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Uniform Schedule of Values, Standards, and Rules 2023 Revaluation Book 2

Prepared By: The Rutherford County Revenue Department

REVENUE DEPARTMENT
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Rutherford County, NC
2023 Schedule of Values, Standards and Rules
Prepared by the Rutherford County Revenue Department

for the

Rutherford County Board of Commissioners
Bryan King – Chairman
Greg Lovelace – Commissioner
David Hunt – Commissioner
Michael Benfield – Commissioner
Alan Toney – Commissioner

Adopted:

_____
Date

Signed:

_____
Chairman, Rutherford County Board of Commissioners

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Introduction

The intent of this manual is to function as an efficient appraisal tool for the local taxing authority. Proper use of this manual will assure that future assessments of real estate will be calculated in a fair and equitable manner following the general revaluation program.

Following extensive research of area property values, we are recommending the values and rates enclosed in this manual. 50 A copy of this manual is located in the Revenue Office, Office of the Clerk to the Board, and Online at rutherfordcountync.gov. The residential, rural and commercial building costs were calculated according to construction quality and grade. Proper application of the enclosed cost schedules will result in fair replacement costs consistent with construction cost in Rutherford County as of January 1, 2023.

The land value schedules were also prepared after extensive research of all land classes in the area. The enclosed land schedules have been examined against properties of known value, which varied not only as to class but also as to specific location. These schedules have been proven to be fair and equitable on all classes of property and their proper application will result in reasonable estimates of value in Rutherford County as of January 1, 2023.

It is important to emphasize that while this manual provides an accurate resource to land and building valuation, it also serves the important role of equalization. If the schedule and appraisal guidelines enclosed in this manual are followed, then the local taxing authority will be able to maintain an equalization of values in the years following the general revaluation program. We have attempted to present these guidelines in a clear, detailed, and easy to use format that will allow the efficient and accurate assignment of equal values to all classes of property.
The 2021 edition of the Machinery Act of North Carolina, Chapter 105, Taxation, apply to and are followed in this 2023 Schedule of Values.

North Carolina General Statues
Chapter 105 – Taxation

1. Revaluation Schedule

§ 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 101 lowing 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.

(l) Schedule of Initial Reappraisals.

Division One - 1972: Avery, Camden, Cherokee. Cleveland, Cumberland. Guilford. Harnett, Haywood, Lee, Montgomery, Northampton, and Robeson.

Division Two - 1973: Caldwell, Carteret, Columbus, Currituck,
Davidson, Gaston, Greene, Hyde, Lenoir, Madison, Orange, Pamlico, Pitt, Richmond, Swain, Transylvania, and Washington.

Division Three - 1974: Ashe, Buncombe, Chowan, Franklin,
Henderson, Hoke, Jones, Pasquotank, Rowan, and Stokes.

Division Four - 1975: Alleghany, Bladen, Brunswick, Cabarrus, Catawba, Dare, Halifax, Macon, New Hanover, Surry, Tyrrell, and Yadkin.

Division Five - 1976: Bertie, Caswell, Forsyth, Iredell, Jackson. Lincoln, Onslow, Person, Perquimans, Rutherford, Union, Vance, Wake, Wilson, and Yancey.

Division Six - 1977: Alamance, Durham, Edgecombe, Gates,
Martin, Mitchell, Nash, Polk, Randolph, Stanly, Warren, and Wilkes.

Division Seven - 1978: Alexander, Anson, Beaufort, Clay, Craven, Davie, Duplin, and Granville.

Division Eight - 1979: Burke, Chatham, Graham, Hertford, Johnston, McDowell, Mecklenburg, Moore, Pender, Rockingham, Sampson, Scotland, Watauga, and Wayne.

(2) **Mandatory Advancement.** - A county whose population is 75,000 or greater according to the most recent annual population estimates certified to the Secretary by the State Budget Officer must conduct a reappraisal of real property when the county's sales assessment ratio determined under G.S. 105-289(h) is less than .85 or greater than 1.15, as indicated on the notice the county receives under G.S. 105-284. A reappraisal required under this subdivision must become effective no later than January 1 of the earlier of the following years:

a. The third year following the year the county received the notice.

b. The eighth year following the year of the county's last reappraisal.

(3) **Optional Advancement.** - A county may conduct a reappraisal of real property earlier than required by subdivision (l) or (2) of this subsection if the board of county commissioners adopts a resolution providing for advancement of the reappraisal. The resolution must designate the effective date of the advanced reappraisal and may designate a new reappraisal cycle that is more frequent than the octennial cycle set in subdivision (l) of this subsection. The board of county commissioners must promptly forward a copy of the resolution adopted under this subdivision to the Department of Revenue. A more frequent reappraisal cycle designated in a resolution adopted under this subdivision continues in effect after a mandatory reappraisal required under subdivision (2) of this subsection unless the board of county commissioners adopts another resolution that designates a different date for the county's next reappraisal. (b). (e) Repealed by Session Laws 2008-146. s. 1.1, effective July 1, 2009. (1939. c. 310. s. 300: 1941, c. 282, ss. l. 1 1/2; 1943, c. 634. s. l; 1945, c. 5: 1947, c. 50; 1949, c. 109; 1951, c. 847: 1953, c. 395; 1955, c. 1273: 1957, c. 1453, s. 1; 1959. c. 704, s. l; 1971, c. 806, s. l: 1973, c. 476, s. 193: 1987, c. 45, s. l; 2008-146, s. 1.1.)

2. Schedule of Values Requirement

§ 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 tor 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:

(l) 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. l.

(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)(l) 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:

(l) 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 to 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. (1939. c. 310, s. 501; 1959, c. 704. s. 4; 1967. c. 944; 1971, c. 806, s. 1; 1973, c. 476. s. 193; c. 695, s. 5; 1981. c. 224; c. 678, s. l; 1985, c. 216, s. 2; c. 628, s. 4; 1987, c. 45, s. l; c. 295, s. 1; 1997-226. s. 5.)

3. Listing and Appraisal Requirements

§ 105-285. Date as of which property is to be listed and appraised.

(a) Annual Listing Required. - All property subject to ad valorem taxation shall be listed annually.

(b) Personal Property: General Rule. - Except as otherwise provided in this Chapter, the value, ownership, and place of taxation of personal property, both tangible and intangible, shall be determined annually as of January 1.

(c) Repealed by Session Laws 1987, c. 813, s. 12.

(d) Real Property. - The value of real property shall be determined as of January 1 of the years prescribed by G.S. 105-286 and G.S. 105-287. The ownership of real property shall be determined annually as of January l, except in the following situation: When any real property is acquired after January 1, but prior to July l, and the property was not subject to taxation on January 1 on account of its exempt status, it shall be listed for taxation by the transferee as of the date of acquisition and shall be appraised in accordance with its true value as of January 1 preceding the date of acquisition; and the property shall be taxed for the fiscal year of the taxing unit beginning on July 1 of the year in which it is acquired. The person in whose name such property is listed shall have the right to appeal the listing, appraisal, and assessment of the property in the same manner as that provided for listings made as of January 1.

In the event real property exempt as of January 1 is, prior to July l, acquired from a governmental unit that by contract is making payments in lieu of taxes to the taxing unit for the fiscal period beginning July 1 of the year in which the property is acquired, the tax on such property for the fiscal period beginning on July 1 immediately following acquisition

shall be one half of the amount of the tax that would have been imposed if the property had been listed for taxation as of January l . (1939, c. 310, s. 302; 1945, c. 973: 1971, c. 806, s. l; 1973, c. 735; 1985, c. 656. s. 21: 1987, c. 813. s. 12; 1993, c. 485, s. 17.)

