contract are met as specified.
Land residual technique is a land valuation technique which requires the value of the buildings to be known; the value of the land can then be indicated by capitalizing the residual net income remaining after deducting the portion attributable to the building(s).
Landscaping natural features such as lawns, shrubs and trees added to a plot of ground or modified in such a way as to make it more attractive.
Land use restrictions legal restrictions regulating the use to which land may be put.
Land value maps a map used in conjunction with mass appraising; generally drawn at a small scale, and showing comparative unit land values on a block-to-block basis.
Lease, Lessee, Lessor a written contract by which one party (lessor) gives to another party (lessee) the possession and use of a specified property, for a specified time, and under specified terms and conditions.
Leasehold a property held under the terms of a lease.
Leasehold improvements additions, renovations, and similar improvements made to a leased property by the lessee.
Leasehold value the value of a leasehold, the difference between the contract rent and the currently established economic or market rent.
Legal description a description of a parcel of land which serves to identify the parcel in a manner sanctioned by law.
Lister a field inspector or data collector whose principle duty is to collect and record property data (not an appraiser).
Market data approach one of the three traditional approaches to determination of the value of a property; arrived at by compiling data on recently sold property which are comparable to the subject property and adjusting their selling prices to account for variations in time, location, and property characteristics between the comparable and the subject property.
Market value the price an informed and intelligent buyer, fully aware of the existence of competing properties, and not compelled to act, would be justified in paying for a particular property.
Mass appraisal appraisal of property on a mass scale – such as an entire community, generally for ad valorem tax purposes, using standardized appraisal techniques and procedures to accomplish uniform equitable valuation with a minimum of detail, within a limited time period, and at a limited cost….as opposed to a *fee appraisal* which is generally used to refer to a rather extensive, detailed appraisal of a single property or singularly used properties for a specified purpose.
Mineral rights the right to extract subterranean deposits such as oil, gas, coal, and minerals, as specified in the grant.

Minimum rental that portion of the rent is in a percentage lease which is fixed.
Model method is a method of computing the replacement or the reproduction cost of an improvement by applying the cost of a specified model and adjusting the cost to the account for specified variations between the subject improvement and the model.
Modernization the corrective action taken to update a property so that it may conform to current standards.
Mortgage, Mortgagee, Mortgagor a legal document by which the owner of a property (mortgagor) pledges the property to a creditor (mortgagee) as security for the payment of a debt.
Neighborhood a geographical area exhibiting a high degree of homogeneity in residential amenities, land use, economic and social trends, and housing characteristics.
Neighborhood trend three stages in the life cycle of a neighborhood "the *improving stage* characterized by development and growth; the *static stage* characterized by a leveling off of values; and the *declining stage* characterized by infiltration and decay.
Net income the income remains from the effective gross income after deducting all operating expenses related to the cost of ownership.
Net lease a lease wherein the lessee assumes to pay all applicable operating expenses related to the cost of ownership; also referred to as *net net*, *or net net net lease.*
Net sales, gross sales, less returns and allowances
Net sales area the actual floor area used for merchandising, excluding storage rooms, utility and equipment rooms, etc.
Non-conforming use a use which, because of modified or new zoning ordinances, no longer conforms to current use regulations, but which is nevertheless upheld to be legal so long as certain conditions are adhered to.
Observed depreciation that loss in value which is discernable through physical observation by comparing the subject property with a comparable property either new or capable of rendering maximum value.
Obsolescence is a diminishing of a property's desirability and usefulness brought about by either functional inadequacies and over-adequacies inherent in the property itself, or adverse economic factors external to the property. *Refer to functional depreciation and economic depreciation.*
Operating expense the fixed expenses, operating costs and reserves for replacements which are required to produce net income before depreciation, and which are to be deducted from effective gross income in order to arrive at net income.
Average income rental received in addition to the minimum contract rental, based upon a specified percentage of a tenant's business receipts.
Overall rate a capitalization rate representing the relationship of the net income (before recapture) of a property to its value as a single rate; it necessarily contains, in their proper proportions, the elements of both the land and the building capitalization rates.
Over assessed a condition wherein a property is assessed proportionately higher than comparable properties.
Parcel piece of land held in one ownership
Percentage lease is a type of lease in which the rental is stipulated to be a percentage of the tenant's gross or net sales, whichever specified.
Permanent Parcel number an identification number which is assigned to a parcel of land to uniquely identify that parcel from any other parcel within a given taxing jurisdiction.
Personal property property, which is not permanently affixed to and a part of the real estate, as specified by state statutes.

Physical depreciation *see depreciation*
Preferential assessment an assessing system which provides preferential treatment in the form of reduced rates to a particular class of property; such as a system providing for farm properties to be assessed in accordance to their value in use as opposed to their value in the open market.
Property class a division of like properties generally defined by statutes and generally based upon their present use. The basis for establishing assessment ratios in a classified property assessment system. See *classified property tax.*
Property inspection a physical inspection of a property for the purpose of collecting and/or reviewing property data.
Property record card a document specially designed to record and process specified property data; may serve as a source document, a processing form, and/or a permanent property record.
Public utility property properties devoted to the production of commodities or services for public consumption under the control of governmental agencies such as the Public Utility Commission.
Quantity survey Method is a method of computing the replacement or the reproduction cost of improvement by applying unit costs to the actual or estimated material and labor quantities and adding an allowance for overhead, profit, and all other indirect construction costs.
Real estate the physical land and appurtenances affixed thereto; often used synonymously with *real property.*
Real Property is all the interests, benefits and rights enjoyed by the ownership of real estate.
Reassessment the revaluation of all properties within a given jurisdiction for the purpose of establishing a new tax base.
Rent the amount paid for the use of capital goods. See *economic rent.*
Replacement costs the current cost of reproducing an improvement of equal utility to the subject property; it may or may not be the cost of reproducing a replica property. Compare with *reproduction costs.*
Reproduction cost the current cost of reproducing a replica property. Compare with *replacement cost.*
Reserve for replacements a reserve established to cover renewal and replacements of fixed assets.
Residential property vacant or improved land devoted to or available for use primarily as a place to live.
Revaluation program see equalization program.
Sales ratio study a statistical analysis of the distribution of assessment or appraisal-to-sale ratios of a sample of recent sales, made for the purpose of drawing inferences regarding the entire population of parcels from which the sample was abstracted.
Salvage value the price one would be justified in paying for an item of property to be removed from the premises and used elsewhere.
Site development costs are all costs incurred in the preparation of a site for use.
Soil productivity is the capacity of soil to produce crops.
Sound values the depreciated value of improvement.
Sound value estimates an estimate of the depreciated value of an improvement made directly by comparing it to improvements of comparable condition, desirability, and usefulness without first estimating its replacement cost new.
Standard depth that lot depth is selected as the norm against which other lots are to be compared; generally, the most typical depth.

Sublease *see lease*; the lessee in a prior lease simply becomes a lessor in a sublease.
Tax bill an itemized statement showing the amount of taxes owed for certain property described therein and traceable to the party(s) legally liable for payment thereof.
Tax book *see assessment roll.*
Tax district is a political subdivision over which a governmental unit has authority to levy a tax.
Tax duplicate *see assessment roll*.
Tax exemption either total or partial freedom from tax; total exemption such as that granted to governmental, educational, charitable, religious, and similar nonprofit organizations, and partial exemption such as that granted on homesteads, etc.
Tax levy in reference to property taxes, the total revenue, which is to be realized, by the tax.
Tax list *see assessment roll*
Tax mapping the creation of accurate representations of property boundary lines at appropriate scales to provide a graphic inventory of parcels for use in accounting, appraising and assessing; such maps show dimensions and the relative size and location of each tract with respect to other tracts.
Tax notice a written notification to a property owner of the assessed value of certain properties described therein; often mandated by law to be given to each property owner following a revaluation.
Tax rate the rate – generally expressed in dollars per hundred or dollars per thousand (mills) – which is to be applied against the tax base (assessed value) to computer the amount of taxes. The tax rate is derived by dividing the total tax levy, by the total assessed value of the taxing district.
Tax roll *see assessment roll.*
Tillable land land suitable for growing annual crops.
Under assessed a condition wherein a property is assessed proportionately lower than comparable properties.
Uniformity as applied to assessing, a condition wherein all properties are assessed at the same ratio to market value, or other standard of value depending upon the particular assessing practices followed.
Unimproved land vacant land; a parcel for which there is no improvement value.
Unit cost or price the price or cost of one item of a quantity of similar items.
Unit in place method a method of computing the replacement or reproduction cost of an improvement by applying established unit in place rates, developed to include the cost of materials, equipment, labor, overhead and profit, to the various construction units.
Use value the actual value of a commodity to a specific owner, as opposed to its value in exchange or market value.
Vacancy an un-rented unit of rental property.
Vacant land unimproved land; a parcel for which there is no improvement value.
Valuation *see appraisal*
View the scene as viewed from a property
Water frontage land abutting on a body of water.
Woodland land which is fairly densely covered with trees.
Zoning regulations governmental restrictions relating to the use of land.

STATISTICAL TERMS

Aggregate ratio as applied to real estate, the ratio of the total assessed value to the total selling price.

Average deviation in a distribution of values, the average amount of deviation of all the values from the mean value equal to the total amount of deviation from the mean divided by the number of deviations.

Cells the basic units making up a stratified sample; each sale representing a distinct group within the total universe.

Coefficient a value prefixed as a multiplier to a variable or an unknown quantity.

Coefficient of dispersion as applied to an assessment-to-sale ratio distribution, a measure of dispersion in a given distribution equal to the average deviation of the ratios from the mean ratio divided by the mean ratio.

Frequency distribution a display of the frequency with which each value in a given distribution occurs, or in a grouped frequency distribution, a display of the frequency with which the values within various intervals, or value groupings, occur.

Mean a measure of central tendency equal to the sum of the values divided by the number. Also referred to as *arithmetic average or arithmetic mean.*

Median a measure of central tendency equal to that point in a distribution above which 50% of the values fall and below which 50% of the values fall. The 50^{th} percentile. The 2^{nd} quartile.

Mode a measure of central tendency equal to that value occurring most frequently in a given distribution. In a grouped frequency distribution, the mode is equal to the midpoint of the interval with the greatest frequency.

Normal distribution is a distribution in which all the values are distributed symmetrically about the mean value, with 68.26% of the values falling between +/- 1 standard deviation, 95.44% between +/- 2 standard deviations, and 99.74% between +/- 3 standard deviations.

Percentile rank the relative position of a value in a distribution of values expressed in percentage terms; for instance, as applied to an assessment-to-sale ratio distribution, a ratio with a percentile rank of 83 would indicate that 83% of the ratios were lower and 17% of the ratios were higher than that particular ratio.

Precision as applied to real estate; it refers to the closeness of estimated value to actual selling price on an aggregate basis.

Price related differential PRD- as applied to real estate, an analytical measure of the vertical uniformity of values in a given distribution calculated by dividing the mean ratio by the aggregate ratio; a ratio of more than 1 being generally indicative of the relative undervaluation of high-priced properties as compared to the less valuable properties, whereas a ratio of less than 1 would indicate the converse relationship.

Quartile positions in a distribution at 25 percentile intervals; the *first quartile* being equal to the 25^{th} percentile, the *second quartile* being equal to the 50^{th} percentile or the median, and the *third quartile* being equal to the 75^{th} percentile.

Regression analysis is a statistical technique for making statements as to the degree of linear association between a criterion (dependent) variable and one or more predicator (independent) variables; a simple linear regression having one independent variable, and multiple linear regression having more than one independent variable.

Range the difference between the highest and the lowest value in a distribution

Ratio a fixed relationship between two similar things expressed in terms of the number of times the first contains the second; the quotient of one quantity divided by another quantity of the same type, generally expressed as a fraction.

Sample as applied to real estate, a set of parcels taken from a given universe which is used to make inferences about values for the universe.

A *probability sample* is a sample in which each parcel in the universe is given equal chance of being included. Also referred to as random *sample.*

A *non-probability sample* is a sample in which each parcel in the universe being chosen by other criteria is not given an equal chance of being included. Essentially all assessment-to-sale ratio studies are non-probability samples.

Sample size as applied to real estate, the number of parcels needed form a universe to achieve a desired level of precision, given the total number of parcels in the universe and the standard deviation thereof.

Standard deviation is a measure of dispersion, variability or scatter of values in a given distribution equal to the square root of the arithmetic mean of the squares of the deviations from the mean.

Standard error of the mean is a measure of the statistical variability of the mean equal to the standard deviation of the distribution divided by the square root of the sample size.

Stratified sampling the selection of sample parcels from distinct groups within the total universe based upon the known sizes and characteristics of these distinct groups.

Universe as applied to real estate, all the parcels of a given type in the group under study, i.e. all the parcels of a given neighborhood, district, etc. Also referred to *as population*.

NEW CONSTRUCTION
PERCENTAGE OF COMPLETION GUIDE

This guide is to be used in estimating the percentage of completion of both residential and commercial buildings under construction.

PERCENT COMPLETION GUIDE

FOUNDATION ONLY. 10%
SUBFLOOR.....5%
FRAMING IN PLACE. 10%
ROOF..... 5%
WINDOWS 4%
PLUMBING ROUGHED 3%
ELECTRICAL ROUGHED..... 3%
HEATING ROUGHED 4%
INSIDE WALLS COVERED……..10%
EXTERIOR WALLS COVERED.....10%
INTERIOR TRIM & CABINETS……...7%
INTERIOR PAINTING……4%
PLUMBING FINISHED……...3%
ELECTRICAL FINISHED……...3%
HEATING FINISHED……..3%
FLOORS COVERED OR FINISHED.....9%
BASEMENT*.....4%
WELL & SEPTIC TANK*.....3%

TOTAL……...100%

***Adjust in other disbursements if not needed.**

Real versus Personal Property

Business personal property is typically identified as all property used in connection with the production of income that has not been classified as real property. Frequently, it is difficult to draw a fine line between what is treated as real property and what is treated as personal property for property tax purposes. In many cases, the appraiser must rely on the owner's statement of intent. Items that may appear to be permanently attached to realty may not be appraised as realty and should be classified as personal. A good rule of thumb is to classify all property and investments necessary for the operation of the machinery and equipment as personal. Examples of items that may appear to be realty but should be considered personal property in certain situations are:

1. Wiring
2. Venting
3. Flooring
4. Special climate control (Heating and air conditioning systems associated with particular equipment or products)
5. Conveyors
6. Boilers and furnaces
7. Shelving and displays
8. Leasehold improvements (owned by lessee)

When trying to determine if something should be considered Real or Personal Property an appraiser should ask themselves, **"Is there for the benefit of the process or for the benefit of the employees or the building."**

Generally, business personal property includes, but is not limited to, the following categories:

1. Inventories

A. Raw materials
B. Goods in process of manufacturing
C. Finished goods
D. Supplies (office, maintenance, janitorial, manufacturing)
E. Packaging materials
F. Fuels
G. Spare parts

2. Depreciable Assets (Fixed Assets)

A. Machinery and equipment
B. Office furniture, fixtures, and equipment
C. Construction work in progress (including interest during construction)
D. Leasehold improvements
E. Software packages (tangible)
F. Tools, dies, molds
G. Motor vehicles (including mounted equipment)
H. Pallets and containers

3. Intangible Personal

A. Leasehold interest in exempt real property

It is most important that all taxable property be assessed only once as either real or personal, and that property is classified as either real or personal uniformly throughout each county. Of slightly lesser importance is whether the property is classified as real or personal property. In other words, however property is classified, the assessor must ensure that all taxable property is uniformly assessed.

1) Property used as part of a process, or in place for the equipment is generally considered personal property. Special wiring, foundations, and process piping are examples of this and are typically not appraised as real property in the Schedule of Values.
2) Property used for the building, or for the comfort of employees is generally considered real property. A building appraised as a refrigerated warehouse will include property that helps keep the interior cool. It is helpful to determine what additional property is included in the refrigerated warehouse schedule.
3) The owner's intent is important to consider. If the owner intends property to be permanently attached to the real estate, then that should be considered. Paving will not typically be removed and is not intended to be removed; therefore, it is almost always a real property improvement. A bank vault is usually permanently affixed, even if it is in a leased space. Even in these cases, it should be clearly noted in the schedule of values.

CLASSIFICATION OF SELECTED ITEMS AS REAL OR PERSONAL

In general, machinery and equipment used primarily as part of a manufacturing process (process equipment) is considered Personal Property. Machinery and equipment, which is part of the land or building improvement is considered Real Property. The following table is a guide to help establish what is Real Property versus what is Personal Property and may not include all property types.

Description	Real	Personal
AIR CONDITIONING - BUILDING	XX	
AIR CONDITIONING - MANUFACTURING/PRODUCT		XX
AIR CONDITIONING - WINDOW UNITS		XX
AIRPLANES		XX
ASPHALT PLANTS		XX
ATM - ALL EQUIP. & SELF STANDING BOOTHS		XX
AUTO EXHAUST SYSTEMS FOR BUILDING	XX	
AUTO EXHAUST SYSTEMS FOR EQUIPMENT		XX
AWNINGS		XX
BALERS (PAPER, CARDBOARD, ETC.)		XX
BANK TELLER COUNTERS - SERVICE AREA & RELATED		XX
BANK TELLER LOCKERS - MOVEABLE OR BUILT-IN		XX
BAR AND BAR EQUIPMENT - MOVEABLE OR BUILT-IN		XX
BULK BARNS		XX
BILLBOARDS		XX
BOATS AND MOTORS - ALL		XX
BOILER - FOR SERVICE OF BUILDING	XX	
BOILER - PRIMARILY FOR PROCESS		XX
BOOKCASES - MOVEABLE OR BUILT-IN		XX
BOWLING ALLEY LANES		XX
BROADCASTING EQUIPMENT		XX
CABINETS		XX
CABLE TV DISTRIBUTION SYSTEMS		XX
CABLE TV EQUIPMENT & WIRING		XX
CABLE TV SUBSCRIBER CONNECTIONS		XX
CAMERA EQUIPMENT		XX
CANOPIES - FABRIC, VINYL, PLASTIC		XX
CANOPIES – GENERALLY	XX	
CANOPY LIGHTING	XX	
CAR WASH - ALL EQUIPMENT, FILTERS & TANKS		XX
CARPET – INSTALLED	XX	

Description	Real	Personal
CATWALKS		XX
CEMENT PLANTS		XX
CHAIRS - ALL TYPES		XX
C-I-P EQUIPMENT		XX
CLOSED CIRCUIT TV		XX
COLD STORAGE - EQUIPMENT, ROOMS, PARTITIONS		XX
COMPRESSED AIR OR GAS SYSTEMS (OTHER THAN BLDG HEAT)		XX
COMPUTER ROOM A/C		XX
COMPUTER ROOM RAISED FLOOR		XX
COMPUTER SCANNING EQUIP.		XX
COMPUTERS AND DATA LINES		XX
CONCRETE PLANTS		XX
CONSTRUCTION AND GRADING EQUIPMENT		XX
CONTROL SYSTEMS - BUILDING AND EQUIPMENT		XX
CONVEYOR & MATERIAL HANDLING SYSTEMS		XX
COOLERS - WALK-IN OR SELF-STANDING		XX
COOLING TOWERS - PRIMARY USE FOR BUILDING	XX	
COOLING TOWERS - PRIMARY USE IN MANUFACTURE		XX
COUNTERS/RECEPTION DESKS - MOVEABLE OR BUILT-IN		XX
DAIRY PROCESSING PLANTS - ALL PROCESS ITEMS, BINS, TANKS		XX
DANCE FLOORS		XX
DATA PROCESSING EQUIPMENT - ALL ITEMS		XX
DELI EQUIPMENT		XX
DESK – ALL		XX
DIAGNOSTIC CENTER EQUIPMENT - MOVEABLE OR BUILT-IN		XX
DISPLAY CASES - MOVEABLE OR BUILT-IN		XX
DOCK LEVELERS		XX
DRAPES & CURTAINS, BLINDS, ETC		XX
DRINKING FOUNTAINS		XX
DRIVE-THRU WINDOWS - ALL		XX
DRYING SYSTEMS - PROCESS OR PRODUCT		XX
DUMPSTERS		XX
DUST CATCHERS, CONTROL SYSTEMS, ETC		XX
ELECTRONIC CONTROL SYSTEMS		XX
ELEVATORS	XX	

Description	Real	Personal
ESCALATORS	XX	
FARM EQUIPMENT – ALL		XX
FENCING – INSIDE		XX
FENCING – OUTSIDE	XX	
FIRE ALARM SYSTEMS & WIRING - (REQUIRED BY CODE)	XX	
FIRE ALARM SYSTEMS & WIRING - (SPECIAL PURPOSE ROOMS)		XX
FLAGPOLE		XX
FOUNDATIONS FOR MACHINERY AND EQUIP.		XX
FREIGHT CHARGES		XX
FUELS - NOT FOR SALE (LIST AS SUPPLIES)		XX
FURNACES - STEEL MILL PROCESS, ETC.		XX
FURNITURE AND FIXTURES		XX
GAZEBOS	XX	
GOLF COURSE AND IMPROVEMENTS (DRAINAGE/IRRIGATION)	XX	
GRAIN BINS		XX
GREASE TRAPS	XX	
GREENHOUSE BENCHES, HEATING SYSTEM, ETC.		XX
GREENHOUSES - STRUCTURE IF PERM. AFFIXED	XX	
HANDRAILS - IF USED FOR DIVIDING AREAS OR DECORATIVE		XX
HEATING SYSTEMS, PROCESS		XX
HOPPERS - METAL BIN TYPE		XX
HOSPITAL SYSTEMS, EQUIPMENT & PIPING		XX
HOT AIR BALLOONS		XX
HOTEL/MOTEL TELEVISIONS & WIRING		XX
HUMIDIFIERS - PROCESS		XX
INCINERATORS - EQUIPMENT AND/OR MOVEABLE		XX
INDUSTRIAL PIPING - PROCESS		XX
INSTALLATION COST		XX
IRRIGATION EQUIPMENT - IN-GROUND	XX	
IRRIGATION EQUIPMENT - PORTABLE		XX
KILN HEATING SYSTEM		XX
KILNS - METAL TUNNEL OR MOVEABLE		XX
LABORATORY EQUIPMENT		XX
LAGOONS/SETTLING PONDS		XX
LAW & PROFESSIONAL LIBRARIES		XX

Description	Real	Personal
LEASED EQUIPMENT - LESSOR OR LESSEE POSSESSION		XX
LEASEHOLD IMPROVEMENTS (LIST IN DETAIL YEARLY)	XX	XX
LIFTS - OTHER THAN ELEVATOR		XX
LIGHTING - PORTABLE, MOVEABLE, SPECIAL		XX
LIGHTING - YARD LIGHTING		XX
MACHINERY AND EQUIPMENT		XX
MEDICAL EQUIPMENT		XX
MEZZANINES - FOR PARTS OR STORAGE (Metal Racking)		XX
MILK HANDLING - MILKING, COOLING, PIPING, STORAGE		XX
MILLWORK		XX
MINERAL RIGHTS	XX	
MIRRORS (OTHER THAN BATHROOM)		XX
MOLDS		XX
MONITORING SYSTEMS BUILDING OR EQUIPMENT		XX
NEWSPAPER STANDS		XX
NIGHT DEPOSITORY		XX
OFFICE EQUIPMENT - ALL		XX
OFFICE SUPPLIES (LIST AS SUPPLIES)		XX
OIL COMPANY EQUIPMENT - PUMPS, SUPPLIES, ETC.		XX
OVENS - PROCESSING/MANUFACTURING		XX
OVERHEAD CONVEYOR SYSTEM		XX
PACKAGE AND LABELING EQUIPMENT		XX
PAGING SYSTEMS		XX
PAINT SPRAY BOOTHS		XX
PAINTING - NO ADDED VALUE		
PARTITIONS - MOVEABLE		XX
PAVING	XX	
PIPING SYSTEMS - PROCESS PIPING		XX
PLAYGROUND EQUIPMENT - ALL		XX
PNEUMATIC TUBE SYSTEMS		XX
PORTABLE BUILDINGS		XX
POULTRY / HOG HOUSES - BUILDING	XX	
POULTRY / HOG HOUSES - EQUIPMENT		XX
POWER GENERATOR SYSTEMS (AUXILIARY, EMERGENCY, ETC.)		XX

Description	Real	Personal
POWER TRANSFORMERS - EQUIPMENT		XX
PUBLIC ADDRESS SYSTEMS (INTERCOM, MUSIC, ETC.)		XX
RAILROAD SIDINGS (OTHER THAN RAILROAD-OWNED)	XX	
REFRIGERATION SYSTEMS - COMPRESSORS, ETC.		XX
REPAIRS – BUILDING	XX	
REPAIRS - EQUIPMENT		XX
RESTAURANT FURNITURE (INCL. ATTACHED FLOOR OR BLDG.)		XX
RESTAURANT/KITCHEN EQUIP. VENT HOODS, SINKS, ETC. (COMMERCIAL)		XX
RETURNABLE CONTAINERS		XX
ROLL-UP DOORS (INSIDE WALL)		XX
ROLL-UP DOORS (OUTSIDE WALL)	XX	
ROOFING	XX	
ROOMS SELF-CONTAINED OR SPECIAL PURPOSE (WALLS, CEILING, FLOOR)		XX
SAFES WALL OR SELF-STANDING		XX
SALES / USE TAX		XX
SATELLITE DISHES (ALL WIRING & INSTALLATION TO TV & EQUIP.)		XX
SCALE HOUSES (UNLESS MOVEABLE)	XX	

ALTERNATIVE METHODS

In the event the information set forth in these Schedule of Values, Standards and Rules 2027 is insufficient to determine a property's true value as defined by The Machinery Act, N.C.G.S. 105-271et. seq., the Assessor shall use his or her best professional judgment and methodologies and best practices of the IAAO to appraise real property at its true value and at its present-use value in accordance with The Machinery Act for the 2027 general reappraisal.



STANDARD ON

Mass Appraisal of Real Property

A criterion for measuring fairness, quality, equity and accuracy

(Revised 2025)

IAAO
INTERNATIONAL ASSOCIATION of ASSESSING OFFICERS
Valuing the World

STANDARD MASS APPRAISAL OF REAL PROPERTY

Revised 2025

International Association of Assessing Officers

IAAO assessment standards represent a consensus in the assessing profession and have been adopted by the Board of Directors of IAAO. The objective of IAAO standards is to provide a systematic means for assessing officers to improve and standardize the operation of their offices. IAAO standards are advisory in nature and the use of, or compliance with, such standards is voluntary. If any portion of these standards is found to conflict with national, state, or provincial laws, such laws shall govern. Ethical and/or professional requirements within the jurisdiction may also take precedence over technical standards. – February 2022

About IAAO

The International Association of Assessing Officers, formerly the National Association of Assessing Officers, was founded for the purpose of establishing standards for assessment personnel. IAAO is a professional membership organization of government assessment officials and others interested in the administration of the property tax. Over the years IAAO members have developed assessment practice and administration standards and many of these standards have been adopted by state and international oversight agencies, and some have been incorporated into legislation.

IAAO continues at the forefront of assessment in North America and has been expanding its reach to the global community for the last five decades. Because standards form the rules by which North American assessors perform their duties, they may not be directly applicable to an overseas audience. The standards have been updated to also present the broad principles upon which the rules are based. IAAO believes those principles may be adapted to many differing statutory and regulatory scenarios worldwide.

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At the time of the 2023 revision (approved in 2025), the Research and Standards Committee was comprised of Margaret Cusack, FIAAO (Chair), Douglas P. Warr, AAS, Vice Chair, Augie Aguilar, Melissa L. Baer, CAE, Benjamin P.P. Bervoets, Alan S. Dornfest, AAS, FIAAO, Luc Hermans, Marco Kuijper, Carmela Quintos, Ph.D., Michael Safarty, Kauser Taslim, James Russell Thimgan, Errol E. Williams, PhD, Tyler Masterson, Joshua Ernest Myers, Carol A. Neihardt, Patrick Santoso, and Shannon M. Hiss, RES, IAAO Staff Liaison.

Revision notes

This standard is a partial update with revisions only to Section 3 and replaces the 2018 rewrite of the standard, which replaced the April 2013 *Standard on Mass Appraisal of Real Property*. The 2013 *Standard on Mass Appraisal of Real Property* was a partial revision that replaced the 2012 standard, which replaced the 2002 standard. The 2002 standard combined and replaced the 1983 *Standard on the Application of the Three Approaches to Value in Mass Appraisal*, the 1984 *Standard on Mass Appraisal*, and the 1988 *Standard on Urban Land Valuation*.

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STANDARD ON MASS APPRAISAL OF REAL PROPERTY

1. SCOPE

This standard defines requirements for the mass appraisal of real property. The primary focus is on mass appraisal for ad valorem tax purposes. However, the principles defined here should also be relevant to mass appraisal systems (also referred to as computer assisted mass appraisal, CAMA systems), and/or automated valuation models used for other purposes, such as mortgage portfolio management. The standard primarily addresses the needs of the assessor, assessment oversight agencies, and taxpayers.

This standard addresses mass appraisal procedures by which the fee simple interest in property can be appraised at market value, including mass appraisal application of the three traditional approaches to value (cost, sales comparison, and income). Single-property appraisals, partial interest appraisals, and appraisals made on an other-than-market-value basis are outside the scope of this standard. Nor does this standard provide guidance on determining assessed values that differ from market value because of statutory constraints such as use value, classification, or assessment increase limitations.

Mass appraisal requires complete and accurate data, effective valuation models, and proper management of resources. Section 2 introduces mass appraisal. Section 3 focuses on the collection and maintenance of property data. Section 4 summarizes the primary considerations in valuation methods, including the role of the three approaches to value in the mass appraisal of various types of property. Section 5 addresses model testing and quality assurance. Section 6 discusses certain managerial considerations: staff levels, data processing support, contracting for reappraisals, benefit-cost issues, and space requirements. Section 7 discusses reference materials.

2. INTRODUCTION

Market value for assessment purposes is generally determined through the application of mass appraisal techniques. Mass appraisal is the process of valuing a group of properties as of a given date and using common data, standardized methods, and statistical testing. To determine a parcel's value, assessing officers must rely upon valuation equations, tables, and schedules developed through mathematical analysis of market data. Values for individual parcels should not be based solely on the sale price of a property; rather, valuation schedules and models should be consistently applied to property data that are correct, complete, and up to date.

Properly administered, the development, construction, and use of a CAMA system results in a valuation system characterized by accuracy, uniformity, equity, reliability, and low per-parcel costs. Except for unique properties, individual analyses and appraisals of properties are not practical for ad valorem tax purposes.

3. COLLECTING AND MAINTAINING PROPERTY DATA

The accuracy of values depends first and foremost on the completeness and accuracy of property characteristics and market data. Assessors will want to ensure that their mass appraisal systems provide for the collection and maintenance of relevant land, improvement, and location features. These data must also be accurately and consistently collected. The mass appraisal system must also provide for the storage and processing of relevant sales, cost, and income and expense data.

3.1 OVERVIEW

Uniform and accurate valuation of property requires correct, complete, and up-to-date property data. Assessing offices must establish effective procedures for collecting and maintaining property data (i.e., property ownership, location, size, use, physical characteristics, sales price, rents, costs, and operating expenses). Such data are also used for performance audits, defense of appeals, public relations, and management information. The following sections recommend procedures for collecting these data.

3.2 GEOGRAPHIC DATA

Assessors should maintain accurate, up-to-date cadastral maps (also known as assessment maps, tax maps, parcel boundary maps, and property ownership maps) covering the entire jurisdiction with a unique identification number for each parcel. Such cadastral maps allow assessing officers to identify and locate all parcels, both in the field and in the office.

Maps become especially valuable in the mass appraisal process when a geographic information system (GIS) is used. A GIS permits graphic displays of sale prices, assessed values, inspection dates, work assignments, land uses, and much more. In addition, a GIS permits high-level analysis of nearby sales, neighborhoods, and market trends; when linked to a mass appraisal system, the results can be very useful. For additional information on cadastral maps, parcel identification systems, and GIS, see *Standard on Manual Cadastral Maps and Parcel Identifiers* (IAAO 2016b), *Standard on Digital Cadastral Maps and Parcel Identifiers* (IAAO 2015), *Procedures and Standards for a Multipurpose Cadastre* (National Research Council 1983), and *GIS Guidelines for Assessors* (URISA and IAAO 1999).

3.3 PROPERTY CHARACTERISTICS DATA

The assessor should collect and maintain property characteristics data sufficient for classification, valuation, and other purposes. Accurate valuation of real property by any method requires descriptions of land and building characteristics.

3.3.1 Selection of Property Characteristics Data

Property characteristics to be collected and maintained should be based on the following:

- Factors that influence the market in the locale in question
- Requirements of the valuation methods that will be employed
- Requirements of classification and property tax policy
- Requirements of other governmental and private users
- Marginal benefits and costs of collecting and maintaining each property characteristic

Determining what data on property characteristics to collect and maintain for a mass appraisal system is a crucial decision with long-term consequences. A pilot program is one means of evaluating the benefits and costs of collecting and maintaining a particular set of property characteristics (Gloudemans and Almy 2011, 46–49). In addition, much can be learned from studying the data used in successful mass appraisals in other jurisdictions. Data collection and maintenance are usually the costliest aspects of a mass appraisal. Collecting data that are of little importance in the assessment process should be avoided unless another governmental or private need is clearly demonstrated.

The quantity and quality of existing data should be reviewed. If the data are sparse and unreliable, a major recanvass will be necessary. Data that have been confirmed to be reliable should be used whenever possible. New valuation programs or enhancements requiring major recanvass activity or conversions to new coding formats should be viewed with suspicion when the existing database already contains most major property characteristics and is of generally good quality.

The following property characteristics are usually important in predicting residential property values:

Improvement Data

- Living area
- Construction quality or key components thereof (foundation, exterior wall type, and the like)
- Effective age or condition
- Building design or style
- Secondary areas including basements, garages, covered porches, and balconies
- Building features such as bathrooms and central air-conditioning
- Significant detached structures including guest houses, boat houses, and barns

Land Data

- Lot size
- Available utilities (sewer, water, electricity)

Location Data

- Market area
- Submarket area or neighborhood
- Site amenities, especially view and golf course or water frontage
- External nuisances, (e.g., heavy traffic, airport noise, or proximity to commercial uses)

For a discussion of property characteristics important for various commercial property types see *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011,Chapter 9).

3.3.2 Data Collection

Collecting property characteristics data is a critical and expensive phase of reappraisal. A successful data collection program requires clear and standard coding and careful monitoring through a quality control program. The development and use of a data collection manual is essential to achieving accurate and consistent data collection. The data collection program should result in complete and accurate data.

3.3.2.1 Initial Data Collection

An inspection is necessary to obtain initial property characteristics data. This inspection can be performed either by appraisers, specially trained data collectors, and/or collected using technology such as remote sensing. In a joint approach, experienced appraisers make key subjective decisions, such as the assignment of construction quality class or grade, and data collectors gather all other details. Depending on the type of property, local (market) conditions and other resources available, a physical inspection including an interior inspection might be necessary. Measurement is an important part of data collection. Depending on the availability and reliability of data, different techniques and methods for measuring can be applied. To ensure data quality, a sample should be verified using a secondary inspection method.

3.3.2.2 Data Collection Format

Data should be collected in a prescribed format designed to facilitate both the collecting of data in the field and the entry of the data into the computer system.

A logical arrangement of the collection format makes data collection easier. For example, all items requiring an interior inspection should be grouped together. The coding of data should be as objective as possible, with measurements, counts, and check-off items used in preference to items requiring subjective evaluations (such as “number of plumbing fixtures” versus “adequacy of plumbing: poor, average, good”). With respect to check-off items, the available codes should be exhaustive and mutually exclusive, so that exactly one code logically pertains to each observable variation of a building feature (such as structure or roof type). The data collection format should promote consistency among data collectors, be clear and easy to use, and be adaptable to virtually all types of construction. Specialized data collection formats may be necessary to collect information on agricultural property, timberland, commercial and industrial parcels, and other property types.

3.3.2.3 Data Collection Manuals

A clear, thorough, and precise data collection manual is essential and should be developed, updated, and maintained. The written manual should explain how to collect and record each data item. Pictures, examples, and illustrations are particularly helpful. The manual should be simple yet complete. Data collection staff should be trained in the use of the manual and related updates to maintain consistency. The manual should include guidelines for personal conduct during field inspections, and if interior data are required, the manual should outline procedures to be followed when the property owner has denied access or when entry might be risky. Local, regional, state, or national legislation regarding property owners' rights and obligations regarding trespassing and/or to permit access to property should be addressed in the manual.

3.3.2.4 Data Accuracy Standards

The following standards of accuracy for data collection are recommended.

- Continuous or area measurement data, such as living area and exterior wall height, should be accurate within 1 foot (rounded to the nearest foot) or 30 centimeters of the true dimensions or within 5 percent of the area. If areas, dimensions, or volumes must be estimated, the property record should note the instances in which quantities are estimated.
- For each objective, categorical, or binary data field to be collected or verified, at least 95 percent of the coded entries should be accurate. Objective, categorical, or binary data characteristics include such attributes as exterior wall material, number of full bathrooms, and waterfront view. As an example, if a data collector captures 10 objective, categorical, or binary data items for 100 properties, at least 950 of the 1,000 total entries should be correct.
- For each subjective categorical data field collected or verified, data should be coded correctly at least 90 percent of the time. Subjective categorical data characteristics include data items such as quality grade, physical condition, and architectural style.

Regardless of specific accuracy requirements, consistent measurement is important. Standards including national, local and regional practices exist to support consistent measurement. The standard of measurement should be documented as part of the process. (*American Institute of Architects* 1995; *Marshall & Swift Valuation Service* 2017; *International Property Measurement Standards Coalition n.d.; Building Owners and Managers Association International* 2017).

3.3.2.5 Data Collection Quality Control

A quality control program is necessary to ensure that data accuracy standards are achieved and maintained. The IAAO Standard on Data Quality provides guidelines and best practices for this task. Independent quality control inspections should occur immediately after the data collection phase begins and may be performed by jurisdiction staff, project consultants, auditing firms, or oversight agencies. The inspections should review random samples of finished work for completeness and accuracy and keep tabulations of items coded correctly or incorrectly, so that statistical tests can be used to determine whether accuracy standards have been achieved. Stratification by geographic area, property type, or individual data collector can help detect patterns of data error. Data that fail to meet quality control standards should be recollected.

The accuracy of subjective data should be judged primarily by conformity with written specifications and examples in the data collection manual. The data reviewer should substantiate subjective data corrections with pictures or field notes.

3.3.3 Data Entry

To avoid duplication of effort, the data collection form should be able to serve as the data entry form. Data entry should be routinely audited to ensure accuracy.

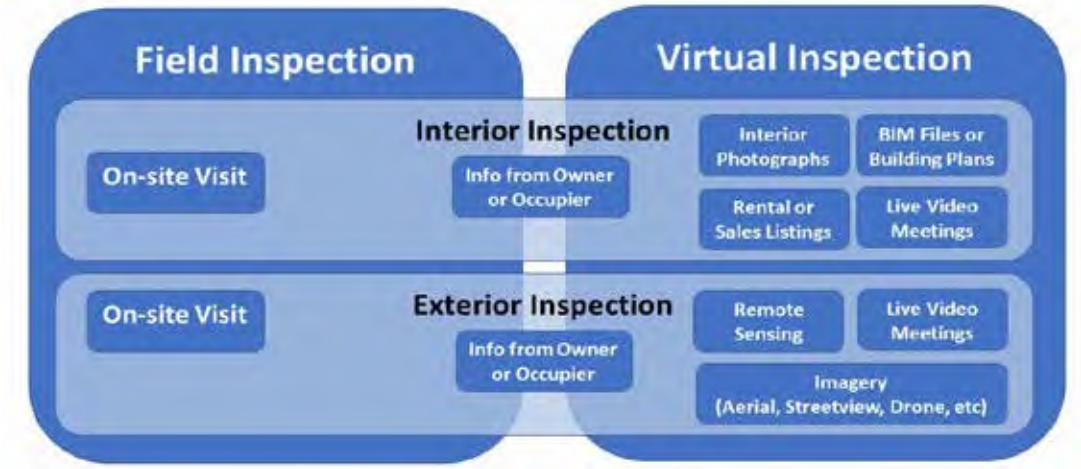
Data entry accuracy should be as close to 100 percent as possible and should be supported by a full set of range and consistency edits. These are error or warning messages generated in response to invalid or unusual data items. Examples of data errors include missing data codes and invalid characters. Warning messages should also be generated when data values exceed normal ranges (e.g., more than eight rooms in a 1,200-square-foot residence). The warnings should appear as the data are entered. When feasible, action on the warnings should take place during data entry. Field data entry devices provide the ability to edit data as it is entered and also eliminate data transcription errors.

3.3.4 Maintaining Property Characteristics Data

Inspections are a fundamental part of the assessment process. As detailed in the *Standard on Data Quality* (IAAO 2021), maintaining high quality data is fundamental to upholding fairness and equity in the assessment process. Each assessor's office, knowing its available resources, parcel counts, development patterns, and specific statutory requirements, should establish methodologies for completing inspections so that property data can be reviewed and updated to account for any changes on a regular basis.

There are many ways inspections can be initiated, including by building permits, appeals, property owner requests, or systematic regular reviews initiated by the assessor's office. Inspections can be conducted in-person (on-site) or virtually at a desktop utilizing various technologies. Additionally, depending on the nature of the inspection, it can be external (reviewing characteristics from outside) or include an interior review of the property. Many inspections will use a combination of inspection types to complete a property record.

The image below shows the different types of property inspections as well as common methods and techniques for inspections and how these are related.



3.3.5 Considerations for Minimum Imagery

Inspections conducted virtually at a desktop require quality imagery in order to provide effective information about the property. Any imagery utilized for inspection purposes should include the following:

- Current high-resolution street-view images (at a sub-inch pixel resolution that enables quality grade and physical condition to be verified)
- Orthophoto images (minimum 6-inch pixel resolution in urban/suburban and 12-inch resolution in rural areas, updated every 2 years in rapid-growth areas or 6–10 years in slow-growth areas)
- Low-level oblique images capable of being used for measurement verification (four cardinal directions, minimum 6-inch pixel resolution in urban/suburban and 12-inch pixel resolution in rural areas, updated every 2 years in rapid- growth areas or 6–10 years in slow-growth areas)

These imagery tool sets may incorporate change detection techniques that compare building dimension data (footprints) in the CAMA system to georeferenced imagery or remote sensing data from sources (such as LiDAR [light detection and ranging]) and identify potential CAMA sketch discrepancies for further investigation.

Assessment jurisdictions and oversight agencies must ensure that images meet expected quality standards. Standards required for vendor-supplied images should be spelled out in the Request for Proposal (RFP) and contract for services, and images should be checked for compliance with specified requirements. For general guidance on preparing RFPs and contracting for vendor-supplied services, see *Standard on Contracting for Assessment Services* (IAAO 2019).

In addition, appraisers should visit assigned areas on an annual basis to observe changes in neighborhood condition, trends, and property characteristics. An on-site physical review is recommended when significant construction changes are detected, a property is sold, or an area is affected by catastrophic damage. Building permits should be regularly monitored and properties that have significant change should be inspected when work is complete.

3.3.6 Considerations for Establishing a Property Inspection Plan

- Building permits from local jurisdiction(s) covered by the assessor's office can be a good indicator of changes occurring on property through new construction, remodeling, demolition, and destruction. Ideally, strictly enforced local ordinances will exist and require building permits for all significant construction activity, and the assessor's office will receive copies of the permits. This process allows the assessor to quickly identify properties whose characteristics are likely to change and conduct inspections in a timely manner.
- In instances where building permits are underutilized it is necessary to establish other methods of identifying property changes. Periodic inspections can help find changes not indicated by building permits. Technology such as change detection in aerial imagery can identify changes in property between two points in time.
- Other processes that can initiate inspections include canvass projects, appeals, property owner requests, and certain exemption applications.
- In some instances, property owner cooperation via a self-reporting process can be productive. In this case, each property owner receives a copy of the assessor's records for their property to review for additions or corrections. Web based outreach programs can enhance owner participation.

- Multiple listing sources and other third-party vendors often contain valuable information which can be used to validate property records. With the advancement of many real estate websites and vendors using data aggregation to collect large amounts of data, these tools can provide additional information about properties.
- Recent imagery (aerials, streetview, etc.) can provide valuable information without needing to physically inspect a property. It is helpful to have imagery gathered on an annual basis, although this may vary based on community growth and office budgets.
- A regular cycle for periodic inspection of properties should be established and in statute see *Standard on Property Tax Policy* (IAAO 2020, 13-14) for further discussion. A periodic inspection aims to ensure there is a regular review of property data and can comprise of field or virtual inspections. Maintaining current, high-level data is a necessity. If a property is not inspected through any of the above-mentioned processes, a periodic inspection is warranted. Property characteristics should be verified at least every 4 to 6 years; this may be adjusted provided quality thresholds such as ratio study standards or other compliance metrics are met.
- In instances where the last inspection date is unknown or does not exist, a regular cycle for periodic inspection can be established to prioritize areas of known data quality issues or areas that are not meeting certain quality thresholds.
- A property inspection plan should detail what types of inspections should be completed and for what purpose. In some cases, a field inspection is necessary to collect the detailed information required to update a parcel record. In other cases, a combination of imagery and other technology may provide a complete picture to update a property record.
- Property inspection plans should detail when to use interior and exterior inspections. Both are useful in inspecting properties, but each has challenges which must be considered. Interior inspections allow for the capture of interior information not visible from the exterior of the property but require the cooperation of the property owner and occupants in order to complete either in-person or virtually through video calls. As a result, there can be challenges with equity and data quality if only certain properties are accessible for interior inspections. Exterior inspections allow for the capture of all information which can be discerned from the outside of the property either through field inspections or desktop review but misses the capture of interior information which may be useful in discerning the difference in value between otherwise identical properties. The use of inspection types should be clearly defined by the property inspection plan to guide uniform use across the jurisdiction.

3.4 SALE DATA

States and provinces should seek mandatory disclosure laws to ensure comprehensiveness of sale data files. Regardless of the availability of such statutes, a file of sale data must be maintained, and sales must be properly reviewed and validated. Sale data are required in all applications of the sales comparison approach, in the development of land values and market-based depreciation schedules in the cost approach, and in the derivation of capitalization rates or discount rates in the income approach. Refer to *Mass Appraisal of Real Property* (Gloudemans 1999, chapter 2) or *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011 chapter 2) for guidelines on the acquisition and processing of sale data.

3.5 INCOME AND EXPENSE DATA

Income and expense data must be collected for income-producing property and reviewed by qualified appraisers to ensure their accuracy and usability for valuation analysis (see Section 4.4.). Refer to *Mass Appraisal of Real Property* (Gloudemans 1999, chapter 2) or *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, chapter 2) for guidelines addressing the collection and processing of income and expense data.

3.6 COST AND DEPRECIATION DATA

Current cost and depreciation data adjusted to the local market are required for the cost approach (see Section 4.2). Cost and depreciation manuals and schedules can be purchased from commercial services or created in-house. Refer to *Mass Appraisal of Real Property* (Gloudemans 1999, chapter 4) or *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, 180–193) for guidelines on creating manuals and schedules.

4. VALUATION

Mass appraisal analysis begins with assigning properties to use classes or strata based on highest and best use, which normally equates to current use. Some statutes require that property be valued for ad valorem tax purposes at current use regardless of highest and best use. Zoning and other land use controls normally dictate highest and best use of vacant land. In the absence of such restrictions, the assessor must determine the highest and best use of the land by analyzing the four components—legally permissible, physically possible, appropriately supported, and financially feasible—thereby resulting in the highest value. Special attention may be required for properties in transition, interim or nonconforming uses, multiple uses, and excess land.

4.1 VALUATION MODELS

Any appraisal, whether single-property appraisal or mass appraisal, uses a model, that is, a representation in words or an equation of the relationship between value and variables representing factors of supply and demand. Mass appraisal models attempt to represent the market for a specific type of property in a specified area. Mass appraisers must first specify the model, that is, identify the supply and demand factors and property features that influence value, for example, square feet of living area. Then they must calibrate the model, that is, determine the adjustments or coefficients that best represent the value contribution of the variables chosen, for example, the dollar amount the marketplaces on each square foot of living area. Careful and extensive market analysis is required for both specification and calibration of a model that estimates values accurately. Mass appraisal models apply to all three approaches to value: the cost approach, the sales comparison approach, and the income approach.

Valuation models are developed for defined property groups. For residential properties, geographic stratification is ap- propriate when the value of property attributes varies significantly among areas and each area is large enough to provide adequate sales. It is particularly effective when housing types and styles are relatively uniform within areas. Separate models are developed for each market area (also known as economic or model areas). Subareas or neighborhoods can serve as variables in the models and can also be used in land value tables and selection of comparable sales. Refer to *Mass Appraisal of Real Property* (Gloudemans 1999, 118–120) or *Fundamentals of Mass Appraisa*l (Gloudemans and Almy 2011, 139–143) for guidelines on stratification. Smaller jurisdictions may find it sufficient to develop a single residential model.

Commercial and income-producing properties should be stratified by property type. In general, separate models should be developed for apartment, warehouse/industrial, office, and retail properties. Large jurisdictions may be able to stratify apartment properties further by type or area or to develop multiple models for other income properties with adequate data.

4.2 THE COST APPROACH

The cost approach is applicable to virtually all improved parcels and, if used properly, can produce accurate valuations. The cost approach is more reliable for newer structures of standard materials, design, and workmanship. It produces an estimate of the value of the fee simple interest in a property.

Reliable cost data are imperative in any successful application of the cost approach. The data must be complete, typical, and current. Current construction costs should be based on the cost of replacing a structure with one of equal utility, using current materials, design, and building standards. In addition to specific property types, cost models should include the cost of individual construction components and building items in order to adjust for features that differ from base specifications. These costs should be incorporated into a construction cost manual and related computer software. The software can perform the valuation function, and the manual, in addition to providing documentation, can be used when nonautomated calculations are required.

Construction cost schedules can be developed in-house, based on a systematic study of local construction costs, obtained from firms specializing in such information, or custom-generated by a contractor. Cost schedules should be verified for accuracy by applying them to recently constructed improvements of known cost. Construction costs also should be updated before each assessment cycle.

The most difficult aspects of the cost approach are estimates of land value and accrued depreciation. These estimates must be based on non-cost data (primarily sales) and can involve considerable subjectivity. Land values used in the cost approach must be current and consistent. Often, they must be extracted from sales of improved property because sales of vacant land are scarce. Section 4.5 provides standards for land valuation in mass appraisal.

Depreciation schedules can be extracted from sales data in several ways. Refer to *Mass Appraisal of Real Property* (Gloudemans 1999, chapter 4) or *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, 189–192) for additional information.

4.3 THE SALES COMPARISON APPROACH

The sales comparison approach estimates the value of a subject property by statistically analyzing the sale prices of similar properties. This approach is usually the preferred approach for estimating values for residential and other property types with adequate sales.

Applications of the sales comparison approach include direct market models and comparable sales algorithms refer to *Mass Appraisal of Real Property* (Gloudemans 1999, chapters 3 and 4), *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, chapters 4 and 6), and the *Standard on Automated Valuation Models (AVMs)* (IAAO 2018) for additional guidance. Comparable sales algorithms are most akin to single-property appraisal applications of the sales comparison approach. They have the advantages of being familiar and easily explained and can compensate for less well-specified or calibrated models, be- cause the models are used only to make adjustments to the selected comparables. They can be problematic if the selected comparables are not well validated or representative of market value. Because they predict market value directly, direct market models depend more heavily on careful model specification and calibration. Their advantages include efficiency and consistency, because the same model is directly applied against all properties in the model area.

Users of comparable sales algorithms should be aware that sales ratio statistics will be biased if sales used in the ratio study are used as comparables for themselves in model development. This problem can be avoided by (1) not using sales as comparables for themselves in modeling or (2) using holdout or later sales in ratio studies.

4.4 THE INCOME APPROACH

In general, for income-producing properties, the income approach is the preferred valuation approach when reliable income and expense data are available, along with well-supported income multipliers, overall rates, and required rates of return on investment. Successful application of the income approach requires the collection, maintenance, and careful analysis of income and expense data.

Mass appraisal applications of the income approach begin with collecting and processing income and expense data. These data should be expressed on an appropriate per-unit basis, such as per square foot or per apartment unit. Appraisers should then compute normal or typical gross incomes, vacancy rates, net incomes, and expense ratios for various homogeneous strata of properties. These figures can be used to judge the reasonableness of reported data for individual parcels and to estimate income and expense figures for parcels with unreported data. Actual or reported figures can be used as long as they reflect typical figures (or typical figures can be used for all properties).

Alternatively, models for estimating gross or net income and expense ratios can be developed by using actual income and expense data from a sample of properties and calibrated by using multiple regression analysis. For an introduction to income modeling, see *Mass Appraisal of Real Property* (Gloudemans 1999, chapter 3) or *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, chapter 9). The developed income figures can be capitalized into estimates of value in a number of ways. The most direct method involves the application of gross income multipliers, which express the ratio of market value to gross income. At a more refined level, net income multipliers or their reciprocals, overall capitalization rates, can be developed and applied. Provided there are adequate sales, these multipliers and rates should be extracted from a comparison of actual or estimated incomes with sale prices (older income and sales data should be adjusted to the valuation date as appropriate). Income multipliers and overall rates developed in this manner tend to provide reliable, consistent, and readily supported valuations when good sales and income data are available. When adequate sales are not available, relevant publications and local market participants can be consulted.

4.5 LAND VALUATION

State or local laws may require the value of an improved parcel to be separated into land and improvement components. When the sales comparison or income approach is used, an independent estimate of land value can be made and subtracted from the total property value to obtain a residual improvement value. Some computerized valuation techniques provide a separation of total value into land and building components.

Land values should be reviewed annually. At least once every 4 to 6 years the properties should be physically inspected and revalued. The sales comparison approach is the primary approach to land valuation and is always preferred when sufficient sales are available. In the absence of adequate sales, other techniques that can be used in land appraisal include allocation, abstraction, anticipated use, capitalization of ground rents, and land residual capitalization. See *Mass Appraisal of Real Property* (Gloudemans 1999, chapter 3) or *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, 178–180) for additional information.

4.6 CONSIDERATIONS BY PROPERTY TYPE

The appropriateness of each valuation approach varies with the type of property under consideration. *Table 1* ranks the relative usefulness of the three approaches in the mass appraisal of major types of properties. The table assumes that there are no major statutory barriers to using all three approaches or to obtaining cost, sales, and income data. Although relying only on the single best approach for a given type of property can have advantages in terms of efficiency and consistency, the use of two or more approaches provides helpful cross-checks and flexibility and can thus produce greater accuracy, particularly for less typical properties.

TABLE 1. Rank of typical usefulness of the three approaches to value in the mass appraisal of major types of property

Type of Property	Cost Approach	Sales Comparison Approach	Income Approach
Single-family residential	2	1	3
Multifamily residential	3	1,2	1,2
Commercial	3	2	1
Industrial	1,2	3	1,2
Nonagricultural land	-	1	2
Agricultural land [a]	-	2	1
Special-purpose [b]	1	2,3	2,3

[a] *Includes farm, ranch, and forest properties.* [b] *Includes institutional, governmental, and recreation properties.*

4.6.1 Single-Family Residential Property

The sales comparison approach is the best approach for single-family residential property, including condominiums. Automated versions of this approach are highly efficient and generally accurate for the majority of these properties. The cost approach is a good supplemental approach and should serve as the primary approach when the sales data available are inadequate. The income approach is usually inappropriate for mass appraisal of single-family residential properties, because most of these properties are not rented.

4.6.2 Manufactured Housing

Manufactured or mobile homes can be valued in a number of ways depending on the local market and ownership status. Often mobile homes are purchased separately and situated on a rented space in a mobile home park. In this case the best strategy is to model the mobile homes separately from the land. At other times mobile homes are situated on individual lots and bought and sold similar to stick-built homes. Particularly in rural areas they may be intermixed with stick-built homes. In these cases, they can be modeled in a manner similar to that for other residential properties and included in the same models, as long as the model includes variables to distinguish them and recognize any relevant differences from other homes (e.g., mobile homes may appreciate at a rate different from that for stick-built homes).