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

(a) Taxable real property shall be listed in the name of the owner, and it shall be the owner's duty to list it unless the board of county commissioners shall have adopted a permanent listing system as provided in G.S. 105-303(b). For purposes of this section, the board of county commissioners may require that real property be listed in the name of the owner of record as of the day as of which property is to be listed under G.S. 105-285.

(b) If real property is listed in the name of one other than the person in whose name it should be listed, and the name of the proper person is later ascertained, the abstract and tax records shall be corrected to list the property in the name of the person in whose name it should have been listed. The corrected listing shall have the same force and effect as if the real property had been listed in the name of the proper person in the first instance.

(c) For purposes of this Subchapter:

(1) The owner of the equity of redemption in real property subject to a mortgage or deed of trust shall be considered the owner of the property, and such real property shall be listed in the name of the owner of the equity of redemption.

(2) Real property owned by a corporation shall be listed in the name of the corporation.

(3) Real property owned by an unincorporated association shall be listed in the name of the association.

(4) Real property owned by a partnership shall be listed in the name of the partnership.

(5) Real property held in connection with a sole proprietorship shall be listed in the name of the owner, and the name and address of the proprietorship shall be noted on the abstract.

(6) Real property of which a decedent died possessed, if not under the control of an executor or administrator, shall be listed in the names of the heirs or devisees if known, but such property may be listed as property of "the heirs" or "the devisees" of the decedent, without naming them, until they have given the assessor notice of their names and of the division of the estate. It shall be the duty of an executor or administrator having control of real property to list it in his fiduciary capacity, as required by subdivision (c)(7) below, until he is divested of control of the property. However, the right of an administrator or executor of a deceased person to petition for the sale of real property to make assets shall not be considered control of the real property for the purposes of this subdivision.

(7) Real property, the title to which is held by a trustee, guardian, or other fiduciary, shall be listed by the fiduciary in his fiduciary capacity except as otherwise provided in this section.

(8) A life tenant or tenant the life of another shall be considered the owner of real property, and it shall be his duty to list the property for taxation.
indicating on the abstract that he is a life tenant or tenant for the life of another named individual.

(9) Upon request to and with the approval of the assessor, undivided interests in real property owned by tenants in common who are not copartners may be listed by the respective owners

in accordance with their respective undivided interests. Otherwise, real property held by tenants in common shall be listed in the names of all the owners.

(10) Real property owned by husband and wife as tenants by the entirety shall be listed on a single abstract in the names of both tenants, and the nature of their ownership shall be indicated thereon.

(1l) 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.

(12) If the person in whose name real property should be listed is unknown, or if title to real property is in dispute, the property shall be listed in the name of the occupant or, if there be no occupant, in the name of "unknown owner." Such a listing shall not affect the validity of the lien for taxes created by G.S. 105-355. When the name of the owner is later ascertained, the provisions of subsection (b), above, shall apply.

(13) Real property, owned under a time-sharing arrangement but managed by a homeowners association or other managing entity, shall be listed in the name of the managing entity. (1 939, c. 310, s. 701; 1971, c. 806, s. 1 :1983. c. 785, s. l; 1987, c. 45. s. l.)

§ 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.

(l) 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 address 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:

(l) 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:

(l) 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 willflll 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).)

§ 105-303. Obtaining information on real property transfers; permanent listing.

(a) To facilitate the accurate listing of real property for taxation, the board of county commissioners may require the register of deeds to comply with the provisions of subdivision (a)(1), below, or it may require him to comply with the provisions of subdivision (a)(2), below:

(1) When any conveyance of real property (other than a deed of trust or mortgage) is recorded, the board of county commissioners may require the register of deeds to certify to the assessor:

a. The name of the person conveying the property.

b. The name and address of the person to whom the property is being conveyed.

c. A description of the property sufficient to locate and identify it.

d. A statement as to whether the parcel is conveyed in whole or in part.

(2) When any conveyance of real property (other than a deed of trust or mortgage) is submitted for recordation, the board of county commissioners may require the register of deeds to refuse to record it unless it has been presented to the assessor and the assessor has noted thereon that he has obtained the information he desires from the conveyance and from the person recording it.

(b) The board of commissioners of each county must install a permanent listing system. Each county must obtain the approval of the Department of Revenue for its permanent listing system. Under such a system the provisions of subdivisions (b)(1) through (b)(4) of this subsection apply.

(1) The assessor is responsible for listing all real property on the abstracts and tax records each year in the name of the owner of record as of the day as of which property is to be listed under G.S. 105-285.

(2) Persons whose duty it is to list real property under the provisions of G.S. 105-302 are relieved of that duty, but annually, during the listing period established by G.S. 105-307, these persons must furnish the assessor with the information concerning improvements on and separate rights in real property required by G.S. 105-309(c)(3) through (c)(5).

(3) The penalties imposed by G.S. 105-308 and 105-312 do not apply to failure to list real property for taxation, but they apply to failure to comply with the provisions of subdivision (b)(2) of this subsection with respect to reporting the construction or acquisition of improvements on and separate rights in real property. In such a case, the penalty prescribed by G.S. 105-312 shall be computed on the basis of the tax imposed on the improvements and separate rights.

(4) The Department of Revenue may authorize the board of county commissioners to make additional modifications of the listing requirements of this Subchapter, as long as the modifications do not conflict with subdivisions (b)(1) through (b)(3) of this subsection. (1939, c. 310, s. 701; 1971, c. 806, s. 1; 1973, c. 476, s. 193; c. 789; 1987, c. 43, s. 4; c. 45, s. 1; 1999-297, s. 3.)

§ 105-317.2. Report on transfers of real property.

To facilitate the accurate appraisal of real property for taxation, the information listed in this section must be included in each deed conveying property. The following information is required:

(1) The name of each grantor and grantee and the mailing address of each grantor and grantee.

(2) A statement whether the property includes the primary residence of a grantor.

Failure to comply' with this section does not affect the validity of a duly recorded deed. This section does not apply to deeds of trust, deeds of release, or similar instruments. (2009-454, s.
1.)

§ 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. (1939, c. 310, s. 500; 1953, c. 970, s. 5; 1955, c. 1100, s. 2; 1959, c. 682; 1967, c. 892, s. 7; 1969, c. 945, s. 1; 1971, c. 806, s. 1; 1973, c. 695, s. 11; 1977, 2nd Sess., c. 1297.)

§ 105-284. Uniform assessment standard.

(a) Except as otherwise provided in this section, all property, real and personal, shall be assessed for taxation at its true value or use value as determined under G.S. 105-283 or G.S. 105-277.6, and taxes levied by all counties and municipalities shall be levied uniformly on assessments determined in accordance with this section.

(b) The assessed value of public service company system property subject to appraisal by the Department of Revenue under G.S. 105-335(b)(1) shall be determined by applying to the allocation of such value to each county a percentage to be established by the Department of Revenue. The percentage to be applied shall be either:

(1) The median ratio established in sales assessment ratio studies of real property conducted by the Department of Revenue in the county in the year the county conducts a reappraisal of real property and in the fourth and seventh years thereafter; or

(2) A weighted average percentage based on the median ratio for real property established by the Department of Revenue as provided in subdivision (1) and a one hundred percent (100%) ratio for personal property. No percentage shall be applied in a year in which the median ratio for real property is ninety percent (90%) or greater.

If the median ratio for real property in any county is below ninety percent (90%) and if the county assessor has provided information satisfactory to the Department of Revenue that the county follows accepted guidelines and practices in the assessment of business personal property, the weighted average percentage shall be applied to public service company property. In calculating the weighted average percentage, the Department shall use the assessed value figures for real and personal property reported by the county to the Local Government Commission for the preceding year. In any county which fails to demonstrate that it follows accepted guidelines and practices, the percentage to be applied shall be the median ratio for real property. The percentage established in a year in which a sales assessment ratio study is conducted shall continue to be applied until another study is conducted by the Department of Revenue.

(c) Notice of the median ratio and the percentage to be applied for each county shall be given by the Department of Revenue to the chairman of the board of commissioners not later than April 15 of the year for which it is to be effective. Notice shall also be given at the same time to the public service companies whose property values are subject to adjustment under this section. Either the county or an affected public service company may challenge the real property ratio or the percentage established by the Department of Revenue by giving notice of exception within 30 days after the mailing of the Department's notice. Upon receipt of such notice of exception, the Department shall arrange a conference with the challenging party or parties to review the matter. Following the conference, the Department shall notify the challenging party or parties of its final determination in the matter. Either party may appeal the Department's determination to the Property Tax Commission by giving notice of appeal within 30 days after the mailing of the Department's decision.

(d) Property that is in a development financing district and that is subject to an agreement entered into pursuant to G.S. 159-108 shall be assessed at its true value or at the minimum value set out in the agreement, whichever is greater.(1939, c. 310, s. 500; 1953, c. 970, s. 5; 1955, c. 1100, s. 2; 1959, c. 682; 1967, c. 892, s. 7; 1969, c. 945, s. 1; 1971, c. 806, s. 1; 1973, c. 695, s. 12; 1985, c. 601, s. 1; 1987 (Reg. Sess., 1988), c. 1052, s. 1; 2003-403, s. 20.)

§ 105-287. Changing appraised value of real property in years in which general reappraisal is not made.

(a) In a year in which a general reappraisal of real property in the county is not made under G.S. 105-286, the property shall be listed at the value assigned when last appraised unless the value is changed in accordance with this section. The assessor shall increase or decrease the appraised value of real property, as determined under G.S. 105-286, to recognize a change in the property's value resulting from one or more of the following reasons:

(1) Correct a clerical or mathematical error.

(2) Correct an appraisal error resulting from a misapplication of the schedules, standards, and rules used in the county's most recent general reappraisal.

(2a) Recognize an increase or decrease in the value of the property resulting from a conservation or preservation agreement subject to Article 4 of Chapter 121 of the General Statutes, the Conservation and Historic Preservation Agreements Act.

(2b) Recognize an increase or decrease in the value of the property resulting from a physical change to the land or to the improvements on the land, other than a change listed in subsection (b) of this section.

(2c) Recognize an increase or decrease in the value of the property resulting from a change in the legally permitted use of the property.

(3) Recognize an increase or decrease in the value of the property resulting from a factor other than one listed in subsection (b).

(b) In a year in which a general reappraisal of real property in the county is not made, the assessor may not increase or decrease the appraised value of real property, as determined under G.S. 105-286, to recognize a change in value caused by:

(1) Normal, physical depreciation of improvements;

(2) Inflation, deflation, or other economic changes affecting the county in general; or

(3) Betterments to the property made by:

a. Repainting buildings or other structures;
b. Terracing or other methods of soil conservation;
c. Landscape gardening;
d. Protecting forests against fire; or
e. Impounding water on marshland for non-commercial purposes to preserve or enhance the natural habitat of wildlife.

(c) An increase or decrease in the appraised value of real property authorized by this section shall be made in accordance with the schedules, standards, and rules used in the county's most recent general reappraisal. An increase or decrease in appraised value made under this section is effective as of January 1 of the year in which it is made and is not retroactive. The reason for an increase or decrease in appraised value made under this section need not be under the control of or at the request of the owner of the affected property. This section does not modify or restrict the provisions of G.S. 105-312 concerning the appraisal of discovered property.

(d) Notwithstanding subsection (a), if a tract of land has been subdivided into lots and more than five acres of the tract remain unsold by the owner of the tract, the assessor may appraise the unsold portion as land acreage rather than as lots. A tract is considered subdivided into lots when the lots are located on streets laid out and open for travel and the lots have been sold or offered for sale as lots since the last appraisal of the property. (1939, c. 310, ss. 301, 500; 1953, c. 970, s. 5; 1955, c. 901; c. 1100, s. 2; 1959, c. 682; c. 704, s. 2; 1963, c. 414; 1967, c. 892, s. 7; 1969, c. 945, s. 1; 1971, c. 806, s. 1; 1973, c. 695, s. 10; c. 790, s. 2; 1987, c. 655; 1997-226, s. 4; 2001-139, s. 2; 2008-146, s. 1.2.)

[a] Source: North Carolina General Assembly, Statues North Carolina Machinery Act http://www.ncga.state.nc.us/statues/generalstatues/html bychapter/chapter

North Carolina Department of Revenue Tax Information

According to the North Carolina Department of Revenue, the three main elements of the property tax system in North Carolina are real property, personal property, and motor vehicles. For the purpose of this reassessment manual, we will only be addressing elements pertaining to Real Property taxation.

Real Property Taxation

The Machinery Act (General Statue 105, Subchapter Il) provides the framework for the listing, assessing, and appraising of both real and personal property in North Carolina. Under G.S. 105-286, all counties are required to conduct a reappraisal at least every eight (8) years. The majority of the counties conduct their reappraisals on a four-year cycle. During each year, at least 11 of the 100 counties are conducting a countywide reappraisal. A county may choose to conduct a reappraisal "in-house" utilizing their own appraisal staff, by hiring an outside reappraisal firm, or by employing consultants to assist their staff appraisers.

During the years that a general reappraisal is not made in the county, G.S. 105-287 is the operative statue for changing any property values in the county. The assessor is limited to certain circumstances in which they may change the value of real property. These include correcting a clerical or mathematical error, or correcting an appraisal, which resulted from a misapplication of the schedules used in the counties last general reappraisal. Also, the assessor may increase or decrease the appraised value of real property, to recognize a change in value caused by factors other than the following: normal physical depreciation of the improvements, economic conditions affecting the county as a whole, or minor improvements to the property such as repainting, landscaping, terracing etc.

Appeal Process

During the year of the reappraisal or any year of the reappraisal cycle, a taxpayer may appeal the appraised value of his property. The taxpayer may appeal any property valuation in the county, so long as the taxpayer owns property in the county.

In many cases, the first step is to contact the tax office informally and seek to resolve the difference without filing a formal appeal. If the appeal cannot be settled informally, the taxpayer may appeal to the local Board of Equalization and Review, which begins its deliberations around the first week in April. The board of county commissioners may comprise the Board of
Equalization and Review or the county commissioners may appoint a special board to handle the appeals. This level of the appeal process is more formal, with the taxpayer being allotted a specific amount of time to present his case and the county also having time to present its side. The Board of Equalization and Review may choose to decide the appeal immediately or choose to delay its decision and deliberate further. The taxpayer should receive a copy of this decision in writing.