4.6.3 Multifamily Residential Property

The sales comparison and income approaches are preferred in valuing multifamily residential property when sufficient sales and income data are available. Multiple regression analysis (MRA) and related techniques have been successfully used in valuing this property type. Where adequate sales are available, direct sales models can be used. MRA also can be used to calibrate different portions of the income approach, including the estimation of market rents and development of income multipliers or capitalization rates. As with other residential property, the cost approach is useful in providing supplemental valuations and can serve as the primary approach when good sales and income data are not available.

4.6.4 Commercial and Industrial Property

The income approach is the most appropriate method in valuing commercial and industrial property if sufficient income data are available. Direct sales comparison models can be equally effective in large jurisdictions with sufficient sales. When a sufficient supply of sales data and income data is not available, the cost approach should be applied. However, values generated should be checked against available sales data. Cost factors, land values, and depreciation schedules must be kept current through periodic review.

4.6.5 Nonagricultural Land

The sales comparison approach is preferred for valuing nonagricultural land. Application of the sales comparison approach to vacant land involves the collection of sales data, the posting of sales data on maps, the calculation of standard unit values (such as value per square foot, per front foot, or per parcel) by area and type of land use, and the development of land valuation maps or computer-generated tables in which the pattern of values is displayed. When vacant land sales are not available or are few, additional benchmarks can be obtained by subtracting the replacement cost new less depreciation of improvements from the sale prices of improved parcels. The success of this technique requires reliable cost data and tends to work best for relatively new improvements, for which depreciation is minimal.

Another approach is a *hybrid* model decomposable into land and building values. Although these models can be calibrated from improved sales alone, separation of value between land and buildings is more reliable when both vacant and improved sales are available.

4.6.6 Agricultural Property

If adequate sales data are available and agricultural property is to be appraised at market value, the sales comparison approach is preferred. However, most states and provinces provide for the valuation of agricultural land at use value, making the sales comparison approach inappropriate for land for which market value exceeds use value. Thus, it is often imperative to obtain good income data and to use the income approach for agricultural land. Land rents are often available, sometimes permitting the development and application of overall capitalization rates. Many states and provinces have soil maps that assign land to different productivity classes for which typical rents can be developed. Cost tables can be used to value agricultural buildings.

4.6.7 Special-Purpose Property

The cost approach tends to be most appropriate in the appraisal of special-purpose properties, because of the distinctive nature of such properties and the general absence of adequate sales or income data.

4.7 Value Reconciliation

When more than one approach or model is used for a given property group, the appraiser must determine which to use or emphasize. Often this can be done by comparing ratio study statistics. Although there are advantages to being consistent, sometimes an alternative approach or method is more reliable for special situations and atypical properties. Mass appraisal systems should allow users to document the approach or method being used for each property.

4.8 FREQUENCY OF REAPPRAISALS

The *Standard on Property Tax Policy* (IAAO 2020) states that current market value implies annual assessment of all property. Annual assessment does not necessarily mean, however, that each property must be re-examined each year. Instead, models can be recalibrated, or market adjustment factors derived from ratio studies or other market analyses applied based on criteria such as property type, location, size, and age.

Analysis of ratio study data can suggest groups or strata of properties in greatest need of physical review. In general, market adjustments can be highly effective in maintaining equity when appraisals are uniform within strata and recalibration can provide even greater accuracy. However, only physical reviews can correct data errors and, as stated in previous sections of this Standard, property characteristics data should be reviewed and updated at least every 4 to 6 years. This can be accomplished in at least three ways:

- Reinspecting all property at periodic intervals (i.e., every 4 to 6 years)
- Reinspecting properties on a cyclical basis (e.g., one-fourth or one-sixth each year)
- Reinspecting properties on a priority basis as indicated by ratio studies or other considerations while still ensuring that all properties are examined at least every sixth year

5. MODEL TESTING, QUALITY ASSURANCE, AND VALUE DEFENSE

Mass appraisal allows for model testing and quality assurance measures that provide feedback on the reliability of valuation models and the overall accuracy of estimated values. Modelers and assessors must be familiar with these diagnostics so they can evaluate valuation performance properly and make improvements where needed.

5.1 MODEL DIAGNOSTICS

Modeling software contains various statistical measures that provide feedback on model performance and accuracy. MRA software contains multiple sets of diagnostic tools, some of which relate to the overall predictive accuracy of the model and some of which relate to the relative importance and statistical reliability of individual variables in the model. Modelers must understand these measures and ensure that final models not only make appraisal sense but also are statistically sound.

5.2 SALES RATIO ANALYSES

Regardless of how values were generated, sales ratio studies provide objective, bottom-line indicators of assessment performance. The IAAO literature contains extensive discussions of this important topic, and the *Standard on Ratio Studies* (IAAO 2013) provides guidance for conducting a proper study. It also presents standards for key ratio statistics relating to the two primary aspects of assessment performance: level and uniformity. The following discussion summarizes these standards and describes how the assessor can use sales ratio metrics to help ensure accurate, uniform values.

5.2.1 Assessment Level

Assessment level relates to the overall or general level of assessment of a jurisdiction and various property classes, strata, and groups within the jurisdiction. Each group must be assessed at market value as required by professional standards and applicable statutes, rules, and related requirements. The three common measures of central tendency in ratio studies are the median, mean, and weighted mean. The *Standard on Ratio Studies* (IAAO 2013) stipulates that the median ratio should be between 0.90 and 1.10 and provides criteria for determining whether it can be concluded that the standard has not been achieved for a property group. Current, up-to-date valuation models, schedules, and tables help ensure that assessment levels meet required standards, and values can be statistically adjusted between full reappraisals or model recalibrations to ensure compliance.

5.2.2 Assessment Uniformity

Assessment uniformity relates to the consistency and equity of values. Uniformity has several aspects, the first of which relates to consistency in assessment levels between property groups. It is important to ensure, for example, that residential and commercial properties are appraised at similar percentages of market value (regardless of the legal assessment ratios that may then be applied) and that residential assessment levels are consistent among neighborhoods, construction classes, age groups, and size groups. Consistency among property groups can be evaluated by comparing measures of central tendency calculated for each group.

Various graphs can also be used for this purpose. The *Standard on Ratio Studies* (IAAO 2013) stipulates that the level of appraisal for each major group of properties should be within 5 percent of the overall level for the jurisdiction and provides criteria for determining whether it can be concluded from ratio data that the standard has not been met.

Another aspect of uniformity relates to the consistency of assessment levels within property groups. There are several such measures, the preeminent of which is the coefficient of dispersion (COD), which represents the average percentage deviation from the median ratio. The lower the COD, the more uniform the ratios within the property group. In addition, uniformity can be viewed spatially by plotting sales ratios on thematic maps.

The *Standard on Ratio Studies* (IAAO 2013) provides the following standards for the COD:

- *Single-family homes and condominiums:* CODs of 5 to 10 for newer or fairly similar residences and 5 to 15 for older or more heterogeneous areas
- *Income-producing properties:* CODs of 5 to 15 in larger, urban areas and 5 to 20 in other areas
- *Vacant land:* CODs of 5 to 20 in urban areas and 5 to 25 in rural or seasonal recreation areas
- *Rural residential, seasonal, and manufactured homes:* CODs of 5 to 20

The entire appraisal staff must be aware of and monitor compliance with these standards and take corrective action where necessary. Poor uniformity within a property group is usually indicative of data problems or deficient valuation procedures or tables and cannot be corrected by application of market adjustment factors.

A final aspect of assessment uniformity relates to equity between low- and high-value properties. Although there are statistical subtleties that can bias evaluation of price-related uniformity, the IAAO literature (see *Fundamentals of Mass Appraisal* [Gloudemans and Almy 2011, 385–392 and Appendix B] and the *Standard on Ratio Studies* [IAAO 2013]) provides guidance and relevant measures, namely, the price-related differential (PRD) and coefficient of price- related bias (PRB).

The PRD provides a simple gauge of price-related bias. The *Standard on Ratio Studies* (IAAO 2013) calls for PRDs of 0.98 to 1.03. PRDs below 0.98 tend to indicate assessment progressivity, the condition in which assessment ratios increase with price. PRDs above 1.03 tend to indicate assessment regressivity, in which assessment ratios decline with price. The PRB indicates the percentage by which assessment ratios change whenever values double or are halved. For example, a PRB of –0.03 would mean that assessment levels fall by 3 percent when value doubles. The *Standard on Ratio Studies* (IAAO 2013) calls for PRBs of –0.05 to +0.05 and regards PRBs outside the range of –0.10 to +0.10 as unacceptable.

Because price is observable only for sale properties, there is no easy correction for the PRB, which is usually due to problems in valuation models and schedules. Sometimes other ratio study diagnostics will provide clues. For example, high ratios for lower construction classes may indicate that base rates should be reduced for those classes, which should in turn improve assessment ratios for low-value properties.

5.3 HOLDOUT SAMPLES

Holdout samples are validated sales that are not used in valuation but instead are used to test valuation performance. Holdout samples should be randomly selected with a view to obtaining an adequate sample while ensuring that the number of sales available for valuation will provide reliable results for the range of properties that must be valued (holdout samples of 10 to 20 percent are typical). If too few sales are available, later sales can be validated and used for the same purpose. For a method of using sales both to develop and test valuation models, see "The Use of Cross-validation in CAMA Modeling to Get the Most Out of Sales" (Jensen 2011).

Since they were not used in valuation, holdout samples can provide more objective measures of valuation performance. This can be particularly important when values are not based on a common algorithm as cost and MRA models are. Manually assigning land values, for example, might produce sales ratio statistics that appear excellent but are not representative of broader performance for both sold and unsold properties. Comparable sales models that value a sold property using the sale of a property as a comparable for itself can produce quite different results when tested on a holdout group.

When a new valuation approach or technique is used for the first time, holdout sales can be helpful in validating use of the new method. In general, however, holdout samples are unnecessary as long as valuation models are based on common algorithms and schedules and the value assigned to a sale property is not a function of its price. Properly validated later sales can provide follow-up performance indicators without compromising the number of sales available for valuation.

5.4 DOCUMENTATION

Valuation procedures and models should be documented. Appraisal staff should have at least a general understanding of how the models work and the various rates and adjustments made by the models. Cost manuals should be current and contain the rates and adjustments used to value improvements by the cost approach. Similarly, land values should be supported by tables of rates and adjustments for features such as water frontage, traffic, and other relevant influences. MRA models and other sales comparison algorithms should document final equations and should be reproducible, so that rerunning the model produces the same value. Schedules of rental rates, vacancy rates, expense ratios, income multipliers, and capitalization rates should document how values based on the income approach were derived.

It can be particularly helpful to prepare a manual, booklet, or report for each major property type that provides a narrative summary of the valuation approach and methodology and contains at least the more common rates and adjustments. Examples of how values were computed for sample properties can be particularly helpful. The manuals serve as a resource for current staff and can be helpful in training new staff or explaining the valuation process to other interested parties. Once prepared, the documents should be updated when valuation schedules change or methods and calculation procedures are revised.

5.5 VALUE DEFENSE

The assessment office staff must have confidence in the appraisals and be able to explain and defend them. This confidence begins with application of reliable appraisal techniques, generation of appropriate valuation reports, and review of preliminary values. It may be helpful to have reports that list each parcel, its characteristics, and its calculated value. Parcels with unusual characteristics, extreme values, or extreme changes in values should be identified for subsequent individual review. Equally important, summary reports should show average values, value changes, and ratio study statistics for various strata of properties. These should be reviewed to ensure the overall consistency of values for various types of property and various locations. Refer to the *Uniform Standards of Professional Appraisal Practice*, Standard 5-6, for the requirements of mass appraisal development and reporting (The Appraisal Foundation 2024, 35-44).

The staff should also be prepared to support individual valuations as required, preferably through comparable sales. At a minimum, staff should be able to produce a property record and explain the basic approach (cost, sales comparison, or income) used to estimate the value of the property. A property owner should never be told simply that "the computer" or "the system" produced the appraisal. In general, the staff should tailor the explanation to the taxpayer's knowledge and expertise. Equations converted to tabular form can be used to explain the basis for valuation. In all cases, the assessment office staff should be able to produce sales or appraisals of similar properties in order to support (or at least explain) the valuation of the property in question. Comparable sales can be obtained from reports that list sales by such features as type of property, area, size, and age. Alternatively, interactive programs can be obtained or developed that identify and display the most comparable properties.

Assessors should notify property owners of their valuations in sufficient time for property owners to discuss their appraisals with the assessor and appeal the value if they choose to do so, see the *Standard on Communications and Outreach* (IAAO 2023). Statutes should provide for a formal appeals process beyond the assessor's level, see the *Standard on Assessment Appeal* (IAAO 2016a).

6. MANAGERIAL AND SPACE CONSIDERATIONS

6.1 OVERVIEW

Mass appraisal requires staff, technical, and other resources. This section discusses certain key managerial and facilities considerations.

6.2 STAFFING AND SPACE

A successful in-house appraisal program requires trained staff and adequate facilities in which to work and meet with the public.

6.2.1 Staffing

Staff should comprise persons skilled in general administration, supervision, appraisal, mapping, data processing, and clerical functions. Typical staffing sizes and patterns for jurisdictions of various sizes are illustrated in *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, 22–25). Staffing needs can vary significantly based on factors such as frequency of reassessments.

6.2.2 Space Considerations

The following minimum space standards are suggested for managerial, supervisory, and support staff:

- *Chief assessing officer* (e.g., Assessor, director)—a private office, enclosed by walls or windows extending to the ceiling, of 200 square feet (18 to 19 square meters)
- *Management position* (e.g., chief deputy assessor, head of a division in a large jurisdiction, and so on)—a private office, enclosed by walls or windows extending to the ceiling, of 170 square feet (15 to 16 square meters)
- *Supervisory position* (head of a section, unit, or team of appraisers, mappers, analysts, technicians, or clerks)—a private office or partitioned space of 150 square feet (14 square meters)
- *Appraisers and technical staff*—private offices or at least partitioned, quiet work areas of 50 to 100 square feet (5 to 10 square meters), not including aisle and file space, with a desk and chair
- *Support staff*—adequate workspace, open or partitioned, to promote intended work functions

In addition, there should be adequate space for:

- File storage and access
- Training and meetings
- Mapping and drafting
- Public service areas
- Printing and photocopy equipment
- Library facilities

6.3 DATA PROCESSING SUPPORT

Mass appraisal requires considerable data processing support.

6.3.1 Hardware

The hardware should be powerful enough to support applications of the cost, sales comparison, and income approaches, as well as data maintenance and other routine operations. Data downloading, mass calculations, GIS applications, and Web support tend to be the most computer-intensive operations. Processing speed and efficiency requirements should be established before hardware acquisition. Computer equipment can be purchased, leased, rented, or shared with other jurisdictions. If the purchase option is chosen, the equipment should be easy to upgrade to take advantage of technological developments without purchasing an entirely new system.

6.3.2 Software

Mass appraisal software can be developed internally, adapted from software developed by other public agencies, or purchased (in whole or in part) from private vendors. (Inevitably there will be some tailoring needed to adapt externally developed software to the requirements of the user's environment.) Each alternative has advantages and disadvantages. The software should be designed so that it can be easily modified; it should also be well documented, at both the appraiser/user and programmer levels.

Mass appraisal software works in conjunction with various general-purpose software, typically including word processing, spreadsheet, statistical, and GIS programs. These programs and applications must be able to share data and work together cohesively.

Security measures should exist to prevent unauthorized use and to provide backup in the event of accidental loss or destruction of data.

6.3.2.1 Custom Software

Custom software is designed to perform specific tasks, identified by the jurisdiction, and can be specifically tailored to the user's requirements. The data screens and processing logic can often be customized to reflect actual or desired practices, and the prompts and help information can be tailored to reflect local terminology and convention.

After completing the purchase or license requirements, the jurisdiction should retain access to the program source code, so other programmers are able to modify the program to reflect changing requirements.

The major disadvantages of custom software are the time and expense of writing, testing, and updating. Particular attention must be paid to ensuring that user requirements are clearly conveyed to programmers and reflected in the end product, which should not be accepted until proper testing has been completed. Future modifications to programs, even those of a minor nature, can involve system administrator approval and can be a time-consuming, costly, and rigorous job. See the *Standard on Contracting for Assessment Services* (IAAO 2019).

6.3.2.2 Generic Software

An alternative to custom software is generic software, of which there are two major types: vertical software, which is written for a specific industry, and horizontal software, which is written for particular applications regardless of industry. Examples of the latter include database, spreadsheet, word processing, and statistical software. Although the actual instruction code within these programs cannot be modified, they typically permit the user to create a variety of customized templates, files, and documents that can be processed. These are often referred to as commercial off-the-shelf software (COTS) packages.

Generic vertical software usually requires modification to fit a jurisdiction's specific needs. In considering generic soft- ware, the assessor should determine:

- System requirements
- The extent to which the software meets the agency's needs
- A timetable for implementation
- How modifications will be accomplished
- The level of vendor support
- Whether the source code can be obtained

(See the *Standard on Contracting for Assessment Services* [IAAO 2019].)

Horizontal generic software is more flexible, permitting the user to define file structures, relational table layout, input and output procedures, including form or format, and reports. Assessment offices with expertise in such software (which does not imply a knowledge of programming) can adapt it for:

- Property (data) file maintenance
- Market research and analysis
- Valuation modeling and processing
- Many other aspects of assessment operations

Horizontal generic software is inexpensive and flexible. However, it requires considerable customization to adapt it to local requirements. Provisions should be made for a sustainable process that is not overly dependent on a single person or resource.

6.4 CONTRACTING FOR APPRAISAL SERVICES

Reappraisal contracts can include mapping, data collection, data processing, and other services, as well as valuation. They offer the potential of acquiring professional skills and resources quickly. These skills and resources often are not available internally. Contracting for these services not only can allow the jurisdiction to maintain a modest staff and to budget for reappraisal on a periodic basis, but also makes the assessor less likely to develop in-house expertise. See the *Standard on Contracting for Assessment Services* (IAAO 2019).

6.5 BENEFIT-COST CONSIDERATIONS

6.5.1 Overview

The object of mass appraisal is to produce equitable valuations at low costs. Improvements in equity often require increased expenditures.

Benefit-cost analysis in mass appraisal involves two major issues: **policy** and **administration**.

6.5.2 Policy Issues

An assessment jurisdiction requires a certain expenditure level simply to inventory, list, and value properties. Beyond that point, additional expenditures make possible rapid improvements in equity initially, but marginal improvements in equity diminish as expenditures increase. At a minimum, jurisdictions should budget to meet statutory requirements and the performance standards contained in the *Standard on Ratio Studies* (IAAO 2013) and summarized in Section 5.2 of this Standard.

6.5.3 Administrative Issues

Maximizing equity per dollar of expenditure is the primary responsibility of assessment administration. To maximize productivity, the assessor and managerial staff must effectively plan, budget, organize, and control operations and provide leadership. This must be accomplished within the office's legal, fiscal, economic, and social environment and constraints (Eckert, Gloudemans, and Kenyon 1990, chapter 16).

7. REFERENCE MATERIALS

Reference materials are needed in an assessment office to promote compliance with laws and regulations, uniformity in operations and procedures, and adherence to generally accepted assessment principles and practices.

7.1 STANDARDS OF PRACTICE

The standards of practice may incorporate or be contained in laws, regulations, policy memoranda, procedural manuals, appraisal manuals and schedules, standard treatises on property appraisal and taxation. Written standards of practice should address areas such as personal conduct, collection of property data, coding of information for data processing. The amount of detail will vary with the nature of the operation and the size of the office.

7.2 PROFESSIONAL LIBRARY

Every assessment office should have access to a comprehensive professional library that contains the information staff needs. A resource library may be digital or physical and should include the following:

- Property tax laws and regulations
- IAAO standards
- Historical resources
- Current periodicals
- Manuals and schedules
- Equipment manuals and software documentation

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1. ASSESSMENT STANDARDS OF THE INTERNATIONAL ASSOCIATION OF ASSESSING OFFICERS

Guide to Assessment Standards

Standard on Assessment Appeal

Standard on Automated Valuation Models

Standard on Contracting for Assessment Services

Standard on Digital Cadastral Maps and Parcel Identifiers

Standard on Manual Cadastral Maps and Parcel Identifiers

Standard on Mass Appraisal of Real Property

Standard on Oversight Agency Responsibilities

Standard on Professional Development

Standard on Property Tax Policy

Standard on Public Relations

Standard on Ratio Studies

Standard on Valuation of Personal Property

Standard on Valuation of Property Affected by Environmental Contamination

Standard on Verification and Adjustment of Sales

To download the current approved version of any of the standards listed above, go to: IAAO Technical Standards

IAAO TECHNICAL STANDARDS

International Association of Assessing Officers (IAAO) maintains technical standards that reflect the official position of IAAO on various topics related to property tax administration, property tax policy, and valuation of property including mass appraisal and related disciplines. These standards are adopted by the IAAO Executive Board.

IAAO assessment standards represent a consensus in the assessing profession. The objective of the IAAO standards is to provide a systematic means by which assessing officers can improve and standardize the operation of their offices. The IAAO standards are advisory in nature and the use of, or compliance with, these standards is purely voluntary.

IAAO technical standards are intended to guide property tax assessment officials, tax policy analysts, and administrators. Similar issues arise in any nation's property tax systems. IAAO standards can provide guidance internationally. However, certain sections of these standards apply primarily to the United States and Canada.

COMPLETE LIST OF IAAO TECHNICAL STANDARDS

Standard on Assessment Appeal
Standard on Automated Valuation Models (AVMs)
Standard on Communications and Outreach
Standard on Contracting for Assessment Services
Standard on Digital Cadastral Maps and Parcel Identifiers
Standard on Manual Cadastral Maps and Parcel Identifiers
Standard on Mass Appraisal of Real Property
Standard on Oversight Agency Responsibilities
Standard on Professional Development
Standard on Property Tax Policy
Standard on Ratio Studies
Standard on Valuation of Personal Property
Standard on the Valuation of Properties Affected by Environmental Contamination
Standard on Verification and Adjustment of Sales

Residential Valuation Tables

300 Residential Control Table

Setting	Value
ASSESSMENT YR (1)	2027
%TAXABLE (2)	1
COUNTY NAME (3)	ALLEGHANY COUNTY, NC
TABLE LEVEL (4)	5
LOCAL MODFYR (5)	1

301 Residential Dwelling Price Schedule

Area	Story Height	Frame Base	Masonry Base	No Heating	Air Con
0	1	0	0	0	0
0	1.5	0	0	0	0
0	1.75	0	0	0	0
0	2	0	0	0	0
0	2.5	0	0	0	0
0	2.75	0	0	0	0
0	3	0	0	0	0
300	1	102,117.89	108,240.09	-2,214.18	2,154.16
300	1.5	137,859.15	146,121.91	-2,855.12	2,756.07
300	1.75	147,638.62	156,489.79	-3,099.85	2,971.66
300	2	151,134.47	160,195.33	-3,274.65	3,181.42
300	2.5	163,389.73	173,181.93	-3,903.95	4,119.54
300	2.75	164,662.88	174,538.11	-4,137.02	3,834.02
300	3	173,602.62	184,009.26	-4,137.02	3,834.02
400	1	114,691.01	121,567.00	-2,486.80	2,419.39
400	1.5	154,832.86	164,112.96	-3,206.66	3,095.41
400	1.75	165,816.42	175,757.38	-3,481.51	3,337.54
400	2	169,742.69	179,919.16	-3,677.84	3,573.13
400	2.5	183,506.86	194,504.71	-4,384.61	4,626.75
400	2.75	184,936.76	196,027.87	-4,646.38	4,306.08
400	3	194,977.20	206,665.14	-4,646.38	4,306.08
500	1	127,264.13	134,893.91	-2,759.41	2,684.62
500	1.5	171,806.58	182,104.02	-3,558.19	3,434.74
500	1.75	183,994.21	195,024.97	-3,863.18	3,703.42
500	2	188,350.91	199,642.98	-4,081.03	3,964.84
500	2.5	203,623.99	215,827.49	-4,865.28	5,133.96
500	2.75	205,210.65	217,517.63	-5,155.75	4,778.14
500	3	216,351.78	229,321.02	-5,155.75	4,778.14
600	1	139,831.82	148,215.06	-3,031.91	2,949.73
600	1.5	188,772.95	200,087.29	-3,909.57	3,773.93
600	1.75	202,164.15	214,284.23	-4,244.68	4,069.15
600	2	206,951.09	219,358.28	-4,484.04	4,356.38
600	2.5	223,732.42	237,141.06	-5,345.74	5,640.95
600	2.75	225,475.77	238,998.10	-5,664.89	5,250.00

Area	Story Height	Frame Base	Masonry Base	No Heating	Air Con
600	3	237,717.12	251,967.11	-5,664.89	5,250.00
700	1	152,404.95	161,541.97	-3,304.53	3,214.96
700	1.5	205,746.67	218,078.35	-4,261.10	4,113.27
700	1.75	220,341.95	233,551.81	-4,626.34	4,435.03
700	2	225,559.31	239,082.11	-4,887.23	4,748.09
700	2.5	243,849.55	258,463.84	-5,826.41	6,148.17
700	2.75	245,749.66	260,487.87	-6,174.25	5,722.06
700	3	259,091.70	274,622.99	-6,174.25	5,722.06
800	1	164,972.63	174,863.11	-3,577.03	3,480.07
800	1.5	222,713.04	236,061.63	-4,612.49	4,452.46
800	1.75	238,511.89	252,811.07	-5,007.84	4,800.75
800	2	244,159.49	258,797.41	-5,290.24	5,139.63
800	2.5	263,957.99	279,777.40	-6,306.87	6,655.16
800	2.75	266,014.78	281,968.34	-6,683.40	6,193.91
800	3	280,457.04	297,269.08	-6,683.40	6,193.91
900	1	177,545.75	188,190.02	-3,849.65	3,745.30
900	1.5	239,686.76	254,052.68	-4,964.02	4,791.80
900	1.75	256,689.69	272,078.66	-5,389.51	5,166.63
900	2	262,767.71	278,521.23	-5,693.43	5,531.34
900	2.5	284,075.12	301,100.19	-6,787.54	7,162.37
900	2.75	286,288.67	303,458.10	-7,192.76	6,665.97
900	3	301,831.62	319,924.96	-7,192.76	6,665.97
1000	1	190,118.87	201,516.93	-4,122.27	4,010.53
1000	1.5	256,660.47	272,043.74	-5,315.55	5,131.14
1000	1.75	274,867.49	291,346.24	-5,771.17	5,532.51
1000	2	281,375.93	298,245.06	-6,096.61	5,923.04
1000	2.5	304,192.25	322,422.97	-7,268.20	7,669.58
1000	2.75	306,562.55	324,947.86	-7,702.13	7,138.03
1000	3	323,206.20	342,580.85	-7,702.13	7,138.03
1100	1	202,686.56	214,838.08	-4,394.76	4,275.64
1100	1.5	273,626.85	290,027.01	-5,666.93	5,470.33
1100	1.75	293,037.43	310,605.50	-6,152.67	5,898.24
1100	2	299,976.10	317,960.36	-6,499.63	6,314.58
1100	2.5	324,300.69	343,736.53	-7,748.66	8,176.58
1100	2.75	326,827.68	346,428.33	-8,211.27	7,609.88
1100	3	344,571.54	365,226.93	-8,211.27	7,609.88
1200	1	215,259.68	228,164.99	-4,667.38	4,540.87
1200	1.5	290,600.57	308,018.07	-6,018.47	5,809.66
1200	1.75	311,215.23	329,873.09	-6,534.34	6,264.12
1200	2	318,584.32	337,684.19	-6,902.81	6,706.29
1200	2.5	344,417.82	365,059.32	-8,229.33	8,683.79
1200	2.75	347,101.56	367,918.09	-8,720.64	8,081.94
1200	3	365,946.12	387,882.82	-8,720.64	8,081.94
1300	1	227,832.80	241,491.90	-4,940.00	4,806.10
1300	1.5	307,574.28	326,009.13	-6,370.00	6,149.00
1300	1.75	329,393.03	349,140.68	-6,916.00	6,630.00