If the taxpayer is not satisfied with the decision of the local board, they may appeal to the State Board of Equalization and Review, known as the Property Tax Commission. The Commission meets monthly in Raleigh to decide questions on the taxability, situs, value, or any other part of the listing and assessing functions. The Commission is a trial court. Like any trial court, it is required to follow the North Carolina Rules of Evidence. When the taxpayer appeals, the taxpayer has the burden of proof. Individual taxpayers are not required to have an attorney. The Commission will render its decision within a short time, based upon the greater weight of the evidence. Evidence is usually presented as sworn testimony and/or documents. The county has the opportunity to cross-examine any witness. The taxpayer may appeal a decision of the
Property Tax Commission to the North Carolina Court of Appeals and the North Carolina Supreme Court, but those bodies may choose to not hear the case as the grounds for appeal are more limited.

Exemptions and Exclusions

Following is the legal text describing that all property is taxable unless made exempt by North Carolina law.

§ 105-274. Property subject to taxation.

(a) All property. real and personal, within the jurisdiction of the State shall be subject to taxation unless it is:

(1) Excluded from the tax base by a statute of statewide application enacted under the classification power accorded the General Assembly by Article V, § 2(2), of the North Carolina Constitution, or

(2) Exempted from taxation by the Constitution or by a statute of statewide application enacted under the authority granted the General Assembly by Article V, § 2(3), of the North Carolina Constitution.

(b) No provision of this Subchapter shall be construed to exempt from taxation any property situated in this State belonging to any foreign corporation unless the context of the provision clearly indicates a legislative intent to grant such an exemption. (1939, c. 3 10. ss. 303, 1800: 1961, c. 1 169, s. 8; 1967, c. 1 185; 1971, c. 806. s. l.)

Present Use Value

The Present Use Value tax deferment is designed for those property owners who grow agriculture, horticultural, or forestry products on their land. A county may appraise agriculture, horticulture, and forest land based on their ability to grow crops rather than their market value, provided that the owner qualifies under certain criteria. These criteria include ownership, income ownership, income, and size of the tract in actual production and whether the farm is under sound management. The application for this tax deferment must be made with the county assessor's office during the regular listing period.

Mass Appraisal Process

Mass Appraisal is the process of valuing a universe of properties as of a given date, in a uniform order, utilizing standard methodology, employing a common reference for data, and allowing for statistical testing.

Tools used for the Mass Appraisal process are property record cards consisting of map numbers, site addresses, lot and acreage sizes, description of the improvements, age, size, quality, record of ownership, deed information, etc.

Pricing schedules consist of property class of construction (grade), replacement costs for different types of dwellings, prices for porches, wood decks, extra baths, fireplaces, garages, etc. Also for commercial, storage buildings, special purpose buildings, industrial buildings, etc.

The Rutherford County Revenue Department along with Wampler-Eanes has followed the steps below in the Mass Appraisal process to insure a quality revaluation.

- Establish a field office
- Contact local builders and real estate professionals
- Test the sales study and visit established by the last revaluation
- Develop the cost schedules for residential, commercial, and industrial properties,
- Utilizing Local Sales, Local Contractors, Collection of Material Cost Data, and National Cost Estimator Guides to determine Market Derived Rates.

The data collectors/appraisers will visit property, verify the improvement descriptions, measure all dwellings and support structures, photograph the dwelling if so contacted by the County or City, determine the quality (grade of the dwelling), apply the appropriate physical or other form of depreciation to the improvements based on the observed condition of the property. Valuation of the land by the collector/appraiser will be determined from comparable sales. Land values will be determined from comparable land sales. A building site will be valued on any tract that has been improved with a dwelling, commercial structure, etc. The appraiser will determine in each neighborhood a base building site value

and adjust the site (+/-) for location, view, access, topography, etc. Excess or residual land will be valued on a per acre basis. Size, location, access, topography, etc. will determine the overall rate per acre. This value is the residual land value after the home site. Also, during the fieldwork the neighborhoods will be delineated. The County will be divided into larger rural neighborhoods, sometimes by natural boundaries or voting districts, etc. These are marked on the main map. Also, within that neighborhood the appraiser will break down the larger neighborhoods into smaller neighborhoods, as the market area so determines. This is compiled on a map by map basis. Therefore, the neighborhood delineation is an ongoing process throughout the entire project until the last maps are worked.

Data Collection Procedures in the Field

The application of standardized methodology in the appraisal of a structure requires work to be performed in three areas: fieldwork, calculation and valuation. The purpose of this sheet is to supply basic, general field instruction.

Introduction:

Not all properties will be visited during each revaluation cycle. For properties that are visited fieldwork should be approached with three basic components in mind. Collection and verification of measurements of all improvements, correction of any such measurements, and recording information correctly on the field data collection instrument.

Collection or Verification of Construction Data:

This involves two basic techniques. The majority of the data is confirmed by a visual inspection and can be done while walking up to the front door. An appraiser should give the area he or she is studying a broad preview while looking for a parking spot. This provides a good indication of the typical exterior components — roofs, exterior walls, and determines surroundings in the neighborhood.

As you approach each house check the exterior walls, roof structure, roof cover look for indications of heating type- i.e. fireplace, compressors, oil drums, etc.

Identify yourself and your purpose, remembering at all times to be polite and respectful.

One approach goes as follows: “Good Morning. My name is John Doe and I am with the Rutherford County Tax Department. (Display your County identification card), verifying data for the County's Tax Revaluation Project. I need to ask you a few questions and walk around the **outside** of your home.”

Usually people are cooperative. Remember your job is solely to collect or verify data, not come up with the assessment value.

These questions can be asked as follows:

“What year was your house constructed?” “Is there a basement under the house and any part finished into livable space?” “What kind of floors do you have?” “How do you heat and cool your house?” “How many bathrooms and bedrooms do you have?” Then, “Thank you very much.” “Now, all I need to do is take a quick look around the outside, okay?"

Sometimes you will have to take measurements to appraise improvements. If you have to measure the whole house, explain to the owner that you are collecting and verifying the building measurements.

There are three basic steps to this process:

l. Measure each side of structure accurately.
2. Make a diagram placing dimensions (rounded to the nearest foot) beside each line they represent.
3. Label structural variations with appropriate abbreviations (EFP. FSP, GRF, etc.) Lettering and numbers are to be neatly made with measurements written so as to read from the bottom of the card looking up.

To check for closure:

Basic Rule: The sums of the lengths of the opposite sides must be equal to each other.

The sum of the top horizontal lines (the back of the house) should equal the sum of the bottom horizontal lines (the front of the house). The sum of the left vertical lines (the left side of the house should equal the sum of the right vertical lines (the right side of the house) in the same manner.

The following examples depict various types of improvements and how they should be drawn, labeled, and checked for closure.

Standardized Method of Drawing Structures

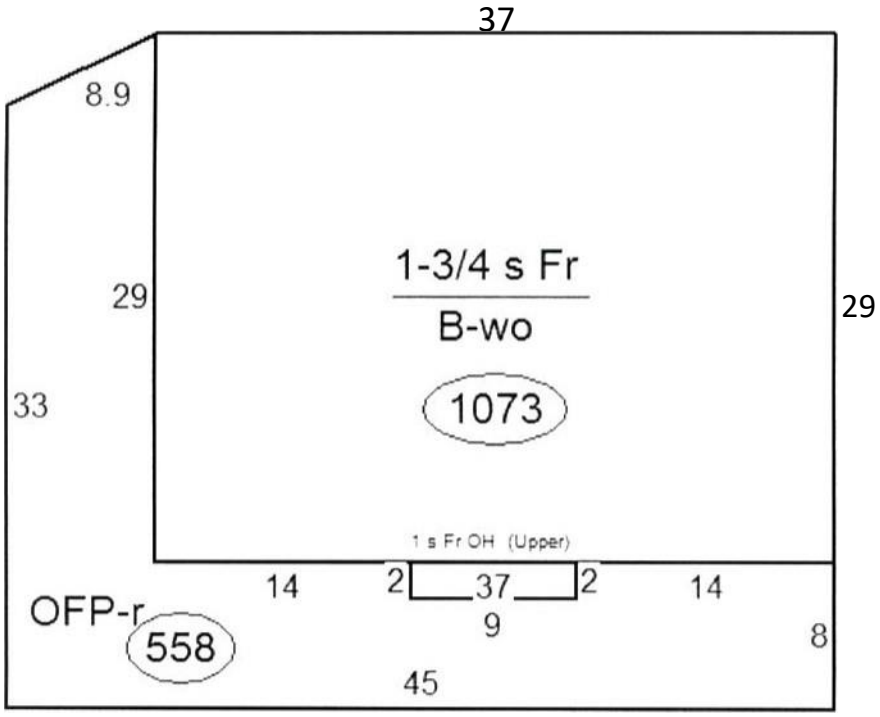
A uniform method of drawing and labeling structures must be adopted. The following method is to be employed in preparing documents for use by the system.

Orient the drawing so that the front of the structure is towards the bottom of the card. All labeling should be oriented in this same direction.

In drawing structures, it is essential to delineate the auxiliary areas properly so that they can easily be distinguished from the base area.

Familiarity with auxiliary area abbreviations is essential, along with an understanding of the visual indications of these areas. For example: an enclosed porch which may have windows is different from the base, a lower foundation than the base, or different roof cover.

If you are confronted with an exceptionally large property with many sides, a piece of graph paper used in drawing the sketch can be invaluable in preventing errors.



TOP HORIZONTAL (LEFT TO RIGHT)

8+37=45

BOTTOM HORIZONTAL (LEFT TO RIGHT)

45=45

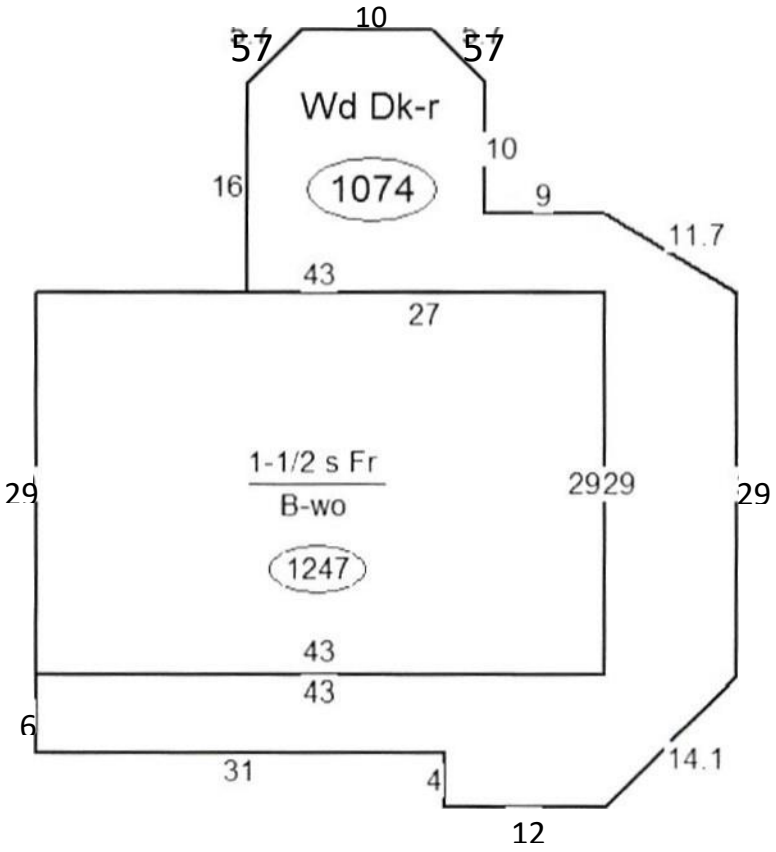
RIGHT VERTICAL LINES

8+29=37

LEFT VERTICAL LINES

33+4=37

Note upper



Special attention is given to multi-story buildings. A notation to denote upper and/or basements should be as follows:

1-1/2 s = One and a Half Story Dwelling
B= Basement
B-wo is Basement walk out

Appraisal Methods

The three approaches to value are:

1. Market Approach (Sales Comparison)
2. Cost Approach
3. Income Approach

The Market Approach to value is derived from analyzing the selling price of properties. Adjustments are made for dissimilarities and similarities compared to the property being assessed. This approach relies on the principle of substitution.

The basic steps in the Market Approach are as follows, according to Property Assessment Valuation (third edition) copyright, 2010:

1. Data collection and verification
2. Analysis of market data to develop units of comparison and select attributes for adjustment.
3. Development of reasonable adjustments
4. Application of adjustments to the comparable sales.

The elements of comparison for improvements:

1. Overall quality
2. Architectural attractiveness
3. Age
4. Size (square footage, stories, number of units, number of bedrooms, and baths)
5. Amenities (special-purpose rooms, garage, swimming pool. parking)
6. Functional utility (architecture and appearance. layout, equipment)
7. Accrued depreciation (physical deterioration, maintenance. modernization, including remodeling and additions)

Market Approach

The Market Approach (also called the sales comparison approach) uses analysis of recent comparable sales to value subject properties. The Market Approach is used to estimate property at its "fair market value". Ergo, the best technique for the valuation of property is abstracting data from actual sales and applying the results to unsold properties. The general formula for the market is:

MV=S +/- A

Where MV is market value, S is the sales of comparable property, and A is the amount of adjustments.

The sales comparison approach models the behavior of the market by comparing the properties being appraised (subjects) with similar properties that have recently sold (comparable properties). Comparable properties are selected for similarity to the subject property. The sales are then adjusted for their differences from the subject. Finally, a market value for the subject is estimated from the adjusted sales prices of the comparable properties.

Typical adjustments originate from one of the following:

- Paired data set analysis
- Statistical analysis
- Graphic analysis
- Cost-related analysis
- Secondary data analysis

Comparable properties are selected and adjusted to the subject property. Typically three to five sales of properties that have recently sold are used in this process. The sales comparison approach requires adjustments for differences, such as time, attribute differences, competitiveness in the same market, and other factors.

In the sales comparison approach, appraisers estimate a price per unit. The unit of comparison may be the property as a whole or some smaller measure of the size of the property. Converting the sales price to a unit of measure makes it easier to compare and adjust properties that compete in the same market. The price per unit of comparison is the dependent variable, what is being estimated, in the valuation model. The value of the dependent variable is predicted by the values of the other variables, such as property attributes. The unit of comparison should never be the grounds for selecting Comparables. Property attributes should be used instead.

Once the attributes have been selected and the adjustments determined, the appraiser can apply the sales comparison model. The appraiser first describes subject and comparable in a comparative attribute display, then selects an adjustment method and adjusts each comparable to the subject. After adjustments have been made an estimate of value can be determined about the subject property.

Source: The International Association of Assessing Officers. Joseph K. Eckert editor, Property Appraisal and Assessment Administration. 1990, Chicago, International Association of Assessing Officers, p. 153

Cost Approach

First, the appraiser estimates the present reproduction cost to construct a duplicate of all the improvements on the subject property. If the improvements would be impossible or impractical to duplicate, the appraiser estimates replacement cost, the cost of constructing improvements with the same functional utility. The appraiser next reduces the estimated present construction cost by the loss in value the subject property has undergone due to depreciation since it was first constructed. The appraiser then adds to the depreciated cost estimate the estimated value of the subject site. The resulting figure is the property's indicated value by the cost approach.