Area	Story Height	Frame Base	Masonry Base	No Heating	Air Con
1300	2	337,192.54	357,408.01	-7,306.00	7,098.00
1300	2.5	364,534.95	386,382.10	-8,710.00	9,191.00
1300	2.75	367,375.45	389,407.85	-9,230.00	8,554.00
1300	3	387,320.70	410,538.70	-9,230.00	8,554.00
1400	1	240,400.49	254,813.05	-5,212.50	5,071.21
1400	1.5	324,540.66	343,992.40	-6,721.38	6,488.19
1400	1.75	347,562.96	368,399.93	-7,297.50	6,995.72
1400	2	355,792.72	377,123.31	-7,709.01	7,489.54
1400	2.5	384,643.38	407,695.66	-9,190.46	9,697.99
1400	2.75	387,640.57	410,888.32	-9,739.14	9,025.85
1400	3	408,686.04	433,184.79	-9,739.14	9,025.85
1500	1	252,973.61	268,139.96	-5,485.12	5,336.44
1500	1.5	341,514.37	361,983.46	-7,072.91	6,827.53
1500	1.75	365,740.76	387,667.52	-7,679.16	7,361.60
1500	2	374,400.94	396,847.14	-8,112.20	7,881.25
1500	2.5	404,760.52	429,018.45	-9,671.13	10,205.21
1500	2.75	407,914.46	432,378.08	-10,248.51	9,497.91
1500	3	430,060.62	455,840.67	-10,248.51	9,497.91
1600	1	265,546.73	281,466.87	-5,757.73	5,601.67
1600	1.5	358,488.09	379,974.51	-7,424.45	7,166.86
1600	1.75	383,918.56	406,935.11	-8,060.83	7,727.49
1600	2	393,009.16	416,570.96	-8,515.39	8,272.96
1600	2.5	424,877.65	450,341.23	-10,151.80	10,712.42
1600	2.75	428,188.35	453,867.84	-10,757.87	9,969.97
1600	3	451,435.20	478,496.55	-10,757.87	9,969.97
1700	1	278,114.42	294,788.02	-6,030.23	5,866.78
1700	1.5	375,454.46	397,957.79	-7,775.83	7,506.06
1700	1.75	402,088.50	426,194.36	-8,442.33	8,093.21
1700	2	411,609.34	436,286.26	-8,918.40	8,664.49
1700	2.5	444,986.08	471,654.79	-10,632.26	11,219.41
1700	2.75	448,453.47	475,348.31	-11,267.02	10,441.83
1700	3	472,800.54	501,142.64	-11,267.02	10,441.83
1800	1	290,687.54	308,114.92	-6,302.85	6,132.01
1800	1.5	392,428.18	415,948.85	-8,127.36	7,845.39
1800	1.75	420,266.30	445,461.95	-8,823.99	8,459.09
1800	2	430,217.56	456,010.09	-9,321.59	9,056.20
1800	2.5	465,103.21	492,977.58	-11,112.92	11,726.62
1800	2.75	468,727.35	496,838.07	-11,776.38	10,913.89
1800	3	494,175.12	523,798.52	-11,776.38	10,913.89
1900	1	303,255.23	321,436.07	-6,575.35	6,397.13
1900	1.5	409,394.55	433,932.12	-8,478.74	8,184.58
1900	1.75	438,436.24	464,721.21	-9,205.49	8,824.81
1900	2	448,817.73	475,725.39	-9,724.60	9,447.74
1900	2.5	485,211.65	514,291.14	-11,593.38	12,233.62
1900	2.75	488,992.47	518,318.54	-12,285.53	11,385.74
1900	3	515,540.46	546,444.61	-12,285.53	11,385.74

Area	Story Height	Frame Base	Masonry Base	No Heating	Air Con
2000	1	315,828.35	334,762.98	-6,847.97	6,662.35
2000	1.5	426,368.27	451,923.18	-8,830.28	8,523.92
2000	1.75	456,614.04	483,988.79	-9,587.16	9,190.70
2000	2	467,425.95	495,449.21	-10,127.79	9,839.45
2000	2.5	505,328.78	535,613.92	-12,074.05	12,740.83
2000	2.75	509,266.36	539,808.31	-12,794.89	11,857.80
2000	3	536,915.04	569,100.49	-12,794.89	11,857.80
2100	1	328,401.47	348,089.89	-7,120.59	6,927.58
2100	1.5	443,341.98	469,914.23	-9,181.81	8,863.26
2100	1.75	474,791.84	503,256.38	-9,968.82	9,556.58
2100	2	486,034.17	515,173.04	-10,530.97	10,231.16
2100	2.5	525,445.91	556,936.71	-12,554.72	13,248.04
2100	2.75	529,540.25	561,298.07	-13,304.25	12,329.86
2100	3	558,289.62	591,756.38	-13,304.25	12,329.86
2200	1	340,969.16	361,411.04	-7,393.09	7,192.70
2200	1.5	460,308.36	487,897.51	-9,533.19	9,202.45
2200	1.75	492,961.78	522,515.64	-10,350.32	9,922.30
2200	2	504,634.35	534,888.34	-10,933.99	10,622.70
2200	2.5	545,554.35	578,250.27	-13,035.18	13,755.03
2200	2.75	549,805.37	582,778.54	-13,813.40	12,801.71
2200	3	579,654.96	614,402.46	-13,813.40	12,801.71
2300	1	353,542.28	374,737.95	-7,665.70	7,457.92
2300	1.5	477,282.07	505,888.57	-9,884.72	9,541.78
2300	1.75	511,139.57	541,783.23	-10,731.99	10,288.18
2300	2	523,242.57	554,612.17	-11,337.17	11,014.41
2300	2.5	565,671.48	599,573.05	-13,515.85	14,262.24
2300	2.75	570,079.26	604,268.30	-14,322.76	13,273.77
2300	3	601,029.54	637,058.35	-14,322.76	13,273.77
2400	1	366,115.40	388,064.86	-7,938.32	7,723.15
2400	1.5	494,255.79	523,879.62	-10,236.26	9,881.12
2400	1.75	529,317.37	561,050.81	-11,113.65	10,654.06
2400	2	541,850.79	574,335.99	-11,740.36	11,406.11
2400	2.5	585,788.61	620,895.84	-13,996.51	14,769.46
2400	2.75	590,353.14	625,758.06	-14,832.13	13,745.83
2400	3	622,404.12	659,714.23	-14,832.13	13,745.83
2500	1	378,683.09	401,386.01	-8,210.82	7,988.26
2500	1.5	511,222.17	541,862.90	-10,587.64	10,220.31
2500	1.75	547,487.31	580,310.07	-11,495.15	11,019.79
2500	2	560,450.97	594,051.29	-12,143.37	11,797.65
2500	2.5	605,897.04	642,209.40	-14,476.97	15,276.45
2500	2.75	610,618.27	647,238.53	-15,341.27	14,217.69
2500	3	643,769.46	682,360.32	-15,341.27	14,217.69
2600	1	391,256.21	414,712.92	-8,483.44	8,253.49
2600	1.5	528,195.88	559,853.95	-10,939.17	10,559.65
2600	1.75	565,665.11	599,577.66	-11,876.81	11,385.67
2600	2	579,059.19	613,775.12	-12,546.56	12,189.36

Area	Story Height	Frame Base	Masonry Base	No Heating	Air Con
2600	2.5	626,014.17	663,532.18	-14,957.64	15,783.66
2600	2.75	630,892.15	668,728.29	-15,850.64	14,689.74
2600	3	665,144.04	705,016.20	-15,850.64	14,689.74
2700	1	403,829.33	428,039.83	-8,756.06	8,518.72
2700	1.5	545,169.60	577,845.01	-11,290.70	10,898.99
2700	1.75	583,842.91	618,845.24	-12,258.48	11,751.55
2700	2	597,667.41	633,498.94	-12,949.75	12,581.07
2700	2.5	646,131.31	684,854.97	-15,438.31	16,290.87
2700	2.75	651,166.04	690,218.05	-16,360.00	15,161.80
2700	3	686,518.62	727,672.08	-16,360.00	15,161.80
2800	1	416,397.02	441,360.97	-9,028.56	8,783.83
2800	1.5	562,135.97	595,828.29	-11,642.09	11,238.18
2800	1.75	602,012.85	638,104.50	-12,639.98	12,117.27
2800	2	616,267.58	653,214.24	-13,352.76	12,972.61
2800	2.5	666,239.74	706,168.53	-15,918.77	16,797.87
2800	2.75	671,431.16	711,698.52	-16,869.14	15,633.66
2800	3	707,883.96	750,318.17	-16,869.14	15,633.66
2900	1	428,970.14	454,687.88	-9,301.17	9,049.06
2900	1.5	579,109.69	613,819.34	-11,993.62	11,577.51
2900	1.75	620,190.65	657,372.09	-13,021.64	12,483.15
2900	2	634,875.80	672,938.07	-13,755.95	13,364.32
2900	2.5	686,356.87	727,491.31	-16,399.44	17,305.08
2900	2.75	691,705.05	733,188.28	-17,378.51	16,105.72
2900	3	729,258.54	772,974.05	-17,378.51	16,105.72
3000	1	441,543.26	468,014.79	-9,573.79	9,314.29
3000	1.5	596,083.40	631,810.40	-12,345.15	11,916.85
3000	1.75	638,368.44	676,639.68	-13,403.31	12,849.04
3000	2	653,484.03	692,661.89	-14,159.13	13,756.03
3000	2.5	706,474.00	748,814.10	-16,880.11	17,812.29
3000	2.75	711,978.93	754,678.04	-17,887.87	16,577.78
3000	3	750,633.12	795,629.94	-17,887.87	16,577.78
10000	1	1,321,520.48	1,400,748.66	-28,653.96	27,877.28
10000	1.5	1,784,052.64	1,890,982.04	-36,948.52	35,666.64
10000	1.75	1,910,610.00	2,025,154.20	-40,115.54	38,456.63
10000	2	1,955,850.30	2,073,108.02	-42,377.69	41,171.21
10000	2.5	2,114,447.09	2,241,169.21	-50,521.45	53,311.44
10000	2.75	2,130,923.11	2,258,719.76	-53,537.66	49,616.59
10000	3	2,246,613.46	2,381,287.06	-53,537.66	49,616.59

Residential Basements and Attics

Area	Basement 1	Attic 1	Basement 2	Attic 2	Basement 3	Attic 3	Basement 4	Attic 4	Basement 5	Attic 5	Basement 6	Attic 6
0	0	0	0	0	0	0	0	0	0	0	0	0
300	1,290	0	0	8,820	3,852	15,480	7,704	21,710	11,556	27,190	15,408	0
400	1,450	0	0	9,900	4,326	17,390	8,652	24,380	12,978	30,540	17,304	0
500	1,600	0	0	10,990	4,800	19,290	9,600	27,060	14,400	33,890	19,200	0
600	1,760	0	0	12,070	5,274	21,200	10,548	29,730	15,822	37,240	21,096	0
700	1,920	0	0	13,160	5,748	23,110	11,496	32,400	17,244	40,590	22,992	0
800	2,080	0	0	14,240	6,222	25,010	12,444	35,070	18,666	43,930	24,888	0
900	2,240	0	0	15,330	6,696	26,920	13,392	37,750	20,088	47,280	26,784	0
1,000	2,400	0	0	16,410	7,170	28,820	14,340	40,420	21,510	50,630	28,680	0
1,100	2,660	0	0	17,500	7,644	30,730	15,288	43,090	22,932	53,980	30,576	0
1,200	2,700	0	0	18,590	8,118	32,640	16,236	45,770	24,354	57,320	32,472	0
1,300	2,870	0	0	19,670	8,594	34,540	17,188	48,440	25,782	60,670	34,376	0
1,400	3,030	0	0	20,750	9,068	36,450	18,136	51,110	27,204	64,020	36,272	0
1,500	3,190	0	0	21,840	9,542	38,350	19,084	53,780	28,626	67,370	38,168	0
1,600	3,350	0	0	22,930	10,016	40,260	20,032	56,460	30,048	70,710	40,064	0
1,700	3,510	0	0	24,010	10,490	42,160	20,980	59,130	31,470	74,060	41,960	0
1,800	3,670	0	0	25,100	10,964	44,070	21,928	61,800	32,892	77,410	43,856	0
1,900	3,820	0	0	26,180	11,438	45,980	22,876	64,470	34,314	80,760	45,752	0
2,000	3,980	0	0	27,270	11,912	47,880	22,876	67,150	34,314	84,100	45,752	0
2,100	4,140	0	0	28,350	11,912	49,790	23,824	69,820	35,736	87,450	47,648	0
2,200	4,300	0	0	29,440	12,386	51,690	23,824	72,490	35,736	90,800	47,648	0
2,300	4,460	0	0	30,520	12,386	53,600	24,772	75,160	37,158	94,150	49,544	0
2,400	4,620	0	0	31,610	12,860	55,510	25,720	77,840	38,580	97,500	51,440	0
2,500	4,780	0	0	32,690	13,334	57,410	26,668	80,510	40,002	100,840	53,336	0
2,600	4,930	0	0	33,780	13,808	59,320	27,616	83,180	41,424	104,190	55,232	0
2,700	5,090	0	0	34,860	14,282	61,220	28,564	85,860	42,846	107,540	57,128	0
2,800	5,250	0	0	35,950	14,756	63,130	29,512	88,530	44,268	110,890	59,024	0
2,900	5,410	0	0	37,030	15,232	65,040	30,464	91,200	45,696	114,230	60,928	0
3,000	5,570	0	0	38,120	15,706	66,940	31,412	93,870	47,118	117,580	62,824	0
10,000	16,670	0	0	114,090	49,842	200,350	99,684	280,960	149,526	351,910	199,368	0

303 Residential Grade Factors

Grade	Factor
X+	2.5
X	2.25
X-	2
A+	1.87
A	1.62
A-	1.46
B+	1.35
B	1.26
B-	1.17
C+	1.08
C	1
C-	0.92
D+	0.85
D	0.78
D-	0.7
E+	0.6
E	0.5
E-	0.4

304 Living Area Addition

Area	Frame - 1st Floor	Frame - Upper Floor Full	Frame - Upper Floor Half	Masonry - 1st Floor	Masonry - Upper Floor Full	Masonry - Upper Floor Half	Basement Addition	Unfinished Attic	Part Finished Attic	Full Finished Attic	Air Conditioning Add	Basement / Basement	Basement / Crawl	Vaulted Ceiling
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	9.15	7.32	3.66	7.32	9.15	3.66	0	0	0	1.83	0	1.83	0	0
20	14.64	9.15	5.49	14.64	10.98	5.49	1.83	1.83	1.83	3.66	0	1.83	0	0
30	20.13	12.81	7.32	20.13	14.64	7.32	1.83	1.83	3.66	3.66	0	1.83	0	0
40	27.45	18.3	10.98	27.45	20.13	10.98	1.83	1.83	3.66	5.49	0	3.66	1.83	3.66
50	29.28	23.79	12.81	32.94	25.62	12.81	3.66	3.66	3.66	5.49	0	3.66	1.83	3.66
60	34.77	29.28	16.47	38.43	31.11	16.47	3.66	3.66	5.49	7.32	0	5.49	1.83	5.49
70	42.09	34.77	18.3	43.92	36.6	20.13	3.66	3.66	5.49	7.32	1.83	5.49	1.83	7.32
80	47.58	42.09	21.96	51.24	43.92	23.79	5.49	5.49	7.32	9.15	1.83	7.32	3.66	7.32
90	53.07	45.75	23.79	56.73	47.58	25.62	5.49	5.49	7.32	10.98	1.83	7.32	3.66	9.15
100	58.56	49.41	27.45	62.22	51.24	29.28	5.49	5.49	9.15	10.98	1.83	9.15	3.66	9.15
110	65.88	53.07	29.28	69.54	54.9	31.11	7.32	7.32	9.15	12.81	1.83	9.15	3.66	9.15
120	69.54	56.73	31.11	75.03	58.56	32.94	7.32	7.32	10.98	12.81	1.83	10.98	3.66	10.98
130	76.86	60.39	32.94	80.52	62.22	36.6	7.32	7.32	10.98	14.64	1.83	10.98	5.49	10.98
140	82.35	64.05	34.77	86.01	67.71	38.43	9.15	7.32	10.98	14.64	3.66	12.81	5.49	12.81
150	87.84	67.71	36.6	91.5	71.37	40.26	10.98	9.15	12.81	16.47	3.66	12.81	5.49	12.81
160	93.33	71.37	38.43	96.99	75.03	42.09	10.98	9.15	12.81	18.3	3.66	14.64	5.49	14.64
170	98.82	75.03	40.26	102.48	78.69	43.92	12.81	9.15	14.64	18.3	3.66	14.64	5.49	14.64
180	104.31	78.69	42.09	109.8	82.35	45.75	12.81	9.15	14.64	20.13	3.66	14.64	5.49	14.64
190	109.8	82.35	43.92	115.29	86.01	47.58	12.81	10.98	14.64	20.13	3.66	16.47	7.32	16.47
200	117.12	86.01	45.75	120.78	89.67	49.41	14.64	10.98	16.47	21.96	5.49	16.47	7.32	16.47
210	124.44	89.67	49.41	126.27	91.5	51.24	14.64	10.98	16.47	21.96	5.49	18.3	7.32	16.47
220	129.93	93.33	51.24	131.76	96.99	53.07	14.64	12.81	18.3	23.79	5.49	18.3	7.32	18.3
230	137.25	96.99	53.07	137.25	100.65	56.73	16.47	12.81	18.3	25.62	5.49	20.13	7.32	18.3

Area	Frame - 1st Floor	Frame - Upper Floor Full	Frame - Upper Floor Half	Masonry - 1st Floor	Masonry - Upper Floor Full	Masonry - Upper Floor Half	Basement Addition	Unfinished Attic	Part Finished Attic	Full Finished Attic	Air Conditioning Add	Basement / Basement	Basement / Crawl	Vaulted Ceiling
240	142.74	100.65	54.9	142.74	104.31	58.56	16.47	12.81	20.13	25.62	5.49	20.13	7.32	18.3
250	146.4	104.31	56.73	148.23	109.8	60.39	16.47	12.81	20.13	27.45	5.49	20.13	9.15	20.13
260	153.72	107.97	58.56	153.72	113.46	62.22	18.3	14.64	21.96	27.45	5.49	21.96	9.15	20.13
270	161.04	111.63	60.39	159.21	118.95	64.05	18.3	14.64	21.96	29.28	5.49	21.96	9.15	20.13
280	166.53	115.29	64.05	164.7	124.44	67.71	18.3	14.64	21.96	31.11	7.32	23.79	9.15	21.96
290	172.02	118.95	65.88	170.19	128.1	69.54	20.13	16.47	23.79	31.11	7.32	25.62	9.15	21.96
300	177.51	122.61	67.71	175.68	131.76	71.37	20.13	16.47	25.62	32.94	7.32	25.62	10.98	21.96
325	188.49	128.1	73.2	181.17	137.25	76.86	21.96	18.3	27.45	34.77	7.32	27.45	10.98	23.79
350	204.96	135.42	80.52	188.49	142.74	84.18	23.79	20.13	29.28	38.43	9.15	29.28	10.98	25.62
375	219.6	142.74	84.18	195.81	150.06	87.84	23.79	20.13	31.11	40.26	9.15	29.28	12.81	25.62
10,000	5233.8	3513.6	1939.8	5380.2	3952.8	2159.4	658.8	512.4	786.9	1061.4	192.15	759.45	301.95	649.65

305 Residential Porches/Patios/Utility Sheds

Area	FF Open Frame Porch	Upper Open Frame Porch	FF Enclosed Frame Porch	Upper Enclosed Frame Porch	FF Open Brick Porch	Upper Open Brick Porch	FF Enclosed Brick Porch	Upper Enclosed Brick Porch	Brick Terrace	Concrete Patio	Tile Patio	Canopy	Wood Deck	Wood Utility Building	Metal Utility Building	Screened Porch	Breezeway	Sun room
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	8.04	8.04	16.38	16.38	8.04	8.04	16.38	16.38	4.43	1.59	4.43	3.96	3.86	3.03	3.86	11.26	11.26	16.38
40	15.49	15.49	31.57	31.57	15.49	15.49	31.57	31.57	8.86	3.17	8.86	7.64	7.56	6.06	7.56	21.7	21.7	31.57
60	22.8	22.8	46.46	46.46	22.8	22.8	46.46	46.46	13.02	4.66	13.02	11.24	11.12	8.9	11.34	31.94	31.94	46.46
80	28.82	28.92	60.75	60.75	29.82	29.82	60.75	60.75	17.36	6.22	17.36	14.7	14.54	11.87	15.12	41.77	41.77	60.75
100	36.54	36.54	74.46	74.46	36.54	36.54	74.46	74.46	21.26	7.61	21.26	18.01	17.81	14.54	18.51	51.19	51.19	74.46
120	43.85	43.85	89.35	89.35	43.85	43.85	89.35	89.35	25.51	9.13	25.51	21.61	21.37	17.45	22.21	61.43	61.43	89.35
140	51.16	51.16	104.24	104.24	51.16	51.16	104.24	104.24	29.76	10.65	29.76	25.21	24.44	20.36	25.91	71.67	71.67	104.24
160	58.46	58.46	119.14	119.14	58.46	58.46	119.14	119.14	33.28	11.92	33.28	28.82	27.94	22.88	29.62	81.9	81.9	119.14
180	65.77	65.77	134.03	134.03	65.77	65.77	134.03	134.03	37.44	13.41	37.44	32.42	32.06	25.74	32.76	92.14	92.14	134.03
200	71.62	71.62	148.92	148.92	71.62	71.62	148.92	148.92	41.6	14.9	41.6	36.02	35.62	28.6	36.4	102.38	102.38	148.92
220	78.78	78.78	160.53	160.53	78.78	78.78	160.53	160.53	45.76	16.39	45.76	38.81	38.41	31.46	40.04	110.35	110.35	160.53
240	85.94	85.94	175.13	175.13	85.94	85.94	175.13	175.13	49.92	17.88	49.92	42.34	41.9	34.32	43.68	120.38	120.38	175.13
260	93.11	93.11	189.72	189.72	93.11	93.11	189.72	189.72	54.08	19.37	54.08	45.86	45.4	37.18	47.32	130.42	130.42	189.72
280	100.27	100.27	204.32	204.32	100.27	100.27	204.32	204.32	58.24	20.86	58.24	49.39	48.89	40.04	50.96	140.45	140.45	204.32
300	105.21	105.21	218.91	218.91	105.21	105.21	218.91	218.91	62.4	21.63	62.4	52.92	52.38	42.9	54.6	150.48	150.48	218.91
325	113.98	113.98	227.47	227.47	113.98	113.98	227.47	227.47	64.77	23.43	64.77	56.19	55.61	44.3	56.42	159.71	159.71	227.47
350	122.75	122.75	244.97	244.97	122.75	122.75	244.97	244.97	69.76	25.24	69.76	60.51	59.89	47.71	60.76	171.99	171.99	244.97
375	131.51	131.51	262.46	262.46	131.51	131.51	262.46	262.46	74.74	27.04	74.74	64.83	64.16	51.11	65.1	184.28	184.28	262.46
10,000	3288	3288	6701.4	6701.4	3288	3288	6701.4	6701.4	1993	721	1993	1620	1602.9	1363	1736	4607	4607	6701.4

306 Residential Attached Garage

Area	Frame Garage	Brick Garage	Carport
0	0	0	0
160	83.52	95.7	52.32
180	93.96	107.66	58.86
200	104.4	119.62	65.4
220	114.84	131.58	71.94
240	125.28	143.54	78.48
260	135.72	155.51	85.02
280	146.16	167.47	91.56
300	156.6	179.43	98.1
320	167.04	191.39	104.64
340	177.48	203.35	111.18
360	187.92	215.32	117.72
380	198.36	227.28	124.26
400	208.8	239.24	130.8
425	217.52	249.22	136.17
450	230.31	263.88	144.18
475	243.11	278.54	152.19
500	255.9	293.2	160.2
525	268.7	307.86	168.21
550	281.49	322.52	176.22
575	288.13	330.05	180.49
600	300.66	344.4	188.34
650	325.72	373.1	204.04
10,000	4698	5382	2940

307 Percent Good Table Dwelling

Age	Condition 1	Condition 2	Condition 3	Condition 4	Condition 5	Condition 6	Condition 7	Condition 8
0	100%	100%	100%	100%	100%	100%	100%	90%
1	100%	100%	100%	100%	99%	98%	97%	88%
2	100%	100%	100%	99%	98%	97%	96%	86%
3	100%	99%	99%	98%	96%	95%	94%	84%
4	100%	99%	99%	97%	94%	93%	93%	82%
5	100%	98%	97%	96%	93%	90%	89%	80%
6	99%	98%	97%	96%	93%	89%	86%	77%
7	99%	97%	96%	95%	92%	87%	84%	74%
8	98%	97%	96%	94%	91%	85%	81%	71%
9	98%	96%	95%	94%	90%	83%	79%	69%
10	97%	96%	95%	93%	87%	80%	76%	69%
11	97%	95%	94%	92%	86%	77%	74%	69%
12	97%	95%	93%	91%	85%	75%	72%	69%
13	96%	94%	92%	91%	84%	73%	70%	67%
14	96%	94%	92%	90%	83%	71%	68%	65%
15	96%	94%	92%	89%	82%	70%	67%	59%
16	95%	93%	91%	88%	81%	69%	65%	59%
17	95%	93%	91%	87%	80%	67%	63%	58%
18	95%	92%	90%	87%	80%	66%	62%	57%
19	94%	92%	90%	86%	79%	65%	61%	55%
20	94%	91%	89%	85%	78%	65%	59%	50%
21	93%	90%	89%	84%	77%	64%	58%	50%
22	92%	90%	88%	83%	76%	64%	57%	49%
23	91%	89%	88%	83%	75%	63%	56%	49%
24	90%	89%	87%	82%	74%	62%	55%	47%
25	90%	88%	86%	81%	73%	61%	54%	45%
26	89%	87%	85%	81%	72%	60%	53%	45%
27	89%	87%	85%	80%	71%	60%	52%	44%
28	88%	86%	84%	79%	70%	59%	52%	43%
29	88%	86%	83%	78%	69%	58%	51%	42%
30	87%	85%	82%	77%	68%	57%	50%	41%
31	87%	84%	81%	76%	67%	56%	49%	39%
32	86%	83%	80%	75%	66%	55%	48%	37%
33	86%	83%	80%	74%	65%	54%	47%	36%
34	85%	82%	79%	73%	64%	53%	45%	35%
35	85%	81%	78%	72%	63%	52%	44%	33%
36	84%	80%	78%	71%	62%	50%	43%	32%

Age	Condition 1	Condition 2	Condition 3	Condition 4	Condition 5	Condition 6	Condition 7	Condition 8
37	84%	80%	77%	70%	61%	49%	42%	31%
38	83%	79%	76%	69%	60%	48%	41%	30%
39	83%	79%	75%	68%	59%	47%	40%	28%
40	82%	78%	74%	68%	58%	46%	39%	27%
41	82%	78%	74%	67%	57%	45%	37%	25%
42	81%	77%	73%	66%	56%	44%	36%	24%
43	81%	76%	72%	66%	55%	42%	34%	23%
44	80%	76%	72%	65%	54%	41%	33%	22%
45	80%	75%	71%	64%	53%	40%	32%	21%
46	79%	75%	70%	63%	52%	38%	31%	20%
47	79%	74%	70%	62%	51%	37%	30%	19%
48	78%	74%	69%	61%	50%	36%	29%	18%
49	78%	73%	68%	61%	49%	36%	28%	17%
50	77%	73%	68%	60%	48%	35%	26%	16%
51	77%	72%	67%	59%	47%	34%	25%	15%
52	76%	72%	66%	58%	47%	34%	24%	15%
53	76%	71%	66%	58%	46%	33%	22%	14%
54	75%	71%	65%	57%	45%	32%	21%	13%
55	75%	70%	64%	56%	44%	31%	20%	12%
56	74%	70%	64%	55%	43%	30%	19%	11%
57	74%	69%	63%	55%	42%	30%	18%	10%
62	73%	67%	62%	54%	41%	29%	17%	10%
67	72%	66%	61%	51%	39%	28%	16%	9%
72	71%	65%	59%	48%	36%	26%	15%	8%
77	71%	64%	57%	45%	32%	25%	15%	7%
82	70%	63%	54%	40%	28%	23%	14%	6%
87	68%	62%	53%	36%	26%	21%	12%	5%
92	65%	60%	50%	32%	22%	17%	10%	5%
97	62%	59%	46%	29%	18%	14%	10%	5%