Below is what we require our appraisers to look at when estimating and working with the cost approach:

1. Estimate the value of the site.

2. Compute the area of the dwelling
3. Estimate the reproduction cost of the dwelling
4. Estimate the reproduction cost of any garage, carport or other structure (out buildings)
5. Estimate the amount by which the structures have depreciated
6. Estimate the “as is” value of any other site improvements (Ex: Mobile Homes) and
7. Add site value to the depreciated cost of improvements to find the indicated value.

The appraiser will include a sketch showing a drawing of the perimeter of the subject structure(s), with dimensions given in feet, and spot all out buildings around the subject structure.

Simply stated:
Reproduction or Replacement Cost - Accrued Depreciation + Site Value = Property Value

Income Approach

The Income Approach can be the most technically complex method of appraisal when applied to large commercial properties. This procedure in appraisal analysis which converts anticipated benefits (dollar income or amenities) to be derived from the ownership of

property into a value estimate. The income approach is widely applied in appraising income-producing properties. Anticipated future income and/or reversions are discounted to a present worth figure through the capitalization process.

Market rent is the rental income that a property would most probably command on the open market as indicated by current rentals paid for comparable space. To find market rent, an appraiser must know what rent tenants have paid, and are currently paying, on comparable properties. By comparing present and past performance of properties similar to the subject, the appraiser should be able to determine the subject property's rent potential. By analyzing sales prices of comparable properties, the factor, or gross rent multiplier, that represents the relationship between market rent and market value, can be determined. When the appropriate gross rent multiplier is applied to the rental income the subject property is expected to be produce, the result is an estimate of market value.

The steps in this method of applying the income approach are summarized below and explained in this section. The Appraiser Must:

1. Estimate the subject property's monthly market rent;
2. Calculate gross rent multipliers from recently sold comparable properties that were rented at the time of sale;
3. Based on rent multiplier analysis, derive the appropriate GRIM for the subject property; and
4. Estimate market value by multiplying the amount of the monthly market rent by the subject property's GRIM

The Gross Rent Multiplier (GRIM) technique is proper for appraising single family and small multi-family; apartments and some commercial properties purchased for income purchases.

The basic steps we will use in the Income Approach on commercial property are as follows:

1. Estimate potential gross income
2. Deduct for vacancy and collection loss
3. Add miscellaneous income
4. Determine operating expenses
5. Deduct operating expenses to determine net income before discount, recapture, and taxes.
6. Select the proper capitalization rate
7. Determine the appropriate capitalization procedure to be used, and
8. Capitalize the net income into an estimated property value

Capitalize is to convert future income into current value. It involves discounting future income into present value. Capitalization is the mathematical process for converting the net income produced by property into an indication of value.

The process evolves out of the principles of perpetuity and termination. Perpetuity affirms that the net income produced by land will continue for an infinity period of time. Termination affirms that the net income produced by a building (assuming normal repairs and maintenance) will stop after a certain number of years in the future and will cease to have an economic value.

If the income flow produced by a building will terminate in the future, it is reasonable to suggest that the investor in buildings is entitled to the return of his investment as well as a return on his investment. In the capitalization process, this recovery of the investment is referred to as recapture. Theoretically, the recovered capital would be used to replace the present structure when it ceases to have value. In actual practice, however, the investor usually uses the return capital for debt service or for reinvestment in other projects.

Several methods of capitalization are currently employed by appraisers. All the methods recognize that the investor is entitled to both a return on and the recapture of his investment.

Sample of an Income Approach

The method used in assessing rentals is as follows:

Potential Gross Inco

% Vacancy and Loss_____

EFFECTIVE GROSS INCOM

% Expenses_____

NET OPERATING INCOME

Divide by ___% Capitalization

rate _____VALUE

RETAIL/OFFICE = $3.00 to

$20.00 per sq. ft. INDUSTRIAL

= $1.00 to $10.00 per sq. ft.

Rutherford County Rental Rates

The Market will determine vacancy rates and operating expenses.

The Market will determine Capitalization rates. The typical range is 4.0% to 20%. These rates could change with unforeseen circumstances.

Highest and Best Use

The term highest and best use is understood to mean that reasonable and most probable use which would most likely produce the highest present worth or that use which will support the highest present value of the property. The determination of highest and best use results from the appraiser •s experience, judgment, and analytical skills (that is an opinion).

According to the Dictionary of Real Estate Appraisal, a publication of the American Institute of Real Estate Appraisers, highest and best use is defined as:

1. The reasonable and probable use that supports the highest present value of vacant land or improved property, as defined, as of the date of the appraisal.

2. The reasonable probable and legal use of land or sites as though vacant, found to be physically possible, appropriately' supported, financially feasible and resulting in the highest present land value.

3. The most profitable use.

   Implied in this definition is that the determination of highest and best use takes in account the contribution of a specific use to the community and community development goals, as well as, the benefits of the use to individual property owners. Hence, in certain situations the highest and best use of the land may be for parks. greenbelts, preservation, wildlife habitats, and the like, The analysis of highest and best use of any property involves consideration of the following questions:

1. Physical possible: How is the site physically capable of being used? What particular uses are possible based upon the size, configuration, and terrain of the site:

2. Legally permissible: What are the permitted uses according to zoning regulations, deed restrictions, etc.

3. Financially feasible: Among the feasible uses will produce the highest net return, resulting in the highest present worth to the owner?

4. Maximally productive: Which use among the feasible uses will produce the highest net return. resulting in the highest present worth to the owner?

Valuation of Land

The valuation of land in the mass appraisal process is as follows:

1. The comparable sales approach is the most reliable method
2. Abstraction (allocation or distribution)
3. Anticipated use or development
4. Capitalization of ground rent
5. Land residual capitalization

The majority of the County will be valued on a per acre basis. This will be determined by the Field Appraisers from comparable land sales. Other methods that may be used in the valuation of land are rate per square foot or site (lot) value. The field appraiser will determine the most appropriate method from what he/she observes in the neighborhood or market place.

Land Valuation Process

Accurate land Values are crucial to an effective assessment system. They contribute to the accuracy of appraisal of improved parcels and ensure that landowners pay their fair share of taxes. Accurate land values promote well-informed land use decisions by both the public and private sectors. This manual helps promote equity and uniformity to any adjustments that was needed to base land values.

Physically, land may be defined as the surface of the earth together with everything beneath and above. The shape of a parcel is like a three dimensional pyramid, with its apex at the center of the earth, extending upward through the surface into space. Legally, land is the right to enjoy, use, and dispose of this physical space, subject to the limitations imposed by government. The assessor first identifies, lists, and values all land and improvements thereto, This task requires the use of cadastral maps showing boundaries and other features. An accurate inventory is collected on the land data, including location, ownership, classification and use, size. shape, and physical characteristics. The assessor analyzes the local market and estimates the value.

There are several methods that can be used to extract and arrive at an assessment. These are:

- Sales Comparison
- Abstraction
- Allocation
- Anticipated Use
- Capitalization of Ground Rents 0
- Land Residual Capitalization

Sales Comparison

The sales comparison approach uses analysis of recent comparable sales to value subject properties. The sales comparison approach is used to estimate property at its "fair market value". Ergo, the best technique for the valuation of property is abstracting data from actual sales and applying the results to unsold properties. The general formula for the market is:

MV=S +/- A.