308 Set Condition Types

Condition	Code	Condition Value
Excellent	EX	1
Very Good	VG	2
Good	GD	3
Average	AV	4
Fair	FR	5
Poor	PR	6
Very Poor	VP	7
Unsound	UN	8

309 Residential Other Features

Code	Description	Value
BSMT GAR 1	Basement Garage – 1 Car	3,955.90
BSMT GAR 2	Basement Garage – 2 Car	5,026.32
FBLA	Finished Basement	77.26
MAS TRIM	Masonry Trim	31.65
PRE FAB FP	Prefab Fireplace	6,282.90
REC ROOM	Recreation Room	58.18
UNFIN AREA	Unfinished Area	58.18
WB FP OPEN	Wood Fireplace Opening	10,820.55
WB FP STCK	Wood Fireplace Extra Stack	5,352.10
WD CENTRAL	Wood Central	8,470.28
XTRA FIXTR	Extra Fixtures	1,861.60
XTRA KITHN	Extra Kitchens	8,270.16
Z UNHEATED	Unheated Area	**-2.33**

OUTBUILDING AND YARD ITEMS VALIDATION TABLES

401 OBY Pricing Setup

OBY CODE	COST METHOD	VALUE 1	VALUE 2	VALUE 3	GRADE FACTOR	CONDITION	SPECIAL CODE
AB1	Cost Method 1	0	0	21.64	2	Condition 1	2
AB2	Cost Method 1	0	0	20.02	2	Condition 1	2
AB3	Cost Method 1	0	0	34.63	2	Condition 1	0
AB4	Cost Method 1	0	0	18.47	2	Condition 1	0
AC1C	Cost Method 1	0	0	7.69	2	Condition 1	0
AC1R	Cost Method 1	0	0	7.69	2	Condition 1	0
AC7	Cost Method 3	0	0	35.09	2	Condition 1	0
AD1	Cost Method 1	0	0	39.63	2	Condition 1	3
AD2	Cost Method 1	0	0	15.39	2	Condition 1	0
AG1		9292.92	0.416	0	2	Condition 1	0
AH1	Cost Method 1	0	99	12.05	2	Condition 1	5
AH2	Cost Method 1	0	137.7	20.46	2	Condition 1	5
AH5	Cost Method 1	0	163.4	22.55	2	Condition 1	5
AL1	Cost Method 1	0	0	6.92	2	Condition 1	0
AL1C		0		6.92		Condition 1	
AM1	Cost Method 1	0	0	21.54	2	Condition 1	6
AM3	Cost Method 1	0	0	22.66	2	Condition 1	6
AM5	Cost Method 1	0	0	40.33	2	Condition 1	6
AO1	Cost Method 1	0	0	14.73	2	Condition 1	7
AO2	Cost Method 1	0	0	19.09	2	Condition 1	7
AO3	Cost Method 1	0	0	12.83	2	Condition 1	7
AP1	Cost Method 1	0	0	7.31	2	Condition 1	8
AP1C		0		7.31		Condition 1	
AP2	Cost Method 1	0	0	7.38	2	Condition 1	8
AP2C		0		7.38		Condition 1	
AP3	Cost Method 1	0	0	8.08	2	Condition 1	3
AP3C		0		8.08		Condition 1	
AP4	Cost Method 1	0	0	7.5	2	Condition 1	8
AP4C		0		7.5		Condition 1	
AP5	Cost Method 1	0	0	5.06	2	Condition 1	8
AP5C		0		5.06		Condition 1	
AP6	Cost Method 1	0	0	7.35	2	Condition 1	8
AP6C		0		7.35		Condition 1	
AQ1	Cost Method 1	0	0	22.7	2	Condition 1	8
AR1		0	0.416	11.92	2	Condition 1	0

OBY CODE	COST METHOD	VALUE 1	VALUE 2	VALUE 3	GRADE FACTOR	CONDITION	SPECIAL CODE
AS1	Cost Method 1	0	9.5	15.39	2	Condition 1	0
AS2	Cost Method 3	1539.2	0	0	2	Condition 1	0
AS4	Cost Method 3	0	29.55	28.47	2	Condition 1	0
AS5	Cost Method 3	0	12.05	9.42	2	Condition 1	0
AS6	Cost Method 3	0	15.052	11.89	2	Condition 1	0
AT1	Cost Method 1	0	0	4.81	2	Condition 1	0
AT2	Cost Method 1	0	0	1.92	2	Condition 1	0
AX1	Cost Method 1	0	0	30.78	2	Condition 1	0
AX1C		0		30.78		Condition 1	
BD1	Cost Method 1	0	0	17.89	2	Condition 1	2
BH1	Cost Method 1	96200	0	0	2		2
BH2	Cost Method 1	50000	0	0	2		2
BK1	Cost Method 1	0	0	426.55	2	Condition 1	2
CBH		0		0		Condition 1	
CC3		0		0		Condition 1	
CG1		0		0		Condition 1	
CG2		0		0		Condition 1	
CI1C	Cost Method 1	0	0	4.23	2	Condition 1	0
CI1R	Cost Method 1	0	0	4.23	2	Condition 1	0
CI2C	Cost Method 1	0	0	7.5	2	Condition 1	0
CI2R	Cost Method 1	0	0	7.5	2	Condition 1	0
CI3C	Cost Method 1	0	0	7.69	2	Condition 1	0
CI3R	Cost Method 1	0	0	7.69	2	Condition 1	0
CP5		0		12.89		Condition 1	
CP5R		0		12.89		Condition 1	
CP6		0		21.54		Condition 1	
CP6R		0		18.64		Condition 1	
CP7		0		34.63		Condition 1	
CP8		0		57.72		Condition 1	
CP9		0		76.96		Condition 1	
CS6		0		38.48		Condition 1	
DFP		3655.6	0	0	2	Condition 1	0
DFPC		2886		0		Condition 1	
EC1		0		166.61		Condition 1	
ED1		0		146.6		Condition 1	
EE1		0		212.79		Condition 1	
EP1C	Cost Method 1	0	0	41.48	2	Condition 1	0
EP1R	Cost Method 1	0	0	41.48	2	Condition 1	0

OBY CODE	COST METHOD	VALUE 1	VALUE 2	VALUE 3	GRADE FACTOR	CONDITION	SPECIAL CODE
EP2C	Cost Method 1	0	0	47.25	2	Condition 1	0
EP2R	Cost Method 1	0	0	47.25	2	Condition 1	0
FN1		0		6.73		Condition 1	
FN3		0		4.81		Condition 1	
FN5		0		6.54		Condition 1	
GB1	Cost Method 1	0		25.01	2	Condition 1	0
GB1C		0		25.01		Condition 1	
GC2		330697.1		0		Condition 1	
GC5		166426		0		Condition 1	
GC6		90428		0		Condition 1	
GC7		21548.8		0		Condition 1	
GH1C	Cost Method 1	0	148.88	15.39	2	Condition 1	0
GH1R	Cost Method 1	0	148.88	15.39	2	Condition 1	0
GH2C	Cost Method 1	0	214.21	13.46	2	Condition 1	0
GH2R	Cost Method 1	0	214.21	13.46	2	Condition 1	0
GH3C	Cost Method 1	0	20	1.88	2	Condition 1	0
GH3R	Cost Method 1	0	20	1.88	2	Condition 1	0
KF1		0		504.47		Condition 1	
LT3		2424.24		0		Condition 1	
LT3R		0		2424.24		Condition 1	
LT5		2732.08		0		Condition 1	
MH5		8677.24		0		Condition 1	
MHA	Cost Method 1	0	0	65.41	2	Condition 1	0
MHE	Cost Method 1	0	0	61.56	2	Condition 1	0
MHF	Cost Method 1	0	0	30.78	2	Condition 1	0
MHH	Cost Method 1	7311.2	0	0	2		0
MHR	Cost Method 1	0	0	3.3	2	Condition 1	0
MSC	Cost Method 1	0	0	0	0	Condition 1	0
ODK1		9318.4		0		Condition 1	
ODK2		19968		0		Condition 1	
OP1	Cost Method 1	0	0	26.51	2	Condition 1	0
OP1C		0		26.51		Condition 1	
OP2	Cost Method 1	0	0	32.28	2	Condition 1	0
OP2C		0		32.28		Condition 1	
PA1		0		4.81		Condition 1	
PA2		0		5.77		Condition 1	
PB1		1924		0		Condition 1	
PC1		0		9.23		Condition 1	

OBY CODE	COST METHOD	VALUE 1	VALUE 2	VALUE 3	GRADE FACTOR	CONDITION	SPECIAL CODE
PC2		0		10		Condition 1	
PC3		0		13.85		Condition 1	
RB1	Cost Method 1	0	0	21.74	2	Condition 1	0
RB2	Cost Method 1	0	0	28.69	2	Condition 1	0
RBH	Cost Method 1	0	0	71.95	2	Condition 1	0
RBHC		0		71.95		Condition 1	
RC1C	Cost Method 1	0	0	14.62	2	Condition 1	0
RC1R	Cost Method 1	0	0	14.62	2	Condition 1	0
RC2	Cost Method 1	0	0	15.77	2	Condition 1	0
RC3	Cost Method 1	0	0	5.77	2	Condition 1	0
RC3C		0		5.77		Condition 1	
RD1	Cost Method 1	0	0	17.31	2	Condition 1	0
RD2	Cost Method 1	0	0	57.72	2	Condition 1	0
RD3	Cost Method 1	0	0	96.2	2	Condition 1	0
REL		17100.51	0	0	1	Condition 1	0
RFO	Cost Method 1	0	0	92.35	2	Condition 1	0
RG1	Cost Method 1	0	0	41.2	2	Condition 1	0
RG1C		0		41.2		Condition 1	
RG2	Cost Method 1	0	0	51.58	2	Condition 1	0
RG3	Cost Method 1	0	0	59.9	2	Condition 1	0
RG4C	Cost Method 1	0	0	73.22	2	Condition 1	0
RG4R	Cost Method 1	0	0	73.22	2	Condition 1	0
RG5C	Cost Method 1	0	0	89.86	2	Condition 1	0
RG5R	Cost Method 1	0	0	89.86	2	Condition 1	0
RG6	Cost Method 1	0	0	133.12	2	Condition 1	0
RG7	Cost Method 1	0	0	99.84	2	Condition 1	0
RK1	Cost Method 1	0	0	7.42	2	Condition 1	0
RL1	Cost Method 1	0	0	107.74	2	Condition 1	0
RM1	Cost Method 1	0	0	70	2	Condition 2	9
RM2	Cost Method 1	0	0	80	2	Condition 2	9
RO1	Cost Method 1	0	0	20.74	2	Condition 1	0
RP2	Cost Method 1	0	0	22.45	2	Condition 1	1
RP3	Cost Method 1	0	2.88	28.98	2	Condition 1	1
RP4	Cost Method 1	0	0	23.82	2	Condition 1	1
RP5	Cost Method 1	0	0	56.86	2	Condition 1	1
RR1C	Cost Method 1	0	0	92.35	2	Condition 1	0
RR1R	Cost Method 1	0	0	92.35	2	Condition 1	0
RS1C	Cost Method 1	0	0	20.74	2	Condition 1	0

OBY CODE	COST METHOD	VALUE 1	VALUE 2	VALUE 3	GRADE FACTOR	CONDITION	SPECIAL CODE
RS1R	Cost Method 1	0	0	20.74	2	Condition 1	0
RS2C	Cost Method 1	0	0	20.74	2	Condition 1	0
RS2R	Cost Method 1	0	0	11.54	2	Condition 1	0
RS3C	Cost Method 1	0	0	28.86	2	Condition 1	0
RS3R	Cost Method 1	0	0	28.86	2	Condition 1	0
RS4	Cost Method 1	0	0	28.86	2	Condition 1	0
RS6	Cost Method 1	0	0	37.71	2	Condition 1	0
RS6C		0		37.71		Condition 1	
RV1		6541.6	0	0	2	Condition 1	0
RV2		3848	0	0	2	Condition 1	0
RV3		1539.2	0	0	2	Condition 1	0
RV4		769.6	0	0	2	Condition 1	0
SC1		0		156.22		Condition 1	
SH1		0		27.12		Condition 1	
SH1R		0		27.12		Condition 1	
SH2		0		33.28		Condition 1	
SH3		0		47.52		Condition 1	
SH3R		0		47.52		Condition 1	
SH4		0		38.86		Condition 1	
SH5		0		16.73		Condition 1	
SH6		0		15.19		Condition 1	
SS1		0		3.84		Condition 1	
TC1C		48253.92	0	0	2	Condition 1	0
TC1R		48253.92	0	0	2	Condition 1	0
TC2C		57989.36	0	0	2	Condition 1	0
TC2R		57989.36	0	0	2	Condition 1	0
TC3C		29286.4	0	0	2	Condition 1	0
TC3R		29286.4	0	0	2	Condition 1	0
TC4		96200		0		Condition 1	
TN1		0		4.07		Condition 1	
TN2		0		0.69		Condition 1	
TN5C		0		0		Condition 1	
TR1C		0		15.39		Condition 1	
TR2C		0		0		Condition 1	
TT1C		0		0		Condition 1	
WD1	Cost Method 1	0	0	15.77	2	Condition 1	0
WD1C		0		15.77		Condition 1	

402 OBY Special Mod Codes

Code	Cost Method	Value
FB1	Cost Method 1	499.2
FB2	Cost Method 1	615.68
FD1	Cost Method 2	82.2
FD2	Cost Method 2	100.67
FD3	Cost Method 2	52.58
FD4	Cost Method 2	228.8
FD5	Cost Method 2	181.21
FD6	Cost Method 3	1.5
FF1	Cost Method 2	91.52
FF2	Cost Method 2	228.8
FF3	Cost Method 2	181.21
FF4	Cost Method 2	33.11
FF5	Cost Method 1	1,048.32
FF6	Cost Method 1	665.6
FF7	Cost Method 1	1,297.92
FH1	Cost Method 1	499.2
FM1	Cost Method 1	1,564.16
FM2	Cost Method 1	738.82
FO1	Cost Method 1	815.36
FO2	Cost Method 1	1,231.36
FP1	Cost Method 1	1,048.32
FP2	Cost Method 1	965.12
FP3	Cost Method 1	765.44
FP4	Cost Method 1	1,148.16
FP5	Cost Method 1	732.16
SM1	Cost Method 3	41.6
SM2	Cost Method 3	65.41
SM3	Cost Method 3	25.13
SM4	Cost Method 2	11.98
SM5	Cost Method 3	15.77
SM6	Cost Method 3	64.9
SM7	Cost Method 3	26.51
SM8	Cost Method 3	19.14
SM9	Cost Method 2	65.41
SP1	Cost Method 1	1,064.96
SP2	Cost Method 1	432.64
SP3	Cost Method 1	399.36

403 OBY Grade Types

Grade	Grade Value
A	1.55
B	1.26
C	1
D	0.78
E	0.5

404 OBY Condition Types

Code	Condition Type	Condition
E	1	Excellent
G	2	Good
A	3	Average
F	4	Fair
P	5	Poor
U	6	Unsound

405 OBY Percent Good Tables

Table 1 (OBY's)

Age	Excellent	Good	Average	Fair	Poor	Unsound
0	100	100	100	100	100	100
1	98	98	98	98	98	97
2	96	96	96	96	96	94
3	94	94	94	94	94	89
4	93	92	92	92	91	84
5	91	91	90	90	88	78
6	89	89	89	88	86	73
7	88	87	87	86	83	67
8	87	86	85	84	81	62
9	85	84	84	82	78	57
10	84	83	82	80	76	52
11	83	81	80	78	73	48
12	81	80	79	76	71	44
13	80	78	77	74	68	40
14	79	77	76	72	66	37
15	78	76	74	70	64	34
16	77	74	73	69	61	32
17	76	73	72	67	59	29
18	75	72	70	65	57	27
19	74	71	69	64	55	25
20	73	70	68	62	53	23
21	72	69	66	60	51	22
22	71	67	65	59	49	20
23	70	66	64	57	48	19
24	70	65	63	56	46	18
25	69	64	62	55	44	17
26	68	63	60	53	43	16
27	67	62	59	52	41	15
28	67	61	58	51	40	14
29	66	60	57	49	39	13
30	65	60	56	48	37	12
31	65	59	55	47	36	12
32	64	58	54	46	35	11
33	63	57	53	45	34	11
34	63	56	52	44	33	10
35	62	55	51	42	32	10

Age	Excellent	Good	Average	Fair	Poor	Unsound
36	62	54	51	41	31	9
37	61	54	50	40	30	9
38	60	53	49	40	29	8
39	60	52	48	39	28	8
40	59	51	47	38	27	8
41	59	51	46	37	26	7
42	58	50	46	36	25	7
43	58	49	45	35	25	7
44	57	49	44	34	24	6
45	57	48	43	34	23	6
46	57	47	43	33	22	6
47	56	47	42	32	22	6
48	56	46	41	31	21	5
49	55	46	41	31	21	5
50	55	45	40	30	20	5

Table 2 (RM1/RM2)

Age	Excellent	Good	Average	Fair	Poor	Unsound
0	100	100	100	100	100	100
1	99	99	99	97	95	50
2	98	98	97	94	91	5
3	96	96	96	92	86	5
4	96	96	96	92	86	5
5	95	94	93	86	77	5
6	95	94	92	84	75	5
7	94	94	92	82	73	5
8	94	93	91	81	71	5
9	94	92	91	79	69	5
10	94	92	90	77	67	5
11	94	91	89	76	66	5
12	94	91	88	75	65	5
13	94	90	87	73	63	5
14	94	89	86	72	62	5
15	94	88	85	71	61	5
16	94	88	84	70	60	5
17	94	87	83	69	59	5
18	94	86	82	67	57	5
19	94	86	81	66	56	5

Age	Excellent	Good	Average	Fair	Poor	Unsound
20	94	85	80	65	55	5
21	94	84	79	64	54	5
22	94	83	78	64	54	5
23	94	83	78	64	54	5
24	94	82	77	63	53	5
25	94	81	76	62	52	5
26	93	80	75	62	52	5
27	93	79	74	62	52	5
28	93	79	74	61	51	5
29	93	78	73	60	50	5
30	93	77	72	60	50	5
31	93	76	71	59	49	5
32	93	75	70	58	48	5
33	93	74	69	58	47	5
34	93	73	68	57	46	5
35	92	72	67	56	45	5
36	92	72	66	55	44	5
37	92	71	65	54	43	5
38	92	70	64	54	42	5
39	92	69	63	53	41	5
40	92	68	62	52	40	5
41	92	67	61	51	39	5
42	92	67	60	50	38	5
43	92	66	59	49	36	5
44	92	65	58	48	35	5
45	92	64	58	46	34	5
46	92	64	57	45	33	5
47	92	63	56	44	32	5
48	92	62	55	43	30	5
49	92	62	54	42	29	5
50	92	61	53	41	28	5

COMMERCIAL VALIDATION TABLES

500 Commercial Control Table

Setting	Value
Assessment Year	**2027**
% Taxable	**1**
County Name	**ALLEGHANY COUNTY, NC**
Value Flag Default	**5**
Local Modifier	**1**

501 Commercial Structure Type to Basic Code

Code	DESCRIPTION	EXP LIFE-WD	EXP LIFE FRS	EXP LIFE-FRP	EXP LIFE-LTS	OTHER EXP LF	BASIC CODE
101	101-RESIDENTIAL 1 FAM.	40	40	40	40	0	BasicCode 10
102	102 RESIDENTIAL 2 FAM.	40	40	40	40	0	BasicCode 10
103	103 RESIDENTIAL 3 FAM.	40	40	40	40	0	BasicCode 10
104	104 RESIDENTIAL 4 FAM.	40	50	50	40	0	BasicCode 10
105	105 MIXED RESID/COMM	40	40	40	40	0	BasicCode 10
106	106-COND/(COMMON ELE)	40	40	40	40	0	BasicCode 10
107	107-CONDO (FEE SIMPLE)	40	40	40	40	0	BasicCode 10
201	201-RES ON APART LAND	40	40	40	40	0	BasicCode 10
211	211-APARTMENT - GARDEN	40	40	40	40	0	BasicCode 2
212	212-HIGH RISE APARTMENT	40	50	50	40	0	BasicCode 1
301	301-RES ON COMM LAND	40	50	50	40	0	BasicCode 10
314	314-HOTEL/MOTEL,HIGH RISE	50	50	50	50	0	BasicCode 1
315	315-HOTEL/MOTEL, LOW RISE	30	40	40	30	0	BasicCode 2
316	316-NURSING HOME	40	50	50	40	0	BasicCode 2
318	318 BRDING-ROOMING HOUSE	40	40	40	40	0	BasicCode 10
319	319-MIXED RES/COMM	40	50	50	40	0	BasicCode 3
321	321-RESTAURANT	30	40	40	30	0	BasicCode 3
323	323-FOOD STAND	20	20	20	20	0	BasicCode 3
325	325-FAST FOOD	20	20	20	20	0	BasicCode 9
327	327-BAR/LOUNGE	30	40	40	30	0	BasicCode 3
328	328 NIGHT CLUB/DNR THEAT	30	40	40	30	0	BasicCode 3
331	331-AUTO DEALER/SRV GARAG	30	40	40	30	0	BasicCode 4
332	332-AUTO SERVICE GARAGE	30	40	40	30	0	BasicCode 4
333	333-SERVICE STATION-FULL	20	20	20	20	0	BasicCode 3
334	334-SERVICE STATION-SELF	20	20	20	20	0	BasicCode 3
335	335-TRUCK STOP	30	40	40	30	0	BasicCode 4
336	336-CAR WASH - MANUAL	20	20	20	20	0	BasicCode 7

Code	DESCRIPTION	EXP LIFE-WD	EXP LIFE FRS	EXP LIFE-FRP	EXP LIFE-LTS	OTHER EXP LF	BASIC CODE
337	337-CAR WASH - AUTOMATIC	20	30	30	20	0	BasicCode 4
338	338-PARKING GARAGE/DECK	40	40	40	40	0	BasicCode 4
341	341-REGIONAL SHPMALL/CNT	40	50	50	40	0	BasicCode 3
342	342-COMM SHOPPING CENTER	30	40	40	30	0	BasicCode 3
343	343-NBHD SHOPPING CENTER	30	40	40	30	0	BasicCode 3
344	344-STRIP SHOPPING CNTR	30	40	40	30	0	BasicCode 3
345	345-DISCOUNT DEPART STORE	30	40	40	30	0	BasicCode 3
346	346-DEPARTMENT STORE	40	50	50	40	0	BasicCode 3
347	347-SUPERMARKET	30	40	40	30	0	BasicCode 3
348	348-CONVENIENCE FOOD MARK	30	40	40	30	0	BasicCode 3
349	349-MEDICAL OFFICE BLDG	40	50	50	40	0	BasicCode 5
351	351-BANK	40	60	60	40	0	BasicCode 5
352	352-SAVINGS INSTITUTION	40	50	50	40	0	BasicCode 5
353	353-OFFICE BLDG L/R 1-4S	40	50	50	40	0	BasicCode 5
354	354-OFFICE BLDG H/R 5ST	60	60	60	60	0	BasicCode 8
355	355-OFFICE CONDOMINIUM	40	50	50	40	0	BasicCode 5
356	356-RETAIL CONDOMINIUM	40	50	50	40	0	BasicCode 5
361	361-FUNERAL HOME	40	50	50	40	0	BasicCode 2
362	362-VETERINARY CLINIC	30	40	40	30	0	BasicCode 3
363	363-LEGITIMATE THEATER	50	60	60	50	0	BasicCode 6
364	364-MOTION PICTURE THEAT	40	50	50	40	0	BasicCode 6
365	365-CINEMA/THEATER	30	40	40	30	0	BasicCode 6

502 Commercial Grade Factor Adj

Grade	GRADE FACTOR
X+	2.5
X	2.1
X-	1.85
A+	1.67
A	1.55
A-	1.45
B+	1.35
B	1.26
B-	1.17
C+	1.08
C	1
C-	0.92
D+	0.85
D	0.78
D-	0.7
E+	0.6
E	0.5
E-	0.4

503 Commercial Func-Physical CO

Func. Obs	Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
0	0	10	8	7	6
1	9	8	6	6	5
2	8	6	5	4	3
3	7	5	3	2	2
4	6	4	2	1	1

504 Commercial Use Type Description

USE TYPE	DESCRIPTION
11	011-APARTMENT
12	012-HOTEL
21	021-MOTEL
23	023-DORMITORY
25	025-DWELL CONV-OFFI
26	026-DWELL CONV SALE
27	027-DWELLING
31	031-RESTAURANT
32	032-DEPARTMENT STOR
33	033-DISC STORE/MART
34	034-RETAIL STORE
35	035-TAVERN/BAR
36	036-BAR/LOUNGE
37	037-CAFETERIA
38	038-CONVENIENCE STO
39	039-MALL SHOPS
40	040-FRANCHISE DRUG STORE
41	041-MINI-WAREHOUSE
42	042-HANGAR
43	043-MANUFACTURING
44	044-LGHT MANUFACTUR
45	045-WAREHOUSE
46	046-AUTO SHOWRM/OFF
47	047-AUTO PARTS/SERV
48	048-TENNIS CLUB
49	049-RACQUETBALL CRT
50	050-SKATING RINK
51	051-BANK/SVNGS INST
52	052-MEDICAL CENTER
53	053-OFFICE BUILDING
54	054-NURSING HOME
55	055-SCHOOL
56	056-HOSPITAL
57	057-LIBRARY
58	058-FUNERAL HOME
61	061-AUDITORIUM/THEA
62	062-CINEMA

USE TYPE	DESCRIPTION
63	063-RELIGIOUS INSTI
64	064-SOCIAL/FRAT HLL
70	070-SRVC STN W BAYS
71	071-SERV STA-CONV R
72	072-SERV ST-CONV S
73	073-SERV ST NO BAYS
74	074-CAR WASH-MANUAL
75	075-CAR WASH-AUTOMA
81	081-MULTI-USE APART
82	082-MULTI-USE OFFIC
83	083-MULT-USE SALES
84	084-MULTI-USE STORA
85	085-ENCLOSURE
86	086-SUPPORT AREA
88	088-RSTRM/LCKRM FAC
90	090-PARKING GARAGE
91	091-UNFIN RES BSMT
95	095-COVERED MALL
100	100-FAST FOOD
101	101-APPLEBEES
102	102-CHI-CHI'S
103	103-WESTERN STEER
104	104-JADE GARDEN
105	105-BURGER KING
106	106-ARBY'S
107	107 RAGAZZI'S
108	108 OLIVE GARDEN
109	109-SAGEBRUSH
110	110-HAM'S
111	111-LIBBY HILL
112	112-KENTUCKY F.CHIC
113	113-MAX'S MEXICAN E
114	114-PLEASURES
115	115-HARDEE'S
116	116-HARDEE'S
117	117-HSE OF PANCAKES
118	118-QUINCY'S
119	119-BOJANGLES

USE TYPE	DESCRIPTION
120	120-CHECKERS
121	121-KRYSTALS
122	122-KOBE'S
123	123-SUB STATION
124	124-MISTER OMELET
125	125-MC GUFFEY'S
126	126-MC DONALDS
127	127-PIZZA HUT
128	128-RED LOBSTER
129	129-LIBBY HILL
130	130-SHONEYS
131	131-STEAK N' ALE
132	132-TACO BELL
133	133-WAFFLE HOUSE
134	134-WENDY'S
135	135-WESTERN SIZZLIN
136	136-CAPT D'S SEAFOO
137	137-OMELET SHOPPE
138	138-BENNETT'S B-B-Q
990	990-PARKING UP DECK