Where MV is market value, S is the sales of comparable property, and A is the amount of adjustments.

The sales comparison approach models the behavior of the market by comparing the properties being appraised (subjects) with similar properties that have recently sold (comparable properties). Comparable properties are selected for similarity to the subject property. The sales are then adjusted for their differences from the subject. Finally, a market value for the subject is estimated from the adjusted sales prices of the comparable properties.

Subjective elements, intuition, and personal judgment are to be minimized as much as possible.
A scientific methodology should be the objective of every appraiser. Personal judgment, no matter how well formed by experience, does not meet the criteria of the scientific process, which required that every result be verifiable; verifiable independently of the peculiarities and personal idiosyncrasies of an individual.

There are two principle applications of the sales comparison approach in land valuation. The first is the comparative unit method and secondly the base lot method.

The appraiser uses the comparative unit method after a determination of the average or typical unit value. The average value is found by calculating the median or mean sale price per unit. The appraiser uses the base lot method after a base parcel is selected to represent the stratum from a neighborhood sales file. Once the base lot is selected it is used as a benchmark to establish values for individual parcels for that neighborhood.

Abstraction Method

In the next method described we use the ability to subtract the depreciated replacement cost new of the improvement value from the sales price to arrive at the residual land value estimate. The calculated land values supplement the land value database. Sales with newer improvement make it easier to estimate depreciation, which in turn gives a better land value estimate. When using the abstraction method ensure that the correct comparative unit is used. Taking the time to convert the land value estimates to a comparative unit value will enhance uniformity and consistency among parcels in the market.

A questions arises. what if there are not a significant number of vacant sales to make a market value assessment. Then there are other established methods an appraiser can choose and with careful research and good judgment a value can be achieved.

Allocation

One method is the Allocation method. The allocation method is also known as the land ratio and improvement values. With this relationship an appraiser can seek comparable areas with sufficient land sales, determine the typical ratio to sales of improved parcels in the subject area. The abstraction method is useful primarily in older established neighborhoods with few vacant land sales. This method can be useful if applied with care and validated to ensure that calculated land and improvement value estimates are consistent with available sale price data.

Anticipated Use or Cost of Development Method

Again in the absence of sufficient sales, there is another method that can be used to develop a land value for a property. This method is not the preferred method but can project a value based on the principle that the projected improvement must represent the highest and best use of the land. The results based on the principle of surplus productivity, indicates that the price a developer will pay for land in its present undeveloped state and by subtracting the total development cost from the projected sales price of the lots as if developed. The appraiser can calculate the residual land value after the satisfaction of labor, capital, and management has been met.

When studying Income property, or the ability for a parcel to generate income, all properties have one common appraisal characteristic: the capitalization of income generated by land is an important indication of value. Their value is based on the quantity, quality, and durability of their estimated net income before debt and after expenses is deducted. To arrive at a value for a property based on income some methods can be used.

Capitalization of Ground Rents

Capitalization of ground rents is used best when land rented or leased independently of improvements. This method can be used with farmland or commercial land that is leased on a net basis. where lessee is responsible for property' taxes and all other expenses. This is best achieved if the lease is new are current for market conditions.

Land Residual Capitalization

When you apply this method it is important to understand several things. One that this method assumes that the parcel of land has an improvement on it and that the improvement is relatively new and that it represents the highest and best use of the property. Plus the improvement has no depreciation. This method also requires some other information.

A net operating income
A building value
A proper discount rate
A recapture rate
And an effective tax rate

When valuing land a standard unit of comparison is needed to establish an average or typical value for an area or neighborhood. There are several different units of comparison. Each different type of comparison can be used for different property classes. There are typically five different unity types.

Site(Lot)
Site/Units Buildable
Acre
Square foot
Front foot
Lot or Site

Lot or site value is used when the market does not indicate a difference in land size. This is typically used in residential subdivisions that are planned or developed in such a way that there is some degree of uniformity to the neighborhood.

Site or Units Buildable

When a parcel of land sells on unit basis, for example an apartment complex, this method of comparison can be used. Apartment property is typically sold as a unit and such the unit of comparison would be units buildable.

Acre

In general when the market analysis shows that tracts of land sells for a per acre rate then this unit of comparison is used. Typically, rural tracts of land and industrial property use this type of comparison since they are sold commonly in larger portions.

Square Foot

This type of comparison is used mostly for commercial property. Since this type of property sells on a square foot basis.

Front Foot

Use a front foot unit of comparison when a property value indicates that the amount of exposure significantly contributes to value. This type of comparison is used typically when a parcel is more desirable and value based on how much frontal exposure there may be. Some examples are commercial and even water front residential property.

* Source: Property Assessment Valuation, third edition International Association of Assessing Officers. Copyright 2010, 314 W. 10th Street, Kansas City, Missouri 64105-1616. Pages 167201.

Residential Land Valuation

The valuation of land is based solely on comparable market sales. Lots and home sites of similar size and in the same areas or neighborhoods should be appraised very much the same. Some factors such as size. shape, street. topography and frontage could make a valuation difference. As always in common appraisal methods of our appraisers will always estimate site value, as if vacant.

In localities where there are plenty of lots and land tor sale there should be an abundance of sales. With these sales the appraiser will define his area of land values. land tables will be developed for every neighborhood. The tables will be derived from what the typical informed buyer will pay.

The most common form of rural land valuation is by a per acre value. Most all home sites typically require a one-acre site. Some could be smaller with estate type properties consisting of several acres for a site.

Land values do change with economic conditions and historical land values have been increasing. It is our job as appraiser to follow this market and to inquire what buyers are paying for land and or lots.

Land Influence Factors

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 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.

Topography Influence Factors Guide

Normal	Problem corrected or not significant	0%
Slight	Problem is a moderate handicap to full utilization of the lot but is correctable. The lot is buildable, but less desirable than typical lots in the area due to topographic problem.	.0% - 25%
Sever	Problem is significant but correctable in that it prevents the development of the lot until the topographic problem is corrected.	25% - 75%

Unbuildable	The topography problem is so severe it is not economically feasible to develop the lot. Example: a lot that cannot pass health and safety perk tests.	75% - 90%

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 tor the presumed utilization of the parcel.

Utilizing the shape/size factor is a review judgement 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.

Size/Shape Influence Factor Guide

Normal	Shape or size is no significant detriment to the presumed utilization of the parcel.	0%
Minor	The lot is buildable and/or economically usable for the presumed utilization but irregular shape or insufficient size preludes the full utilization of the parcel.	10% - 25%

Major	Irregular shape or insufficient size represents a significant handicap to the presumed utilization and/or development of the land category is restricted to a significant underutilization of the parcel.	25% - 75%
Unbuildable	The shape or size problem is so severe that it renders the land category unusable and/or unbuildable for the presumed utilization. Example: and undersized lot subject to minimum zoning restrictions which effectively prevents any economical utilization.	75% - 90%

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 /or typical lots in the neighborhood.

Physical barriers to the property (bridges, highway medians, fences, and abutment)

Restrictions Influence Factor Guide

Normal	No significant restriction to the property.	0%
Minor	A restriction of moderate significance – legal or physical — exists which causes the property to be less desirable than similar lots in the area, which are not subject to this restriction. Example: Power lines bisecting a lot which prevents the building of a dwelling but would be suitable for a garage or secondary structure.	25% -75%
Unbuildable	A restrictive of very sever impact- legal or physical exists which causes the property to be rendered virtually unusable for any significant utilization compared to similar lots in the area which are not subject to this restriction. Example: a lot rendered inaccessible by a highway right-of-way.	75%-90%

Economic Misimprovements

This category is reserved as a reviewer's judgment of the comparative loss of value land (either under-improvement or over-improvement). In essence, this judgement is expressing the appraiser's opinion that the existing structure represents an encumbrance to the full utilization of the land.