505 Commercial Depreciation Tab

15 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
1	15	94	94	94	94	94	93	93	93	91	87
2	15	89	89	88	88	88	87	86	84	78	69
3	15	85	84	83	83	82	81	80	76	66	52
4	15	82	80	79	78	77	75	73	68	54	39
5	15	79	77	75	74	72	70	68	60	45	30
6	15	76	74	71	70	68	65	62	53	37	23
7	15	75	72	68	66	63	60	57	47	31	19
8	15	73	70	65	63	60	56	52	42	26	15
9	15	72	68	63	60	56	52	48	37	22	12
10	15	71	66	60	57	53	49	44	33	19	10
11	15	70	64	58	54	50	46	41	30	17	9
12	15	70	63	56	51	47	43	38	27	14	8
13	15	70	62	54	49	45	40	35	24	13	6
14	15	70	61	52	47	42	37	32	22	11	6
15	15	70	60	50	45	40	35	30	20	10	5
16	15	70	60	50	45	40	35	30	20	10	5
17	15	70	60	50	45	40	35	30	20	10	5
18	15	70	60	50	45	40	35	30	20	10	5
19	15	70	60	50	45	40	35	30	20	10	5
20	15	70	60	50	45	40	35	30	20	10	5
21	15	70	60	50	45	40	35	30	20	10	5
22	15	70	60	50	45	40	35	30	20	10	5
23	15	70	60	50	45	40	35	30	20	10	5
24	15	70	60	50	45	40	35	30	20	10	5
25	15	70	60	50	45	40	35	30	20	10	5
26	15	70	60	50	45	40	35	30	20	10	5
27	15	70	60	50	45	40	35	30	20	10	5
28	15	70	60	50	45	40	35	30	20	10	5
29	15	70	60	50	45	40	35	30	20	10	5
30	15	70	60	50	45	40	35	30	20	10	5
31	15	70	60	50	45	40	35	30	20	10	5
32	15	70	60	50	45	40	35	30	20	10	5
33	15	70	60	50	45	40	35	30	20	10	5
34	15	70	60	50	45	40	35	30	20	10	5
35	15	70	60	50	45	40	35	30	20	10	5
36	15	70	60	50	45	40	35	30	20	10	5
37	15	70	60	50	45	40	35	30	20	10	5
38	15	70	60	50	45	40	35	30	20	10	5
39	15	70	60	50	45	40	35	30	20	10	5
40	15	70	60	50	45	40	35	30	20	10	5
41	15	70	60	50	45	40	35	30	20	10	5
42	15	70	60	50	45	40	35	30	20	10	5
43	15	70	60	50	45	40	35	30	20	10	5
44	15	70	60	50	45	40	35	30	20	10	5

15 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
45	15	70	60	50	45	40	35	30	20	10	5
46	15	70	60	50	45	40	35	30	20	10	5
47	15	70	60	50	45	40	35	30	20	10	5
48	15	70	60	50	45	40	35	30	20	10	5
49	15	70	60	50	45	40	35	30	20	10	5
50	15	70	60	50	45	40	35	30	20	10	5
51	15	70	60	50	45	40	35	30	20	10	5
52	15	70	60	50	45	40	35	30	20	10	5
53	15	70	60	50	45	40	35	30	20	10	5
54	15	70	60	50	45	40	35	30	20	10	5
55	15	70	60	50	45	40	35	30	20	10	5
56	15	70	60	50	45	40	35	30	20	10	5
57	15	70	60	50	45	40	35	30	20	10	5
58	15	70	60	50	45	40	35	30	20	10	5
59	15	70	60	50	45	40	35	30	20	10	5
60	15	70	60	50	45	40	35	30	20	10	5
61	15	70	60	50	45	40	35	30	20	10	5
62	15	70	60	50	45	40	35	30	20	10	5
63	15	70	60	50	45	40	35	30	20	10	5
64	15	70	60	50	45	40	35	30	20	10	5
65	15	70	60	50	45	40	35	30	20	10	5
66	15	70	60	50	45	40	35	30	20	10	5
67	15	70	60	50	45	40	35	30	20	10	5
68	15	70	60	50	45	40	35	30	20	10	5
69	15	70	60	50	45	40	35	30	20	10	5
70	15	70	60	50	45	40	35	30	20	10	5

20 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
1	20	95	95	95	95	95	95	95	95	93	91
2	20	91	91	91	91	90	90	90	88	85	78
3	20	88	88	87	87	86	86	85	82	75	64
4	20	85	84	83	83	82	81	80	76	66	52
5	20	82	81	80	79	78	77	75	70	57	42
6	20	80	79	77	76	74	73	70	64	50	34
7	20	78	76	74	73	71	69	66	58	43	26
8	20	76	74	71	70	68	65	62	53	37	23
9	20	75	72	69	67	64	62	58	49	33	20
10	20	74	71	67	64	62	58	55	44	29	17
11	20	73	69	65	62	59	55	51	41	25	14
12	20	72	68	63	60	56	52	48	37	22	12
13	20	71	66	61	57	54	50	45	34	20	11
14	20	70	65	59	55	51	47	42	32	18	10
15	20	70	64	57	53	49	45	40	29	16	8
16	20	70	63	56	51	47	43	38	27	14	8
17	20	70	62	54	50	45	40	36	26	13	7
18	20	70	61	53	48	43	39	34	23	12	6
19	20	70	61	51	47	42	37	32	21	11	5
20	20	70	60	50	45	40	35	30	20	10	5
21	20	70	60	50	45	40	35	30	20	10	5
22	20	70	60	50	45	40	35	30	20	10	5
23	20	70	60	50	45	40	35	30	20	10	5
24	20	70	60	50	45	40	35	30	20	10	5
25	20	70	60	50	45	40	35	30	20	10	5
26	20	70	60	50	45	40	35	30	20	10	5
27	20	70	60	50	45	40	35	30	20	10	5
28	20	70	60	50	45	40	35	30	20	10	5
29	20	70	60	50	45	40	35	30	20	10	5
30	20	70	60	50	45	40	35	30	20	10	5
31	20	70	60	50	45	40	35	30	20	10	5
32	20	70	60	50	45	40	35	30	20	10	5
33	20	70	60	50	45	40	35	30	20	10	5
34	20	70	60	50	45	40	35	30	20	10	5
35	20	70	60	50	45	40	35	30	20	10	5
36	20	70	60	50	45	40	35	30	20	10	5
37	20	70	60	50	45	40	35	30	20	10	5

20 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
38	20	70	60	50	45	40	35	30	20	10	5
39	20	70	60	50	45	40	35	30	20	10	5
40	20	70	60	50	45	40	35	30	20	10	5
41	20	70	60	50	45	40	35	30	20	10	5
42	20	70	60	50	45	40	35	30	20	10	5
43	20	70	60	50	45	40	35	30	20	10	5
44	20	70	60	50	45	40	35	30	20	10	5
45	20	70	60	50	45	40	35	30	20	10	5
46	20	70	60	50	45	40	35	30	20	10	5
47	20	70	60	50	45	40	35	30	20	10	5
48	20	70	60	50	45	40	35	30	20	10	5
49	20	70	60	50	45	40	35	30	20	10	5
50	20	70	60	50	45	40	35	30	20	10	5
51	20	70	60	50	45	40	35	30	20	10	5
52	20	70	60	50	45	40	35	30	20	10	5
53	20	70	60	50	45	40	35	30	20	10	5
54	20	70	60	50	45	40	35	30	20	10	5
55	20	70	60	50	45	40	35	30	20	10	5
56	20	70	60	50	45	40	35	30	20	10	5
57	20	70	60	50	45	40	35	30	20	10	5
58	20	70	60	50	45	40	35	30	20	10	5
59	20	70	60	50	45	40	35	30	20	10	5
60	20	70	60	50	45	40	35	30	20	10	5
61	20	70	60	50	45	40	35	30	20	10	5
62	20	70	60	50	45	40	35	30	20	10	5
63	20	70	60	50	45	40	35	30	20	10	5
64	20	70	60	50	45	40	35	30	20	10	5
65	20	70	60	50	45	40	35	30	20	10	5
66	20	70	60	50	45	40	35	30	20	10	5
67	20	70	60	50	45	40	35	30	20	10	5
68	20	70	60	50	45	40	35	30	20	10	5
69	20	70	60	50	45	40	35	30	20	10	5
70	20	70	60	50	45	40	35	30	20	10	5

25 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
1	25	96	96	96	96	96	96	96	96	95	93
2	25	93	93	93	93	92	92	92	91	88	83
3	25	90	90	89	89	88	88	88	85	80	71
4	25	87	87	86	86	85	84	83	80	72	61
5	25	85	84	83	82	82	81	79	75	65	51
6	25	83	82	80	80	78	77	75	70	58	43
7	25	81	79	77	76	75	74	72	65	52	36
8	25	79	77	75	74	73	70	68	61	46	31
9	25	78	76	73	70	68	66	63	54	40	26
10	25	77	74	71	69	67	64	62	52	37	24
11	25	76	73	67	67	65	61	58	49	33	20
12	25	74	71	67	65	62	59	55	45	30	17
13	25	73	70	66	63	60	57	52	42	27	16
14	25	72	69	64	61	57	54	50	40	24	15
15	25	72	68	62	59	55	51	48	37	23	13
16	25	72	67	61	57	54	50	45	35	20	12
17	25	71	65	59	56	52	47	43	33	19	11
18	25	71	65	58	54	50	46	41	30	17	9
19	25	71	64	56	53	49	44	39	28	16	8
20	25	71	63	55	51	47	42	37	27	15	8
21	25	70	62	54	50	45	40	35	26	14	7
22	25	70	61	53	48	43	39	34	24	13	6
23	25	70	61	52	47	42	37	32	23	12	6
24	25	70	60	51	46	41	36	31	21	11	5
25	25	70	60	50	45	40	35	30	20	10	5
26	25	70	60	50	45	40	35	30	20	10	5
27	25	70	60	50	45	40	35	30	20	10	5
28	25	70	60	50	45	40	35	30	20	10	5
29	25	70	60	50	45	40	35	30	20	10	5
30	25	70	60	50	45	40	35	30	20	10	5
31	25	70	60	50	45	40	35	30	20	10	5
32	25	70	60	50	45	40	35	30	20	10	5
33	25	70	60	50	45	40	35	30	20	10	5
34	25	70	60	50	45	40	35	30	20	10	5
35	25	70	60	50	45	40	35	30	20	10	5
36	25	70	60	50	45	40	35	30	20	10	5
37	25	70	60	50	45	40	35	30	20	10	5

25 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
38	25	70	60	50	45	40	35	30	20	10	5
39	25	70	60	50	45	40	35	30	20	10	5
40	25	70	60	50	45	40	35	30	20	10	5
41	25	70	60	50	45	40	35	30	20	10	5
42	25	70	60	50	45	40	35	30	20	10	5
43	25	70	60	50	45	40	35	30	20	10	5
44	25	70	60	50	45	40	35	30	20	10	5
45	25	70	60	50	45	40	35	30	20	10	5
46	25	70	60	50	45	40	35	30	20	10	5
47	25	70	60	50	45	40	35	30	20	10	5
48	25	70	60	50	45	40	35	30	20	10	5
49	25	70	60	50	45	40	35	30	20	10	5
50	25	70	60	50	45	40	35	30	20	10	5
51	25	70	60	50	45	40	35	30	20	10	5
52	25	70	60	50	45	40	35	30	20	10	5
53	25	70	60	50	45	40	35	30	20	10	5
54	25	70	60	50	45	40	35	30	20	10	5
55	25	70	60	50	45	40	35	30	20	10	5
56	25	70	60	50	45	40	35	30	20	10	5
57	25	70	60	50	45	40	35	30	20	10	5
58	25	70	60	50	45	40	35	30	20	10	5
59	25	70	60	50	45	40	35	30	20	10	5
60	25	70	60	50	45	40	35	30	20	10	5
61	25	70	60	50	45	40	35	30	20	10	5
62	25	70	60	50	45	40	35	30	20	10	5
63	25	70	60	50	45	40	35	30	20	10	5
64	25	70	60	50	45	40	35	30	20	10	5
65	25	70	60	50	45	40	35	30	20	10	5
66	25	70	60	50	45	40	35	30	20	10	5
67	25	70	60	50	45	40	35	30	20	10	5
68	25	70	60	50	45	40	35	30	20	10	5
69	25	70	60	50	45	40	35	30	20	10	5
70	25	70	60	50	45	40	35	30	20	10	5

30 Year Life											
Age	Year-Life	PF 1	PF 2	PF 3	PF 4	PF 5	PF 6	PF 7	PF 8	PF 9	PF 10
1	30	97	97	97	97	97	97	97	97	96	95
2	30	94	94	94	94	94	93	93	93	91	87
3	30	91	91	91	91	90	90	90	88	85	78
4	30	89	89	88	88	88	87	86	84	78	69
5	30	87	86	86	85	85	84	83	80	72	60
6	30	85	84	83	83	82	81	80	76	66	52
7	30	83	82	81	80	79	78	77	72	60	45
8	30	82	80	79	78	77	75	73	68	54	39
9	30	80	79	77	76	74	73	70	64	50	34
10	30	79	77	75	74	72	70	68	60	45	30
11	30	78	76	73	72	70	67	65	56	41	26
12	30	76	74	71	70	68	65	62	53	37	23
13	30	75	73	70	68	65	63	59	50	34	21
14	30	74	72	68	66	63	60	57	47	31	19
15	30	74	71	67	64	62	58	55	44	29	17
16	30	73	70	65	63	60	56	52	42	26	15
17	30	72	68	64	61	58	54	50	40	24	14
18	30	72	68	63	60	56	52	48	37	22	12
19	30	71	67	61	58	55	51	46	35	21	11
20	30	71	66	60	57	53	49	44	33	19	11
21	30	70	65	59	55	51	47	42	32	18	10
22	30	70	64	58	54	50	46	41	30	17	9
23	30	70	64	57	53	49	44	39	28	15	8
24	30	70	63	56	51	47	43	38	27	14	8
25	30	70	62	55	50	46	41	36	26	14	7
26	30	70	62	54	49	45	40	35	24	13	6
27	30	70	61	53	48	43	39	34	23	12	6
28	30	70	61	52	47	42	37	32	22	11	6
29	30	70	60	51	46	41	36	31	21	11	5
30	30	70	60	50	45	40	35	30	20	10	5
31	30	70	60	50	45	40	35	30	20	10	5
32	30	70	60	50	45	40	35	30	20	10	5
33	30	70	60	50	45	40	35	30	20	10	5
34	30	70	60	50	45	40	35	30	20	10	5
35	30	70	60	50	45	40	35	30	20	10	5
36	30	70	60	50	45	40	35	30	20	10	5
37	30	70	60	50	45	40	35	30	20	10	5

30 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
38	30	70	60	50	45	40	35	30	20	10	5
39	30	70	60	50	45	40	35	30	20	10	5
40	30	70	60	50	45	40	35	30	20	10	5
41	30	70	60	50	45	40	35	30	20	10	5
42	30	70	60	50	45	40	35	30	20	10	5
43	30	70	60	50	45	40	35	30	20	10	5
44	30	70	60	50	45	40	35	30	20	10	5
45	30	70	60	50	45	40	35	30	20	10	5
46	30	70	60	50	45	40	35	30	20	10	5
47	30	70	60	50	45	40	35	30	20	10	5
48	30	70	60	50	45	40	35	30	20	10	5
49	30	70	60	50	45	40	35	30	20	10	5
50	30	70	60	50	45	40	35	30	20	10	5
51	30	70	60	50	45	40	35	30	20	10	5
52	30	70	60	50	45	40	35	30	20	10	5
53	30	70	60	50	45	40	35	30	20	10	5
54	30	70	60	50	45	40	35	30	20	10	5
55	30	70	60	50	45	40	35	30	20	10	5
56	30	70	60	50	45	40	35	30	20	10	5
57	30	70	60	50	45	40	35	30	20	10	5
58	30	70	60	50	45	40	35	30	20	10	5
59	30	70	60	50	45	40	35	30	20	10	5
60	30	70	60	50	45	40	35	30	20	10	5
61	30	70	60	50	45	40	35	30	20	10	5
62	30	70	60	50	45	40	35	30	20	10	5
63	30	70	60	50	45	40	35	30	20	10	5
64	30	70	60	50	45	40	35	30	20	10	5
65	30	70	60	50	45	40	35	30	20	10	5
66	30	70	60	50	45	40	35	30	20	10	5
67	30	70	60	50	45	40	35	30	20	10	5
68	30	70	60	50	45	40	35	30	20	10	5
69	30	70	60	50	45	40	35	30	20	10	5
70	30	70	60	50	45	40	35	30	20	10	5

35 Year Life											
Age	Year-Life	PF 1	PF 2	PF 3	PF 4	PF 5	PF 6	PF 7	PF 8	PF 9	PF 10
1	35	98	98	98	98	98	98	97	97	97	96
2	35	95	95	95	95	95	94	94	94	92	89
3	35	92	92	92	92	92	92	91	90	87	82
4	35	90	90	90	90	89	89	88	86	82	74
5	35	89	88	88	87	87	86	85	83	76	66
6	35	87	86	85	85	84	84	83	79	71	58
7	35	85	84	83	83	82	81	80	76	65	52
8	35	84	82	81	81	80	78	77	72	60	46
9	35	82	81	80	79	77	76	74	69	56	41
10	35	81	79	78	77	75	74	72	65	51	36
11	35	80	78	76	75	73	71	69	62	47	32
12	35	78	77	74	73	71	69	66	59	44	29
13	35	77	76	73	71	69	67	64	56	40	26
14	35	76	74	71	70	67	65	62	53	37	24
15	35	76	73	70	68	66	63	60	50	35	22
16	35	75	72	68	67	64	61	57	48	32	19
17	35	74	71	67	65	62	59	55	46	30	18
18	35	74	70	66	64	60	57	53	43	28	16
19	35	73	69	65	62	59	56	51	41	26	15
20	35	73	69	64	61	58	54	50	39	24	14
21	35	72	68	63	59	56	52	48	38	23	13
22	35	72	67	62	58	55	51	46	36	20	12
23	35	71	66	60	57	53	49	45	34	19	11
24	35	71	66	60	56	52	48	43	32	18	10
25	35	71	65	59	54	51	46	42	31	18	10
26	35	71	64	58	53	50	45	40	29	17	9
27	35	71	64	57	52	48	44	39	28	16	8
28	35	70	63	56	51	47	42	37	27	15	8
29	35	70	63	55	50	46	41	36	26	14	7
30	35	70	62	54	49	45	40	35	25	13	7
31	35	70	62	53	48	44	39	34	24	12	6
32	35	70	61	53	47	43	38	33	23	11	6
33	35	70	61	52	47	42	37	32	22	11	6
34	35	70	60	51	46	41	36	31	21	10	5
35	35	70	60	50	45	40	35	30	20	10	5
36	35	70	60	50	45	40	35	30	20	10	5
37	35	70	60	50	45	40	35	30	20	10	5

35 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
38	35	70	60	50	45	40	35	30	20	10	5
39	35	70	60	50	45	40	35	30	20	10	5
40	35	70	60	50	45	40	35	30	20	10	5
41	35	70	60	50	45	40	35	30	20	10	5
42	35	70	60	50	45	40	35	30	20	10	5
43	35	70	60	50	45	40	35	30	20	10	5
44	35	70	60	50	45	40	35	30	20	10	5
45	35	70	60	50	45	40	35	30	20	10	5
46	35	70	60	50	45	40	35	30	20	10	5
47	35	70	60	50	45	40	35	30	20	10	5
48	35	70	60	50	45	40	35	30	20	10	5
49	35	70	60	50	45	40	35	30	20	10	5
50	35	70	60	50	45	40	35	30	20	10	5
51	35	70	60	50	45	40	35	30	20	10	5
52	35	70	60	50	45	40	35	30	20	10	5
53	35	70	60	50	45	40	35	30	20	10	5
54	35	70	60	50	45	40	35	30	20	10	5
55	35	70	60	50	45	40	35	30	20	10	5
56	35	70	60	50	45	40	35	30	20	10	5
57	35	70	60	50	45	40	35	30	20	10	5
58	35	70	60	50	45	40	35	30	20	10	5
59	35	70	60	50	45	40	35	30	20	10	5
60	35	70	60	50	45	40	35	30	20	10	5
61	35	70	60	50	45	40	35	30	20	10	5
62	35	70	60	50	45	40	35	30	20	10	5
63	35	70	60	50	45	40	35	30	20	10	5
64	35	70	60	50	45	40	35	30	20	10	5
65	35	70	60	50	45	40	35	30	20	10	5
66	35	70	60	50	45	40	35	30	20	10	5
67	35	70	60	50	45	40	35	30	20	10	5
68	35	70	60	50	45	40	35	30	20	10	5
69	35	70	60	50	45	40	35	30	20	10	5
70	35	70	60	50	45	40	35	30	20	10	5

40 Year Life											
Age	Year-Life	PF 1	PF 2	PF 3	PF 4	PF 5	PF 6	PF 7	PF 8	PF 9	PF 10
1	40	98	98	98	98	98	98	97	97	97	97
2	40	95	95	95	95	95	95	95	95	93	91
3	40	93	93	93	93	93	93	92	92	89	85
4	40	91	91	91	91	90	90	90	88	85	78
5	40	90	89	89	89	88	88	87	85	80	71
6	40	88	88	87	87	86	86	85	82	75	64
7	40	86	86	85	85	84	83	82	79	70	58
8	40	85	84	83	83	82	81	80	76	66	52
9	40	84	83	82	81	80	79	77	73	61	47
10	40	82	81	80	79	78	77	75	70	57	42
11	40	81	80	78	77	76	75	73	67	53	38
12	40	80	79	77	76	74	73	70	64	50	34
13	40	79	78	75	74	73	71	68	61	46	31
14	40	78	76	74	73	71	69	66	58	43	28
15	40	77	75	73	71	69	67	64	56	40	26
16	40	76	74	71	70	68	65	62	53	37	23
17	40	76	73	70	68	66	63	60	51	35	21
18	40	75	72	69	67	64	62	58	49	33	20
19	40	74	71	68	66	63	60	56	46	30	18
20	40	74	71	67	64	62	58	55	44	29	17
21	40	73	70	66	63	60	57	53	43	27	15
22	40	73	69	65	62	59	55	51	41	25	14
23	40	72	68	63	61	57	54	50	39	24	13
24	40	72	68	63	60	56	52	48	37	22	12
25	40	71	67	62	58	55	51	47	36	21	12
26	40	71	66	61	57	54	50	45	34	20	11
27	40	71	66	60	56	53	48	44	33	19	10
28	40	70	65	59	55	51	47	42	32	18	10
29	40	70	65	58	54	50	46	41	30	17	9
30	40	70	64	57	53	49	45	40	29	16	8
31	40	70	63	56	52	48	44	39	28	15	8
32	40	70	63	56	51	47	43	38	27	14	8
33	40	70	63	55	51	46	42	37	26	14	7
34	40	70	62	54	50	45	40	36	25	13	7
35	40	70	62	53	49	44	40	35	24	13	6
36	40	70	61	53	48	43	39	34	23	12	6
37	40	70	61	52	47	43	38	33	22	11	6

40 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
38	40	70	61	51	47	42	37	32	21	11	5
39	40	70	60	51	46	41	36	31	21	10	5
40	40	70	60	50	45	40	35	30	20	10	5
41	40	70	60	50	45	40	35	30	20	10	5
42	40	70	60	50	45	40	35	30	20	10	5
43	40	70	60	50	45	40	35	30	20	10	5
44	40	70	60	50	45	40	35	30	20	10	5
45	40	70	60	50	45	40	35	30	20	10	5
46	40	70	60	50	45	40	35	30	20	10	5
47	40	70	60	50	45	40	35	30	20	10	5
48	40	70	60	50	45	40	35	30	20	10	5
49	40	70	60	50	45	40	35	30	20	10	5
50	40	70	60	50	45	40	35	30	20	10	5
51	40	70	60	50	45	40	35	30	20	10	5
52	40	70	60	50	45	40	35	30	20	10	5
53	40	70	60	50	45	40	35	30	20	10	5
54	40	70	60	50	45	40	35	30	20	10	5
55	40	70	60	50	45	40	35	30	20	10	5
56	40	70	60	50	45	40	35	30	20	10	5
57	40	70	60	50	45	40	35	30	20	10	5
58	40	70	60	50	45	40	35	30	20	10	5
59	40	70	60	50	45	40	35	30	20	10	5
60	40	70	60	50	45	40	35	30	20	10	5
61	40	70	60	50	45	40	35	30	20	10	5
62	40	70	60	50	45	40	35	30	20	10	5
63	40	70	60	50	45	40	35	30	20	10	5
64	40	70	60	50	45	40	35	30	20	10	5
65	40	70	60	50	45	40	35	30	20	10	5
66	40	70	60	50	45	40	35	30	20	10	5
67	40	70	60	50	45	40	35	30	20	10	5
68	40	70	60	50	45	40	35	30	20	10	5
69	40	70	60	50	45	40	35	30	20	10	5
70	40	70	60	50	45	40	35	30	20	10	5

45 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
1	45	98	98	98	98	98	98	98	98	98	97
2	45	96	96	96	96	96	96	96	96	94	93
3	45	94	94	94	94	94	94	93	93	91	87
4	45	92	92	92	92	91	91	91	90	87	81
5	45	91	90	90	90	89	89	89	87	83	75
6	45	89	89	88	88	88	87	87	84	78	69
7	45	88	87	87	86	86	85	84	81	74	63
8	45	86	86	85	85	84	83	82	79	70	57
9	45	85	85	84	83	82	81	80	76	65	52
10	45	84	83	82	81	80	79	78	73	62	47
11	45	83	82	80	79	78	77	76	70	58	43
12	45	82	81	79	78	77	76	73	68	55	39
13	45	81	80	77	76	75	74	71	65	51	36
14	45	80	78	76	75	74	72	69	62	48	33
15	45	79	77	75	74	72	70	67	60	45	30
16	45	78	76	74	72	71	68	66	57	42	28
17	45	77	75	73	71	69	66	64	55	40	25
18	45	77	74	72	70	67	65	62	53	38	24
19	45	76	73	70	69	66	64	60	51	35	22
20	45	75	73	69	67	65	62	59	49	33	20
21	45	75	72	68	66	63	61	57	47	31	19
22	45	74	71	67	65	62	59	55	45	29	17
23	45	74	70	66	64	61	58	54	44	28	16
24	45	73	70	66	63	60	56	52	42	26	15
25	45	73	69	65	61	59	55	51	40	25	15
26	45	72	68	64	60	57	54	49	39	24	14
27	45	72	68	63	59	56	52	48	37	23	13
28	45	71	67	62	58	55	51	47	36	22	12
29	45	71	67	61	57	54	50	45	35	20	11
30	45	71	66	60	57	53	49	44	33	19	10
31	45	71	65	59	56	52	48	43	32	18	10
32	45	71	65	59	55	51	47	42	31	17	10
33	45	71	65	58	54	50	46	41	30	17	9
34	45	71	64	57	53	49	44	40	29	16	9
35	45	70	64	56	52	48	44	39	28	16	8
36	45	70	63	56	51	47	43	38	27	15	8
37	45	70	63	55	51	47	42	37	26	14	8

45 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
38	45	70	63	54	50	46	41	36	25	14	7
39	45	70	62	54	49	45	40	35	25	13	7
40	45	70	62	53	48	44	39	34	24	12	7
41	45	70	61	53	47	43	38	33	23	12	6
42	45	70	61	52	47	42	37	32	22	11	6
43	45	70	61	51	46	41	36	31	21	11	5
44	45	70	60	51	46	41	36	31	21	10	5
45	45	70	60	50	45	40	35	30	20	10	5
46	45	70	60	50	45	40	35	30	20	10	5
47	45	70	60	50	45	40	35	30	20	10	5
48	45	70	60	50	45	40	35	30	20	10	5
49	45	70	60	50	45	40	35	30	20	10	5
50	45	70	60	50	45	40	35	30	20	10	5
51	45	70	60	50	45	40	35	30	20	10	5
52	45	70	60	50	45	40	35	30	20	10	5
53	45	70	60	50	45	40	35	30	20	10	5
54	45	70	60	50	45	40	35	30	20	10	5
55	45	70	60	50	45	40	35	30	20	10	5
56	45	70	60	50	45	40	35	30	20	10	5
57	45	70	60	50	45	40	35	30	20	10	5
58	45	70	60	50	45	40	35	30	20	10	5
59	45	70	60	50	45	40	35	30	20	10	5
60	45	70	60	50	45	40	35	30	20	10	5
61	45	70	60	50	45	40	35	30	20	10	5
62	45	70	60	50	45	40	35	30	20	10	5
63	45	70	60	50	45	40	35	30	20	10	5
64	45	70	60	50	45	40	35	30	20	10	5
65	45	70	60	50	45	40	35	30	20	10	5
66	45	70	60	50	45	40	35	30	20	10	5
67	45	70	60	50	45	40	35	30	20	10	5
68	45	70	60	50	45	40	35	30	20	10	5
69	45	70	60	50	45	40	35	30	20	10	5
70	45	70	60	50	45	40	35	30	20	10	5

50 Year Life											
Age	Year-Life	PF 1	PF 2	PF 3	PF 4	PF 5	PF 6	PF 7	PF 8	PF 9	PF 10
1	50	98	98	98	98	98	98	98	98	98	97
2	50	96	96	96	96	96	96	96	96	95	94
3	50	95	94	94	94	94	94	94	93	92	89
4	50	93	93	93	92	92	92	92	91	88	84
5	50	91	91	91	91	90	90	90	88	85	78
6	50	90	90	89	89	89	88	88	86	81	73
7	50	89	88	88	87	87	86	86	83	77	67
8	50	87	87	86	86	85	85	84	81	73	62
9	50	86	86	85	84	84	83	82	78	69	57
10	50	85	84	83	83	82	81	80	76	66	52
11	50	84	83	82	81	80	79	78	73	62	48
12	50	83	82	81	80	79	78	76	71	59	44
13	50	82	81	79	78	77	76	74	68	56	40
14	50	81	80	78	77	76	74	72	66	52	37
15	50	80	79	77	76	74	73	70	64	50	34
16	50	79	78	76	74	73	71	69	61	47	32
17	50	78	77	75	73	72	69	67	59	44	29
18	50	78	76	74	72	70	68	65	57	42	27
19	50	77	75	72	71	69	67	64	55	39	25
20	50	76	74	71	70	68	65	62	53	37	23
21	50	76	73	70	69	66	64	60	51	35	22
22	50	75	73	69	67	65	62	59	49	33	20
23	50	75	72	68	66	64	61	57	48	32	19
24	50	74	71	68	65	63	60	56	46	30	18
25	50	74	71	67	64	62	58	55	44	29	17
26	50	73	70	66	63	60	57	53	43	27	16
27	50	73	69	65	62	59	56	52	41	26	15
28	50	72	69	64	61	58	55	51	40	25	14
29	50	72	68	63	60	57	54	49	39	23	13
30	50	72	68	63	60	56	52	48	37	22	12
31	50	71	67	62	59	55	51	47	36	21	12
32	50	71	67	61	58	54	50	46	35	20	11
33	50	71	66	60	57	53	49	45	34	19	11
34	50	71	66	60	56	52	48	44	33	19	10
35	50	70	65	59	55	51	47	42	32	18	10
36	50	70	65	58	54	51	46	41	31	17	9
37	50	70	64	57	54	50	45	40	30	16	9

50 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
38	50	70	64	57	53	49	44	40	29	16	8
39	50	70	63	56	52	48	43	39	28	15	8
40	50	70	63	56	51	47	43	38	27	14	8
41	50	70	63	55	51	46	42	37	26	14	7
42	50	70	62	54	50	46	41	36	25	13	7
43	50	70	62	54	49	45	40	35	25	13	7
44	50	70	62	53	49	44	39	34	24	12	6
45	50	70	61	53	48	43	39	34	23	12	6
46	50	70	61	52	47	43	38	33	22	12	6
47	50	70	61	52	47	42	37	32	22	11	6
48	50	70	60	51	46	41	36	31	21	11	5
49	50	70	60	51	46	41	36	31	21	10	5
50	50	70	60	50	45	40	35	30	20	10	5
51	50	70	60	50	45	40	35	30	20	10	5
52	50	70	60	50	45	40	35	30	20	10	5
53	50	70	60	50	45	40	35	30	20	10	5
54	50	70	60	50	45	40	35	30	20	10	5
55	50	70	60	50	45	40	35	30	20	10	5
56	50	70	60	50	45	40	35	30	20	10	5
57	50	70	60	50	45	40	35	30	20	10	5
58	50	70	60	50	45	40	35	30	20	10	5
59	50	70	60	50	45	40	35	30	20	10	5
60	50	70	60	50	45	40	35	30	20	10	5
61	50	70	60	50	45	40	35	30	20	10	5
62	50	70	60	50	45	40	35	30	20	10	5
63	50	70	60	50	45	40	35	30	20	10	5
64	50	70	60	50	45	40	35	30	20	10	5
65	50	70	60	50	45	40	35	30	20	10	5
66	50	70	60	50	45	40	35	30	20	10	5
67	50	70	60	50	45	40	35	30	20	10	5
68	50	70	60	50	45	40	35	30	20	10	5
69	50	70	60	50	45	40	35	30	20	10	5
70	50	70	60	50	45	40	35	30	20	10	5

55 Year Life											
Age	Year-Life	PF 1	PF 2	PF 3	PF 4	PF 5	PF 6	PF 7	PF 8	PF 9	PF 10
1	55	98	98	98	98	98	98	98	98	98	98
2	55	97	97	97	97	97	97	97	97	96	95
3	55	95	95	95	95	95	95	95	94	93	90
4	55	94	94	94	93	93	93	93	92	90	86
5	55	92	92	92	92	91	91	91	90	87	81
6	55	91	91	90	90	90	89	89	87	83	76
7	55	90	89	89	88	88	88	87	85	80	71
8	55	88	88	87	87	86	86	85	83	76	66
9	55	87	87	86	86	85	85	84	80	73	61
10	55	86	85	85	84	84	83	82	78	69	56
11	55	85	84	84	83	82	81	80	76	66	52
12	55	84	83	82	82	81	80	78	74	63	48
13	55	83	82	81	80	79	78	76	71	60	44
14	55	82	81	80	79	78	76	75	69	56	41
15	55	81	80	79	78	76	75	73	67	54	38
16	55	81	79	78	76	75	73	71	65	51	36
17	55	80	79	77	75	74	72	70	63	48	33
18	55	79	78	76	74	72	71	68	61	46	31
19	55	78	77	74	73	71	69	67	57	43	29
20	55	78	76	73	72	70	68	65	57	41	27
21	55	77	75	72	71	68	67	63	55	39	25
22	55	77	75	71	70	68	65	62	53	37	23
23	55	76	74	70	68	67	64	60	52	36	22
24	55	75	73	70	68	66	63	59	50	34	21
25	55	75	73	69	67	64	61	58	48	33	20
26	55	74	72	68	66	63	60	56	47	31	19
27	55	74	71	67	65	62	59	55	45	30	18
28	55	73	71	66	64	61	58	54	44	28	17
29	55	73	70	65	63	60	57	53	43	27	16
30	55	73	70	65	62	59	55	52	41	26	15
31	55	72	69	64	61	58	54	50	40	24	14
32	55	72	69	63	61	57	53	49	39	23	13
33	55	72	68	63	60	56	52	48	38	22	13
34	55	72	67	62	59	55	51	47	37	22	12
35	55	71	67	61	58	54	50	46	35	21	12
36	55	71	67	61	57	54	49	45	34	20	11
37	55	71	66	60	57	53	48	44	33	19	11

55 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
38	55	71	66	59	56	52	48	43	32	19	10
39	55	71	65	59	55	51	47	42	31	18	10
40	55	71	65	58	54	50	46	41	30	17	9
41	55	71	64	57	54	49	45	40	29	16	9
42	55	70	64	57	53	49	44	39	29	16	9
43	55	70	64	56	52	48	43	39	28	15	8
44	55	70	63	56	52	47	43	38	27	15	8
45	55	70	63	55	51	46	42	37	26	14	7
46	55	70	63	55	50	46	41	36	25	14	7
47	55	70	62	54	50	45	40	35	25	13	7
48	55	70	62	54	49	44	40	35	24	13	6
49	55	70	62	53	49	44	39	34	24	12	6
50	55	70	61	53	48	43	38	33	23	12	6
51	55	70	61	52	47	43	37	32	23	11	6
52	55	70	61	52	47	42	37	32	22	11	5
53	55	70	60	51	46	42	36	31	21	11	5
54	55	70	60	51	46	41	36	31	21	10	5
55	55	70	60	50	45	40	35	30	20	10	5
56	55	70	60	50	45	40	35	30	20	10	5
57	55	70	60	50	45	40	35	30	20	10	5
58	55	70	60	50	45	40	35	30	20	10	5
59	55	70	60	50	45	40	35	30	20	10	5
60	55	70	60	50	45	40	35	30	20	10	5
61	55	70	60	50	45	40	35	30	20	10	5
62	55	70	60	50	45	40	35	30	20	10	5
63	55	70	60	50	45	40	35	30	20	10	5
64	55	70	60	50	45	40	35	30	20	10	5
65	55	70	60	50	45	40	35	30	20	10	5
66	55	70	60	50	45	40	35	30	20	10	5
67	55	70	60	50	45	40	35	30	20	10	5
68	55	70	60	50	45	40	35	30	20	10	5
69	55	70	60	50	45	40	35	30	20	10	5
70	55	70	60	50	45	40	35	30	20	10	5

60 Year Life											
Age	Year-Life	PF 1	PF 2	PF 3	PF 4	PF 5	PF 6	PF 7	PF 8	PF 9	PF 10
1	60	98	98	98	98	98	98	98	98	98	98
2	60	97	97	97	97	97	97	97	97	96	95
3	60	95	95	95	95	95	95	95	95	93	91
4	60	94	94	94	94	94	93	93	93	91	87
5	60	93	93	92	92	92	92	92	91	88	83
6	60	91	91	91	91	90	90	90	88	85	78
7	60	90	90	90	89	89	89	88	86	82	73
8	60	89	89	88	88	88	87	86	84	78	69
9	60	88	88	87	87	86	86	85	82	76	64
10	60	87	86	86	85	85	84	83	80	72	60
11	60	86	85	85	84	83	83	81	78	69	56
12	60	85	84	83	83	82	81	80	76	66	52
13	60	84	83	82	81	81	80	78	74	63	48
14	60	83	82	81	80	79	78	77	72	60	45
15	60	82	81	80	79	78	77	75	70	57	42
16	60	82	80	79	78	77	75	73	68	54	39
17	60	81	80	78	77	76	74	72	66	52	37
18	60	80	79	77	76	74	73	70	64	50	34
19	60	79	78	76	75	73	71	69	62	47	32
20	60	79	77	75	74	72	70	68	60	45	30
21	60	78	76	74	73	71	69	66	58	43	28
22	60	78	76	73	72	70	67	65	56	41	26
23	60	77	75	72	71	69	66	63	55	39	25
24	60	76	74	71	70	68	65	62	53	37	23
25	60	76	74	71	69	66	64	61	52	36	22
26	60	75	73	70	68	65	63	59	50	34	21
27	60	75	72	69	67	64	62	58	49	33	20
28	60	74	72	68	66	63	60	57	47	31	19
29	60	74	71	67	65	63	59	56	46	30	18
30	60	74	71	67	64	62	58	55	44	29	17
31	60	73	70	66	63	61	57	53	43	27	16
32	60	73	70	65	63	60	56	52	42	26	15
33	60	73	69	65	62	59	55	51	41	25	14
34	60	72	68	64	61	58	54	50	40	24	14
35	60	72	68	63	60	57	53	49	38	23	13
36	60	72	68	63	60	56	52	48	37	22	12
37	60	71	67	62	59	55	51	47	36	21	12

60 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
38	60	71	67	61	58	55	51	46	35	21	11
39	60	71	66	61	57	54	50	45	34	20	11
40	60	71	66	60	57	53	49	44	33	19	10
41	60	71	65	59	56	52	48	43	32	18	10
42	60	70	65	59	55	51	47	42	32	18	10
43	60	70	65	58	55	51	46	42	31	17	9
44	60	70	64	58	54	50	46	41	30	17	9
45	60	70	64	57	53	49	45	40	29	16	8
46	60	70	64	57	53	49	44	39	28	15	8
47	60	70	63	56	52	48	43	38	28	15	8
48	60	70	63	56	51	47	43	38	27	14	8
49	60	70	63	55	51	46	42	37	26	14	7
50	60	70	62	55	50	46	41	36	26	14	7
51	60	70	62	54	50	45	40	36	25	13	7
52	60	70	62	54	49	45	40	35	24	13	6
53	60	70	62	53	49	44	39	34	24	12	6
54	60	70	61	53	48	43	39	34	23	12	6
55	60	70	61	52	48	43	38	33	23	12	6
56	60	70	61	52	47	42	37	32	22	11	6
57	60	70	61	51	47	42	37	32	21	11	5
58	60	70	60	51	46	41	36	31	21	11	5
59	60	70	60	50	46	41	36	31	20	10	5
60	60	70	60	50	45	40	35	30	20	10	5
61	60	70	60	50	45	40	35	30	20	10	5
62	60	70	60	50	45	40	35	30	20	10	5
63	60	70	60	50	45	40	35	30	20	10	5
64	60	70	60	50	45	40	35	30	20	10	5
65	60	70	60	50	45	40	35	30	20	10	5
66	60	70	60	50	45	40	35	30	20	10	5
67	60	70	60	50	45	40	35	30	20	10	5
68	60	70	60	50	45	40	35	30	20	10	5
69	60	70	60	50	45	40	35	30	20	10	5
70	60	70	60	50	45	40	35	30	20	10	5

70 Year Life											
Age	Year-Life	PF 1	PF 2	PF 3	PF 4	PF 5	PF 6	PF 7	PF 8	PF 9	PF 10
1	70	99	99	99	99	99	99	99	99	98	98
2	70	97	97	97	97	97	97	97	97	97	96
3	70	96	96	96	96	96	96	96	95	95	93
4	70	95	95	95	95	94	94	94	94	92	90
5	70	94	94	93	93	93	93	93	92	90	86
6	70	92	92	92	92	92	92	91	90	87	82
7	70	91	91	91	91	90	90	90	88	85	78
8	70	90	90	90	90	89	89	88	87	83	74
9	70	89	89	89	88	88	87	87	85	79	70
10	70	88	88	87	87	87	86	85	83	77	66
11	70	87	87	86	86	86	85	84	81	75	62
12	70	87	86	85	85	84	84	83	79	72	59
13	70	86	85	84	84	83	82	81	78	68	55
14	70	85	84	83	83	82	81	80	76	66	52
15	70	84	83	82	82	81	80	78	74	64	49
16	70	83	83	81	81	80	78	77	72	62	46
17	70	83	82	80	80	79	77	76	70	60	43
18	70	82	81	80	79	79	76	74	69	57	41
19	70	81	80	79	78	76	75	73	67	55	39
20	70	81	79	78	77	75	74	72	65	53	36
21	70	80	79	77	76	74	73	70	64	50	34
22	70	80	78	76	75	73	72	69	62	48	32
23	70	79	77	75	74	72	70	68	60	46	31
24	70	78	77	74	73	71	69	67	59	44	29
25	70	78	76	74	72	70	68	65	57	42	27
26	70	77	75	73	71	69	67	64	56	40	26
27	70	77	75	72	70	68	66	63	55	39	25
28	70	76	74	71	70	68	65	62	53	37	23
29	70	76	74	71	69	67	64	61	52	36	22
30	70	76	73	70	68	66	63	60	50	34	21
31	70	75	73	69	67	65	62	59	49	33	20
32	70	75	72	69	67	64	61	58	48	32	19
33	70	74	72	68	66	63	60	57	47	31	18
34	70	74	71	67	65	62	59	56	46	30	17
35	70	74	71	67	64	62	58	55	44	29	17
36	70	73	70	66	64	61	57	54	43	28	16
37	70	73	70	65	63	60	57	53	42	27	15

70 Year Life											
Age	**Year-Life**	**PF 1**	**PF 2**	**PF 3**	**PF 4**	**PF 5**	**PF 6**	**PF 7**	**PF 8**	**PF 9**	**PF 10**
38	70	73	69	65	62	59	56	52	41	26	15
39	70	72	69	64	62	58	55	51	40	25	14
40	70	72	68	64	61	58	54	50	39	24	13
41	70	72	68	63	60	57	53	49	38	23	13
42	70	72	68	63	60	56	52	48	37	22	12
43	70	71	67	62	59	55	52	47	36	22	12
44	70	71	67	61	58	55	51	46	36	21	11
45	70	71	66	61	58	54	50	46	35	20	11
46	70	71	66	60	57	53	49	45	34	20	11
47	70	71	66	60	56	53	49	44	33	19	10
48	70	71	65	59	56	52	48	43	32	18	10
49	70	70	65	59	55	51	47	42	32	18	10
50	70	70	65	58	55	51	46	42	31	17	9
51	70	70	64	58	54	50	46	41	30	17	9
52	70	70	64	57	54	50	45	40	29	16	9
53	70	70	64	57	53	49	44	40	29	16	8
54	70	70	64	56	53	48	44	39	28	15	8
55	70	70	63	56	52	48	43	38	27	15	8
56	70	70	63	56	51	47	43	38	27	14	8
57	70	70	63	55	51	47	42	37	26	14	7
58	70	70	62	55	50	46	41	36	26	14	7
59	70	70	62	54	50	45	41	36	25	13	7
60	70	70	62	54	50	45	40	35	25	13	7
61	70	70	62	53	49	44	40	35	24	13	6
62	70	70	62	53	49	44	39	34	24	12	6
63	70	70	61	53	48	43	39	34	23	12	6
64	70	70	61	52	48	43	38	33	23	12	6
65	70	70	61	52	47	42	37	32	22	11	6
66	70	70	61	51	47	42	37	32	22	11	6
67	70	70	61	51	46	41	36	31	21	11	5
68	70	70	60	51	46	41	36	31	21	11	5
69	70	70	60	50	45	40	35	30	20	10	5
70	70	70	60	50	45	40	35	30	20	10	5

511 Commercial Base SQFT Rate

BASIC CD	CONS TYP	BASEMENT RT	FIRST FLOOR	UPPER FLOOR
1	1	23.03	18.29	16.59
2	1	15.24	16.48	15.01
3	1	23.48	18.85	17.16
4	1	19.19	17.5	15.8
5	1	19.19	23.14	20.99
6	1	22.91	22.58	20.54
7	1	18.62	16.93	15.35
8	1	26.64	24.49	22.24
9	1	23.48	18.85	17.16
10	1	7.45	16.48	15.01
1	2	24.61	23.48	22.35
2	2	18.51	20.88	18.96
3	2	25.85	27.09	24.61
4	2	20.54	19.19	17.5
5	2	26.53	32.06	29.12
6	2	27.2	34.31	31.15
7	2	19.98	18.62	16.93
8	2	29.01	36.12	32.85
9	2	25.85	27.09	24.61
10	2	8.69	19.08	17.38
1	3	24.61	33.41	30.36
2	3	18.51	30.7	27.88
3	3	25.85	34.43	31.27
4	3	20.54	25.4	22.91
5	3	26.53	40.75	37.02
6	3	27.2	44.81	40.75
7	3	19.98	24.61	22.35
8	3	29.01	46.28	42.1
9	3	25.85	34.43	31.27
10	3	0	0	0
1	4	0	0	0
2	4	0	0	0
3	4	23.25	19.98	18.17
4	4	16.71	15.58	14.11
5	4	21.33	22.12	20.09
6	4	22.01	22.35	20.32
7	4	16.14	15.01	13.77
8	4	0	0	0
9	4	23.25	19.98	18.17
10	4	0	0	0

512 Commercial Other Rates by Use Tape

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
11	0	90	-8.9	-17.2	-3.6	-5.5	-6.3	0	0	0	0
11	1	0	0	-1.8	0	0	-1.5	0	0	0	0
11	2	0	0	0	0	-2.1	0	0	0	0	0
11	3	0	0	1.9	-2.5	0	1.7	0	0	0	0
11	4	0	0	0	0	0	0	0	0	0	0
11	5	0	0	0	0	0	0	0	0	0	0
11	6	0	0	0	0	0	0	0	0	0	0
12	0	116.32	-8.1	-25.7	-4.1	-6.1	-10.8	0	0	0	0
12	1	0	0	-2.9	0	0	-2.7	0	0	0	0
12	2	0	0	0	0	-2.5	0	0	0	0	0
12	3	0	0	3.6	-2.8	0	3.5	0	0	0	0
12	4	0	0	0	0	0	0	0	0	0	0
12	5	0	0	0	0	0	0	0	0	0	0
12	6	0	0	0	0	0	0	0	0	0	0
21	0	57.3	-7.6	-23.8	-3.8	-6.1	-10.2	0	0	0	0
21	1	0	0	-2.9	0	0	-2.6	0	0	0	0
21	2	0	0	0	0	-2.3	0	0	0	0	0
21	3	0	0	3.6	-2.8	0	3.5	0	0	0	0
21	4	0	0	0	0	0	0	0	0	0	0
21	5	0	0	0	0	0	0	0	0	0	0
21	6	0	0	0	0	0	0	0	0	0	0
23	0	65.9	-8.1	-26.1	-4.1	-5.8	-10.5	0	0	0	0
23	1	0	0	-2.9	0	0	-2.7	0	0	0	0
23	2	0	0	0	0	-2.5	0	0	0	0	0
23	3	0	0	3.5	-2.8	0	3.7	0	0	0	0
23	4	0	0	0	0	0	0	0	0	0	0
23	5	0	0	0	0	0	0	0	0	0	0
23	6	0	0	0	0	0	0	0	0	0	0
25	0	56.4	-8.9	-16.6	-3.8	-5.8	-6.3	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
25	1	0	0	-2.8	0	0	-1.9	0	0	0	0
25	2	0	0	0	0	-2.5	0	0	0	0	0
25	3	0	0	3.6	-2.8	0	2.7	0	0	0	0
25	4	0	0	0	0	0	0	0	0	0	0
25	5	0	0	0	0	0	0	0	0	0	0
25	6	0	0	0	0	0	0	0	0	0	0
26	0	56.4	-8.9	-16.6	-3.8	-5.8	-6.3	0	0	0	0
26	1	0	0	-2.8	0	0	-1.9	0	0	0	0
26	2	0	0	0	0	-2.5	0	0	0	0	0
26	3	0	0	3.6	-2.8	0	2.7	0	0	0	0
26	4	0	0	0	0	0	0	0	0	0	0
26	5	0	0	0	0	0	0	0	0	0	0
26	6	0	0	0	0	0	0	0	0	0	0
27	0	115.5	-8.9	-16.6	-3.8	-5.8	-4.5	0	0	0	0
27	1	0	0	-2.8	0	0	-1.9	0	0	0	0
27	2	0	0	0	0	-2.5	0	0	0	0	0
27	3	0	0	3.6	-2.8	0	2.7	0	0	0	0
27	4	0	0	0	0	0	0	0	0	0	0
27	5	0	0	0	0	0	0	0	0	0	0
27	6	0	0	0	0	0	0	0	0	0	0
31	0	64.56	-11.3	-22.1	-4.3	-14.8	-12.8	0	0	0	0
31	1	0	0	-7.7	0	0	-4.3	0	0	0	0
31	2	0	0	0	0	-3.6	0	0	0	0	0
31	3	0	0	15.5	-2.5	0	6.2	0	0	0	0
31	4	0	0	0	0	0	0	0	0	0	0
31	5	0	0	0	0	0	0	0	0	0	0
31	6	0	0	0	0	0	0	0	0	0	0
32	0	46.8	-10	-9.7	-4.3	-6.8	-5	0	0	0	0
32	1	0	0	-2.1	0	0	-4.4	0	0	0	0
32	2	0	0	0	0	-3.6	0	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
32	3	0	0	2.8	-2.5	0	1.6	0	0	0	0
32	4	0	0	0	0	0	0	0	0	0	0
32	5	0	0	0	0	0	0	0	0	0	0
32	6	0	0	0	0	0	0	0	0	0	0
33	0	115	-10	-3.4	-4.3	-6.8	-2.9	0	0	0	0
33	1	0	0	-0.3	0	0	-0.8	0	0	0	0
33	2	0	0	0	0	-3.6	0	0	0	0	0
33	3	0	0	0.6	-2.5	0	2.9	0	0	0	0
33	4	0	0	0	0	0	0	0	0	0	0
33	5	0	0	0	0	0	0	0	0	0	0
33	6	0	0	0	0	0	0	0	0	0	0
34	0	80.39	-10	-4.4	-4.3	-6.8	-2.8	0	0	0	0
34	1	0	0	-1.5	0	0	-1.2	0	0	0	0
34	2	0	0	0	0	-3.6	0	0	0	0	0
34	3	0	0	1.8	-2.5	0	1.8	0	0	0	0
34	4	0	0	0	0	0	0	0	0	0	0
34	5	0	0	0	0	0	0	0	0	0	0
34	6	0	0	0	0	0	0	0	0	0	0
35	0	58.7	-10	-14.4	-4.3	-6.8	-12.8	0	0	0	0
35	1	0	0	-4.9	0	0	-4.3	0	0	0	0
35	2	0	0	0	0	-3.6	0	0	0	0	0
35	3	0	0	7.9	-2.5	0	6.2	0	0	0	0
35	4	0	0	0	0	0	0	0	0	0	0
35	5	0	0	0	0	0	0	0	0	0	0
35	6	0	0	0	0	0	0	0	0	0	0
36	0	58.7	-10	-14.4	-4.3	-6.8	-12.8	0	0	0	0
36	1	0	0	-4.9	0	0	-4.3	0	0	0	0
36	2	0	0	0	0	-3.6	0	0	0	0	0
36	3	0	0	7.9	-2.5	0	6.2	0	0	0	0
36	4	0	0	0	0	0	0	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
36	5	0	0	0	0	0	0	0	0	0	0
36	6	0	0	0	0	0	0	0	0	0	0
37	0	64	-8.2	-7.6	-2.9	-6.8	-8.2	0	0	0	0
37	1	0	0	-2.7	0	0	-2.8	0	0	0	0
37	2	0	0	0	0	-3.6	0	0	0	0	0
37	3	0	0	4.1	-2	0	4.1	0	0	0	0
37	4	0	0	0	0	0	0	0	0	0	0
37	5	0	0	0	0	0	0	0	0	0	0
37	6	0	0	0	0	0	0	0	0	0	0
38	0	117.4	-10	-4.3	-4.3	-6.8	-2.8	0	0	0	0
38	1	0	0	-1.5	0	0	-1.1	0	0	0	0
38	2	0	0	0	0	-3.6	0	0	0	0	0
38	3	0	0	1.8	-2.5	0	1.8	0	0	0	0
38	4	0	0	0	0	0	0	0	0	0	0
38	5	0	0	0	0	0	0	0	0	0	0
38	6	0	0	0	0	0	0	0	0	0	0
39	0	39.2	-11.1	-4.4	-4.3	-6.8	-2.8	0	0	0	0
39	1	0	0	-1.5	0	0	-1.1	0	0	0	0
39	2	0	0	0	0	-3.6	0	0	0	0	0
39	3	0	0	1.8	-2.5	0	1.8	0	0	0	0
39	4	0	0	0	0	0	0	0	0	0	0
39	5	0	0	0	0	0	0	0	0	0	0
39	6	0	0	0	0	0	0	0	0	0	0
40	0	350.46	-10	-4.4	-4.3	-6.8	-2.8	0	0	0	0
40	1	0	0	-1.5	0	0	-1.2	0	0	0	0
40	2	0	0	0	0	-3.6	0	0	0	0	0
40	3	0	0	1.8	-2.5	0	1.8	0	0	0	0
40	4	0	0	0	0	0	0	0	0	0	0
40	5	0	0	0	0	0	0	0	0	0	0
40	6	0	0	0	0	0	0	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
41	0	62.83	-1.7	-1.6	-4.1	0	-1.9	0	0	0	0
41	1	0	0	-1.2	0	6.2	-1.6	0	0	0	0
41	2	0	0	0	0	2.8	0	0	0	0	0
41	3	0	0	1.6	-2.1	0	1.7	0	0	0	0
41	4	0	0	0	0	0	0	0	0	0	0
41	5	0	0	0	0	0	0	0	0	0	0
41	6	0	0	0	0	0	0	0	0	0	0
42	0	14.2	-1.7	-1.2	-4.1	0	-1.9	0	0	0	0
42	1	0	0	-0.3	0	6.2	-1.6	0	0	0	0
42	2	0	0	0	0	2.8	0	0	0	0	0
42	3	0	0	0.6	-2.1	0	1.9	0	0	0	0
42	4	0	0	0	0	0	0	0	0	0	0
42	5	0	0	0	0	0	0	0	0	0	0
42	6	0	0	0	0	0	0	0	0	0	0
43	0	31	-1.7	-2	-4.1	0	-2.1	0	0	0	0
43	1	0	0	-0.8	0	6.2	-0.8	0	0	0	0
43	2	0	0	0	0	2.8	0	0	0	0	0
43	3	0	0	1.6	-2.1	0	1.2	0	0	0	0
43	4	0	0	0	0	0	0	0	0	0	0
43	5	0	0	0	0	0	0	0	0	0	0
43	6	0	0	0	0	0	0	0	0	0	0
44	0	21.3	-1.7	-2	-4.1	0	-2.1	0	0	0	0
44	1	0	0	-0.8	0	6.2	-0.8	0	0	0	0
44	2	0	0	0	0	2.8	0	0	0	0	0
44	3	0	0	1.6	-2.1	0	1.2	0	0	0	0
44	4	0	0	0	0	0	0	0	0	0	0
44	5	0	0	0	0	0	0	0	0	0	0
44	6	0	0	0	0	0	0	0	0	0	0
45	0	32.64	-1.7	-1.6	-4.1	0	-1.9	0	0	0	0
45	1	0	0	-1.2	0	6.2	-1.6	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
45	2	0	0	0	0	2.8	0	0	0	0	0
45	3	0	0	1.6	-2.1	0	1.7	0	0	0	0
45	4	0	0	0	0	0	0	0	0	0	0
45	5	0	0	0	0	0	0	0	0	0	0
45	6	0	0	0	0	0	0	0	0	0	0
46	0	39.8	-9.1	-6.8	-4.1	-6.2	-4.6	0	0	0	0
46	1	0	0	-1.8	0	0	-1.5	0	0	0	0
46	2	0	0	0	0	-2.8	0	0	0	0	0
46	3	0	0	2.6	-2.1	0	1.8	0	0	0	0
46	4	0	0	0	0	0	0	0	0	0	0
46	5	0	0	0	0	0	0	0	0	0	0
46	6	0	0	0	0	0	0	0	0	0	0
47	0	49.17	-1.7	-2	-4.1	6.2	-2.6	0	0	0	0
47	1	0	0	-0.8	0	0	-1.2	0	0	0	0
47	2	0	0	0	0	-2.8	0	0	0	0	0
47	3	0	0	1.2	-2.1	0	1.7	0	0	0	0
47	4	0	0	0	0	0	0	0	0	0	0
47	5	0	0	0	0	0	0	0	0	0	0
47	6	0	0	0	0	0	0	0	0	0	0
48	0	32.3	-1.7	-6.8	-4.1	-6.1	-4.6	0	0	0	0
48	1	0	0	-0.8	0	0	-1.2	0	0	0	0
48	2	0	0	0	0	-2.8	0	0	0	0	0
48	3	0	0	1.2	-2.1	0	1.8	0	0	0	0
48	4	0	0	0	0	0	0	0	0	0	0
48	5	0	0	0	0	0	0	0	0	0	0
48	6	0	0	0	0	0	0	0	0	0	0
49	0	61.7	-3.7	-33.9	-3.4	-5	-3.4	0	0	0	0
49	1	0	0	-3.4	0	0	-0.9	0	0	0	0
49	2	0	0	0	0	-2.6	0	0	0	0	0
49	3	0	0	9.8	-1.5	0	3.4	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
49	4	0	0	0	0	0	0	0	0	0	0
49	5	0	0	0	0	0	0	0	0	0	0
49	6	0	0	0	0	0	0	0	0	0	0
50	0	29.2	-4.6	-3.2	-3.8	-6.7	-2.8	0	0	0	0
50	1	0	0	-1.5	0	0	-1.2	0	0	0	0
50	2	0	0	0	0	-3.5	0	0	0	0	0
50	3	0	0	1.8	-2.1	0	1.7	0	0	0	0
50	4	0	0	0	0	0	0	0	0	0	0
50	5	0	0	0	0	0	0	0	0	0	0
50	6	0	0	0	0	0	0	0	0	0	0
51	0	108.3	-17.4	-37.1	-5.9	-7.6	-7.9	0	0	0	0
51	1	0	0	-5.8	0	0	-2.8	0	0	0	0
51	2	0	0	0	0	-3.5	0	0	0	0	0
51	3	0	0	6.7	-4.3	0	4.3	0	0	0	0
51	4	0	0	0	0	0	0	0	0	0	0
51	5	0	0	0	0	0	0	0	0	0	0
51	6	0	0	0	0	0	0	0	0	0	0
52	0	96.3	-17.4	-38.4	-5.9	-7.6	-11.9	0	0	0	0
52	1	0	0	-5.9	0	0	-4.4	0	0	0	0
52	2	0	0	0	0	-3.5	0	0	0	0	0
52	3	0	0	6.8	-4.3	0	6.1	0	0	0	0
52	4	0	0	0	0	0	0	0	0	0	0
52	5	0	0	0	0	0	0	0	0	0	0
52	6	0	0	0	0	0	0	0	0	0	0
53	0	123.1	-17.4	-29	-5.9	-7.6	-3.8	0	0	0	0
53	1	0	0	-6.3	0	0	-0.6	0	0	0	0
53	2	0	0	0	0	-3.5	0	0	0	0	0
53	3	0	0	8.2	-4.3	0	4.9	0	0	0	0
53	4	0	0	0	0	0	0	0	0	0	0
53	5	0	0	0	0	0	0	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
53	6	0	0	0	0	0	0	0	0	0	0
54	0	85.6	-17.4	-30.3	-5.9	-7.6	-12.5	0	0	0	0
54	1	0	0	-4.9	0	0	-3.6	0	0	0	0
54	2	0	0	0	0	-3.5	0	0	0	0	0
54	3	0	0	5.9	-4.3	0	4.9	0	0	0	0
54	4	0	0	0	0	0	0	0	0	0	0
54	5	0	0	0	0	0	0	0	0	0	0
54	6	0	0	0	0	0	0	0	0	0	0
55	0	85.4	-17.4	-29	-5.9	-7.6	-8.1	0	0	0	0
55	1	0	0	-1.2	0	0	-2.7	0	0	0	0
55	2	0	0	0	0	-3.5	0	0	0	0	0
55	3	0	0	4.9	-4.3	0	3.8	0	0	0	0
55	4	0	0	0	0	0	0	0	0	0	0
55	5	0	0	0	0	0	0	0	0	0	0
55	6	0	0	0	0	0	0	0	0	0	0
56	0	165.9	-17.4	-55.2	-5.9	-7.6	-19.9	0	0	0	0
56	1	0	0	-5	0	0	-4.7	0	0	0	0
56	2	0	0	0	0	-3.5	0	0	0	0	0
56	3	0	0	5.5	-4.3	0	6.4	0	0	0	0
56	4	0	0	0	0	0	0	0	0	0	0
56	5	0	0	0	0	0	0	0	0	0	0
56	6	0	0	0	0	0	0	0	0	0	0
57	0	83.5	-17.4	-29	-5.9	-7.6	-6.5	0	0	0	0
57	1	0	0	-3.7	0	0	-2.5	0	0	0	0
57	2	0	0	0	0	-3.5	0	0	0	0	0
57	3	0	0	4.4	-4.3	0	3.6	0	0	0	0
57	4	0	0	0	0	0	0	0	0	0	0
57	5	0	0	0	0	0	0	0	0	0	0
57	6	0	0	0	0	0	0	0	0	0	0
58	0	108.4	-9.1	-24	-5.8	-7.6	-5.5	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
58	1	0	0	-5.9	0	0	-2.1	0	0	0	0
58	2	0	0	0	0	-3.5	0	0	0	0	0
58	3	0	0	7.6	-4.1	0	3.4	0	0	0	0
58	4	0	0	0	0	0	0	0	0	0	0
58	5	0	0	0	0	0	0	0	0	0	0
58	6	0	0	0	0	0	0	0	0	0	0
61	0	84.5	-8.6	-23.6	-6.7	-7.6	-8.1	0	0	0	0
61	1	0	0	-4.4	0	0	-1.9	0	0	0	0
61	2	0	0	0	0	-2.9	0	0	0	0	0
61	3	0	0	6.5	-4.9	0	2.6	0	0	0	0
61	4	0	0	0	0	0	0	0	0	0	0
61	5	0	0	0	0	0	0	0	0	0	0
61	6	0	0	0	0	0	0	0	0	0	0
62	0	84.5	-8.6	-23.7	-6.7	-7.6	-5.9	0	0	0	0
62	1	0	0	-5.5	0	0	-1.5	0	0	0	0
62	2	0	0	0	0	-2.9	0	0	0	0	0
62	3	0	0	7	-4.9	0	1.8	0	0	0	0
62	4	0	0	0	0	0	0	0	0	0	0
62	5	0	0	0	0	0	0	0	0	0	0
62	6	0	0	0	0	0	0	0	0	0	0
63	0	63.8	-8.6	-36.1	-6.7	-7.6	-6.2	0	0	0	0
63	1	0	0	-5.8	0	0	-2.1	0	0	0	0
63	2	0	0	0	0	-2.9	0	0	0	0	0
63	3	0	0	7.6	-4.9	0	3.4	0	0	0	0
63	4	0	0	0	0	0	0	0	0	0	0
63	5	0	0	0	0	0	0	0	0	0	0
63	6	0	0	0	0	0	0	0	0	0	0
64	0	85.4	-8.6	-21.4	-6.7	-7.6	-6.5	0	0	0	0
64	1	0	0	-4.1	0	0	-2.5	0	0	0	0
64	2	0	0	0	0	-2.9	0	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
64	3	0	0	4.7	-4.9	0	3.6	0	0	0	0
64	4	0	0	0	0	0	0	0	0	0	0
64	5	0	0	0	0	0	0	0	0	0	0
64	6	0	0	0	0	0	0	0	0	0	0
70	0	35.9	-1.7	-14.8	-3.7	0	-10.7	0	0	0	0
70	1	0	0	-1.8	0	6.2	-3.6	0	0	0	0
70	2	0	0	0	0	2.8	0	0	0	0	0
70	3	0	0	2	-0.6	0	2	0	0	0	0
70	4	0	0	0	0	0	0	0	0	0	0
70	5	0	0	0	0	0	0	0	0	0	0
70	6	0	0	0	0	0	0	0	0	0	0
71	0	37.9	-1.7	-14.8	-3.7	0	-10.7	0	0	0	0
71	1	0	0	-1.8	0	6.2	-3.6	0	0	0	0
71	2	0	0	0	0	2.8	0	0	0	0	0
71	3	0	0	2	-0.6	0	2	0	0	0	0
71	4	0	0	0	0	0	0	0	0	0	0
71	5	0	0	0	0	0	0	0	0	0	0
71	6	0	0	0	0	0	0	0	0	0	0
72	0	35.9	-1.7	-14.8	-3.7	0	-10.7	0	0	0	0
72	1	0	0	-1.8	0	6.2	-3.6	0	0	0	0
72	2	0	0	0	0	2.8	0	0	0	0	0
72	3	0	0	2	-0.6	0	2	0	0	0	0
72	4	0	0	0	0	0	0	0	0	0	0
72	5	0	0	0	0	0	0	0	0	0	0
72	6	0	0	0	0	0	0	0	0	0	0
73	0	54.3	-1.7	-14.8	-3.7	0	-29	0	0	0	0
73	1	0	0	-1.8	0	6.2	-14.8	0	0	0	0
73	2	0	0	0	0	2.8	0	0	0	0	0
73	3	0	0	2	-0.6	0	5.5	0	0	0	0
73	4	0	0	0	0	0	0	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
73	5	0	0	0	0	0	0	0	0	0	0
73	6	0	0	0	0	0	0	0	0	0	0
74	0	150	-3.7	-1.8	-3.8	0	-1.8	0	0	0	0
74	1	0	0	-0.6	0	6.1	-0.6	0	0	0	0
74	2	0	0	0	0	2.7	0	0	0	0	0
74	3	0	0	0.8	-2.1	0	0.8	0	0	0	0
74	4	0	0	0	0	0	0	0	0	0	0
74	5	0	0	0	0	0	0	0	0	0	0
74	6	0	0	0	0	0	0	0	0	0	0
75	0	300	-3.7	-1.8	-3.8	0	-1.8	0	0	0	0
75	1	0	0	-0.6	0	6.1	-0.6	0	0	0	0
75	2	0	0	0	0	2.7	0	0	0	0	0
75	3	0	0	0.8	-2.1	0	0.8	0	0	0	0
75	4	0	0	0	0	0	0	0	0	0	0
75	5	0	0	0	0	0	0	0	0	0	0
75	6	0	0	0	0	0	0	0	0	0	0
81	0	74.5	-7	-17.7	-3.6	-5.4	-5.5	0	0	0	0
81	1	0	0	-1.8	0	0	-1.6	0	0	0	0
81	2	0	0	0	0	-2.1	0	0	0	0	0
81	3	0	0	2	-2.6	0	1.8	0	0	0	0
81	4	0	0	0	0	0	0	0	0	0	0
81	5	0	0	0	0	0	0	0	0	0	0
81	6	0	0	0	0	0	0	0	0	0	0
82	0	61.6	-9.1	-24	-5.8	-7.4	-5.5	0	0	0	0
82	1	0	0	-5.9	0	0	-2.1	0	0	0	0
82	2	0	0	0	0	-3.5	0	0	0	0	0
82	3	0	0	7.6	-4.1	0	3.4	0	0	0	0
82	4	0	0	0	0	0	0	0	0	0	0
82	5	0	0	0	0	0	0	0	0	0	0
82	6	0	0	0	0	0	0	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
83	0	32.2	-4.6	-4.3	-3.8	-6.7	-2.8	0	0	0	0
83	1	0	0	-1.5	0	0	-1.2	0	0	0	0
83	2	0	0	0	0	-3.5	0	0	0	0	0
83	3	0	0	1.8	-2.1	0	1.7	0	0	0	0
83	4	0	0	0	0	0	0	0	0	0	0
83	5	0	0	0	0	0	0	0	0	0	0
83	6	0	0	0	0	0	0	0	0	0	0
84	0	14.8	-3.7	-1.8	-3.8	0	-1.8	0	0	0	0
84	1	0	0	-0.6	0	6.1	-0.6	0	0	0	0
84	2	0	0	0	0	2.7	0	0	0	0	0
84	3	0	0	0.8	-2.1	0	0.8	0	0	0	0
84	4	0	0	0	0	0	0	0	0	0	0
84	5	0	0	0	0	0	0	0	0	0	0
84	6	0	0	0	0	0	0	0	0	0	0
85	0	33.9	-9	-16.6	-3.8	-5.8	-6.3	0	0	0	0
85	1	0	0	-2.8	0	0	-1.9	0	0	0	0
85	2	0	0	0	0	-2.1	0	0	0	0	0
85	3	0	0	3.6	-2.8	0	2.7	0	0	0	0
85	4	0	0	0	0	0	0	0	0	0	0
85	5	0	0	0	0	0	0	0	0	0	0
85	6	0	0	0	0	0	0	0	0	0	0
86	0	14.8	-3.7	-1.8	-3.8	0	-1.8	0	0	0	0
86	1	0	0	-0.6	0	6.1	-0.6	0	0	0	0
86	2	0	0	0	0	2.7	0	0	0	0	0
86	3	0	0	0.8	-2.1	0	0.8	0	0	0	0
86	4	0	0	0	0	0	0	0	0	0	0
86	5	0	0	0	0	0	0	0	0	0	0
86	6	0	0	0	0	0	0	0	0	0	0
88	0	14.8	-3.7	-1.8	-3.8	0	-1.8	0	0	0	0
88	1	0	0	-0.6	0	6.1	-0.6	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
88	2	0	0	0	0	2.7	0	0	0	0	0
88	3	0	0	0.8	-2.1	0	0.8	0	0	0	0
88	4	0	0	0	0	0	0	0	0	0	0
88	5	0	0	0	0	0	0	0	0	0	0
88	6	0	0	0	0	0	0	0	0	0	0
90	0	4.5	0	-1.6	0	0	0	0	0	0	0
90	1	0	0	-1.2	0	0	0	0	0	0	0
90	2	0	0	0	0	0	0	0	0	0	0
90	3	0	0	1.6	0	0	0	0	0	0	0
90	4	0	0	0	0	0	0	0	0	0	0
90	5	0	0	0	0	0	0	0	0	0	0
90	6	0	0	0	0	0	0	0	0	0	0
91	0	10.9	-3.7	-1.8	0	0	-1.8	0	0	0	0
91	1	0	0	-0.6	3.8	6.1	-0.6	0	0	0	0
91	2	0	0	0	3.8	2.8	0	0	0	0	0
91	3	0	0	0.9	2.1	0	0.9	0	0	0	0
91	4	0	0	0	0	0	0	0	0	0	0
91	5	0	0	0	0	0	0	0	0	0	0
91	6	0	0	0	0	0	0	0	0	0	0
95	0	33	-10	-1.8	-4.3	-6.8	0	0	0	0	0
95	1	0	0	-0.6	0	0	0	0	0	0	0
95	2	0	0	0	0	-3.6	0	0	0	0	0
95	3	0	0	0.8	-2.5	0	0	0	0	0	0
95	4	0	0	0	0	0	0	0	0	0	0
95	5	0	0	0	0	0	0	0	0	0	0
95	6	0	0	0	0	0	0	0	0	0	0
100	0	231.9	0	0	0	0	0	0	0	0	0
100	1	0	0	0	0	0	0	0	0	0	0
100	2	0	0	0	0	0	0	0	0	0	0
100	3	0	0	0	0	0	0	0	0	0	0

Commercial Other Rates by Use Type											
USE TYPE	CAT LVL	INT. FIN RT (1)	UNFIN RATE (2)	PARTITION RT (3)	HEATING RATE (4)	A/C RATE (5)	PLUMBING RT (6)	SPRINKLER RT (7)	LIGHTING RT (8)	ANY OTHER (9)	ANY OTHER (10)
100	4	0	0	0	0	0	0	0	0	0	0
100	5	0	0	0	0	0	0	0	0	0	0
100	6	0	0	0	0	0	0	0	0	0	0
990	0	0.2	0	0	0	0	0	0	0	0	0
990	1	0	0	0	0	0	0	0	0	0	0
990	2	0	0	0	0	0	0	0	0	0	0
990	3	0	0	0	0	0	0	0	0	0	0
990	4	0	0	0	0	0	0	0	0	0	0
990	5	0	0	0	0	0	0	0	0	0	0
990	6	0	0	0	0	0	0	0	0	0	0

513 Commercial Ext Wall Adjustment

Exterior Wall Code	Basic 1	Basic 2	Basic 3	Basic 4	Basic 5	Basic 6	Basic 7	Basic 8	Basic 9	Basic 10
0	0	0	0	0	0	0	0	0	0	0
1	25.51	21.67	26.07	24.83	29.01	28.56	20.99	29.01	0	21.67
2	17.16	15.92	18.51	17.16	19.08	18.74	14.45	19.08	0	15.92
3	22.24	19.87	21.78	20.32	24.49	23.37	15.92	24.49	0	19.87
4	23.7	20.88	24.04	22.69	26.64	25.85	18.4	26.64	0	20.88
5	31.83	31.27	31.94	30.25	31.27	31.49	0	31.27	0	31.27
6	21.22	18.74	22.35	20.99	24.04	23.59	17.61	24.04	0	18.74
7	0	0	5.53	5.53	5.53	5.53	4.74	5.53	0	0
8	0	0	27.43	25.96	25.96	25.96	25.96	25.96	0	0
9	24.04	22.35	25.62	24.72	27.54	26.86	19.41	27.54	0	22.35
10	22.91	0	23.37	22.8	25.4	23.14	18.17	25.4	0	0
11	37.14	34.99	37.59	34.31	39.39	38.6	30.02	39.39	0	34.99
12	34.09	31.83	33.86	31.15	38.04	40.3	0	38.04	0	31.83
13	0	0	0	4.97	0	0	5.19	0	0	0
14	0	0	20.2	18.29	20.99	20.88	13.88	20.99	0	0
15	56.32	55.87	59.71	55.2	65.58	64.45	0	65.58	0	55.87
16	15.35	14.45	16.93	16.14	17.72	17.27	11.63	17.72	0	14.45
17	22.91	20.2	23.48	22.8	25.4	22.12	0	25.4	0	0

550 Commercial Table Base

Code	Description	#	Rate (3)
EL1	EL1-ELEC FREIGT	1	7,560
EL2	EL2-ELEC PSSNGR	2	3,550
EL3	EL3-HYDR FRIGHT	3	8,250
EL4	EL4-HYDR PSSNGR	4	7,000

551 Commercial Other Features

Commercial Other Features		
Code	**Description**	**Rate**
AC1	AC1-CENTRAL AIR	6.66
AC2	AC2-UNIT AIR	3.5
AT1	AT1-ATRIUM/COVR	64.56
AT2	AT2-ATRIUM WALL	23.37
AW1	AW1-AERIAL WALK	403.64
BA1	BA1-BALCONY	23.7
BC1	BC1-BANK CANOPY	58.13
BE1	BE1-BANK MONEY	208.25
BE2	BE2-BANK REC ST	62.87
BE9	BE9-BANK TELLER	149.56
BT1	BT1-BASEMNT TOP	14.9
CF1	CF1-COOLER CHIL	14.45
CF2	CF2-COOL FREEZE	18.17
CF3	CF3-COOL SHARP	24.72
CM1	CM1-COVER MALL	48.42
CP5	CP5-CANOPY ONLY	7.56
CP6	CP6-CNPY RF/SLB	12.64
CP7	CP7-CANOPY ECON	20.32
CP8	CP8-CANOPY AVG	33.86
CP9	CP9-CANOPY GOOD	45.15
CR1	CR1-COMPU FLOOR	22.69
DL1	DL1-DOCK LEVEL	2.14
EE1	EE1-ENCLO ENTRY	43.57
FE1	FE1-FIRE ESCAPE	2,483.25
GH1	GH1-GREEN ECON	15.92
GH2	GH2-GREEN AVG	20.43
GH3	GH3-GREEN GOOD	23.82
LD1	LD1-LOAD STL. -	19.3
LD2	LD2-LOAD WOOD	13.09
LD3	LD3-INT LOAD DK	41.99
LD4	LD4-TRUCK/TRAIN	23.03
LP3	LP3-PATIO CONCR	5.08
LP4	LP4-PATIO ASPHA	3.5
LP5	LP5-PATIO FLGST	10.27
LP6	LP6-PATIO FLAG	13.55
LP7	LP7-PATIO BRICK	5.08
MR1	MR1-ROOF MONITO	6.21
MR2	MR2-ROOF HI BAY	6.21
OA1	OA1-APART/HOTEL	11.96
OA2	OA2-MOTEL/APT	10.95
OA3	OA3-STORE/RESTA	12.87
OA4	OA4-INDUST/WARE	12.87
OA5	OA5-BANK/OFF	15.69
OA6	OA6-THEAT/AUDIT	16.93
OA7	OA7-LIGHT METAL	9.26

Commercial Other Features		
Code	**Description**	**Rate**
OA8	OA8-HI RISE OFF	16.14
OD1	OD1-OVHD WD/MTL	22.35
OD2	OD2-OVHD STEEL	35.44
OD3	OD3-OVHD MTR WD	29.69
OD4	OD4-OVHD MTR ST	47.18
RC1	RC1-CARPORT/CAN	12.64
RG1	RG1-GARGE FRAME	28.11
RG2	RG2-GARGE MASON	36.12
RP1	RP1-PORCH OPEN	36.35
RP2	RP2-PORCH ENCL	56.89
RP3	RP3-PORCH OP UP	22.8
RP4	RP4-PORC ENC UP	34.09
RP5	RP5-PORCH COVRD	31.27
RP6	RP6-PORCH SCRND	49.67
RP7	RP7-PRCH COV-UP	18.74
RP8	RP8-PRCH SCRN U	27.09
RS1	RS1-UTIL FRAME	17.04
RS2	RS2-UTIL METAL	22.8
RS3	RS3-UTIL BRICK	24.83
SC2	SC2-INDOOR POOL	80.82
SK1	SK1-SKATIN RINK	24.49
SS1	SS1-SPRINK WET	2.26
SS2	SS2-SPRINK DRY	2.82
TS1	TS1-TRUCK SCALE	130.71
WD1	WD1-WOOD DECK	15.8

552 Other Features Linear Ft

Code	Description	Rate
CW1	CW1-CRANEWAYS	31.45
EL5	EL5-ESCLATOR 32	5,720
EL6	EL6-ESCALTOR 48	6,850
SF1	SF1-FRONT WOOD	71.55
SF2	SF2-FRONT AVG	143.05
SF3	SF3-FRONT ELABO	214.55
TU1	TU1-TUNNEL PEDE	300.35
TU2	TU2-TUNNEL UTIL	107.2

553 Other Features Flat Rate

Code	Description	Rate
BE0	BE0-BANK TUPE	6,500
BE3	BE3-BANK CIRC	106,590
BE4	BE4-BANK RECT	28,610
BE5	BE5-BANK REC ST	2,280
BE6	BE6-BANK NIGHT	5,930
BE7	BE7-BANK DRIVE	7,640
BE8	BE8-BANK SERVIC	6,270
FI1	FI1-FIRE W/ ONE	2,500
FI2	FI2-FIRE W/ TWO	3,860
FI3	FI3-FIREPLACE	5,100
LD5	LD5-DOCK LEVEL	3,700
MS1	MS1-MISCELL	1
TS2	TS2-TRUCK SCALE	5,600

554 Commercial Elevator

Width	Length	EL1 Rate (1)	EL2 Rate (2)	EL3 Rate (3)	EL4 Rate (4)
50	1500	45,200	39,000	15,000	16,500
75	1500	45,200	39,000	20,800	19,500
100	1500	45,200	39,000	20,800	22,600
125	1500	48,700	44,000	26,800	25,500
150	1500	48,700	44,000	26,800	28,500
200	1500	52,300	48,400	32,600	34,500
250	1500	55,700	53,400	32,600	34,500
300	1500	59,200	58,000	32,600	34,500
350	1500	62,800	0	32,600	34,500
400	1500	66,300	0	32,600	34,500
500	1500	66,300	0	32,600	34,500
600	1500	66,300	0	32,600	34,500
700	1500	66,300	0	32,600	34,500
800	1500	66,300	0	32,600	34,500
900	1500	66,300	0	32,600	34,500
1000	1500	66,300	0	32,600	34,500
1100	1500	66,300	0	32,600	34,500
1200	1500	66,300	0	32,600	34,500
1300	1500	66,300	0	32,600	34,500
1400	1500	66,300	0	32,600	34,500
50	2000	45,200	49,000	15,000	19,200
75	2000	45,200	49,000	20,800	22,600
100	2000	45,200	49,000	20,800	25,700
125	2000	48,700	49,000	26,800	28,900
150	2000	48,700	49,000	26,800	32,100
200	2000	52,300	53,500	32,600	38,600
250	2000	55,700	58,400	32,600	38,600
300	2000	59,200	63,000	32,600	38,600
350	2000	62,800	109,900	32,600	38,600
400	2000	66,300	109,900	32,600	38,600
500	2000	66,300	127,900	32,600	38,600
600	2000	66,300	144,900	32,600	38,600
700	2000	66,300	162,900	32,600	38,600
800	2000	66,300	179,800	32,600	38,600
900	2000	66,300	197,800	32,600	38,600
1000	2000	66,300	214,800	32,600	38,600
1100	2000	66,300	232,800	32,600	38,600
1200	2000	66,300	249,800	32,600	38,600
1300	2000	66,300	267,800	32,600	38,600
1400	2000	66,300	284,800	32,600	38,600