The application of a misimprovement factor for residential/agricultural property is possible but very rare. Most instances occur in commercial or industrial situations where market evidence indicates a different economic utilization of the land than the current utilization. It is important to recognize in the application of economic misimprovement factors that the land is presumed to be valued on the bases of typical "highest and best" utilization and the existing structure in noncontributory to this most economical utilization. Obviously, vacant tracts are not encumbered by any structure, and are not subject to economic misimprovement factors. Further, the appraiser should recognize that the economic misimprovement condition is "curable" (i.e., if the structure is removed, the previously applied economic misimprovement factor is normally no longer applicable.)

Typical examples include:

- Dwellings in areas converting to commercial development.
- An old warehouse located in an area where market evidence indicates modern office and complex development are the prevailing trait.

Misimprovement Influence Factor Guide

Normal	The property is unimproved – No Major no major structures present or the existing structure is consistent with the economical utilization of the land.	0%
Minor	The land is encumbered with a structure that	50% - 75%

represents an economic misimprovement and the structure has an assigned value of 25% -50% of the land value at highest and best use.

Corner and/or Alley Influence

This category is reserved for the recognized of the enhancement in land value attributable to the potential utilization of a corner lot. over and above the value of an otherwise comparable interior site. The enhancement due to the presence of a rear or side alley is normally common to all lots in a given area or block. Therefore. recommended procedure for enhancement due to alley influence, if any, is to consider this factor in the land rate itself.

The amount of enhancement, if any, to a corner lot must be based on the individual merits of each corner location.

Normally, corner influence is not applicable to residential/agricultural property. Corner influence factors should be applied to only those cases of commercial or industrial property where the corner is an actual enhancement to the land.

Corner Influence Factor Guide

Normal	The presence of a corner or alley has no significant enhancement or impact to the property.	0%
Minor	The lot value is moderately enhanced by the presence of corner or alley exposure. Example: Intersection of two secondary streets or a major arterial street and a secondary street.	+10% - +25%

Major	The lot value is significantly enhanced by the presence of corner exposure. Example: the intersection of two major arterial street.	+25% - +100%

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 also applies to golf course lots.

It is highly recommended that the appraiser due caution in the application of view influence. It is useful to remember that while the subject may have an appealing view, if this condition is common to most parcels in the area, then comparatively there is probably no real view enhancement. The appraiser should also consider the permanency of the view (i.e., the probability of potential obstruction).

View Influence Factor Guide

Normal	The view is considered common to the area and market evidence indicates no actual value enhancement exists.	0%
Minor	The subject property has a moderate enhancement due to an appealing view and market evidence supports value enhancement.	+10% - +25%
Major	The subject property has a significant	+25% - +500%

	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 parcels.	
Negative	For properties with less than normal or typical views, the appraiser should apply a negative factor to the affected properties as indicated by market analysis and evidence.	-10% - -75%

Rutherford County

Land Value Range

Land Types & Value Methods	Minimum Value	Maximum Value
Residential		
Acreage	$500 Per Acre	$1,800,000 Per Acre
Lot/Unit/site	$100 Per Lot/Unit/Site	$1,000,000 Per Acre
Commercial		
Acreage	$500 Per Acre	$2,000,000 Per Acre
Square Foot	$0.2 Square Foot	$30.00 Per Square Foot
Lot/Site/Unit	$100 Per Lot/Unit/Site	$500,000 Per Lot/Unit/Site
Industrial		
Acreage	$500 Per Acre	$1,000,000 Per Acre
Square Foot	$0.50 Per Square Foot	$15.00 Per Square Foot

The above range of values were gathered from property transactions within the County of Rutherford. Location, topography, and other factors will determine where an individual's property falls within the range.

Mineral Land Value Range

All property within each permitted mining site is to be valued at the same rate per acre as all the property of the same type in the immediate area.

Mineral Severed Mineral Rights $3.00 to $2.00 Per Acre

Valuation of Outbuildings

The Rutherford County Revenue Department along with Wampler-Eanes has utilized Local Sales, Local Contractors, Collection of Material Cost Data, and National Cost Estimator Guides to determine Market Derived Rates for Outbuildings. The field appraiser will be responsible for the correct identification of the outbuildings as for type, construction quality, and estimation of the effective year of construction. Steps in valuation are as follows:

l. Measure the structure
2. Photograph the structure
3. Identify the structure (ex. residential detached garage)
4. Estimate the year built and the effective year
5. Grade the structure for quality (A,B,C, etc.)

The rates for outbuildings can be found on the Value Rate Table for Outbuildings.

Sample of Outbuildings

Barns

Garages

Carports

Equipment Sheds

Residential Utility Sheds

Homesites and Residential Land Less than One Acre

Homesites and Residential land less than One Acre are valued based on the Lot/Unit/Site rates that are determined by Market Derived Rates.

Commercial Land Valuation

This land valuation process generally follows the same procedure as the residential valuation. One difference that needs to be noted is in the units of levy. The accepted units of comparison here will be the square foot method. Some larger commercial or industrial tracts still could be valued per acre.

Valuation of Residential Buildings

The building cost schedules were prepared from information gathered and consideration given to Local Sales, Local Contractors, Collection of Material Cost Data, and National Cost Estimator Guides to determine an opinion of value based on Market Derived Rates. Listed below are the Grades determined by Rutherford County Revenue Department and their definitions. The Rutherford County Revenue Department determines Residential Dwelling values based on Residence Type, Style, Total Heated Area, Number of Units, Grade, Condition, and Building Depreciation. The depreciation is determined by using the straight line Age/Life Method and considering all physical and functional qualities of the dwelling along with any additional interior or exterior depreciation. The Market Derived Residential **Base Rates range for Rutherford County is $30 to $350 per square foot.**

Quality Grades	Percent above/below Avera
EXCELLENT | GRDFEX	170.00
EXCELLENT+5 | GRDFEX+5	175.00
EXCELLENT-5 | GRDFEX-5	165.00
EXCELLENT-10 | GRDFEX-10	160.00
EXCELLENT-15 | GRDFEX-15	156.00
EXCELLENT+10 | GRDFEX+10	180.00
EXCELLENT+15 | GRDFEX+15	185.00
EXCELLENT+20 | GRDFEX+20	190.00
EXCELLENT+25 | GRDFEX+25	195.00
EXCELLENT+30 | GRDFEX+30	200.00
EXCELLENT+35 | GRDFEX+35	205.00
EXCELLENT+40 | GRDFEX+40	210.00
EXCELLENT+45 | GRDFEX+45	215.00
EXCELLENT+50 | GRDFEX+50	220.00
EXCELLENT+55 | GRDFEX+55	225.00
EXCELLENT+60 | GRDFEX+60	230.00
EXCELLENT+65 | GRDFEX+65	235.00
EXCELLENT+70 | GRDFEX+70	240.00
EXCELLENT+75 | GRDFEX+75	245.00
EXCELLENT+80 | GRDFEX+80	250.00
EXCELLENT+85 | GRDFEX+85	255.00
EXCELLENT+90 | GRDFEX+90	260.00
EXCELLENT+95 | GRDFEX+95	275.00
2EXCELLENT+ | GRDF2EX+	280.00
2EXCELLENT+25 | GRDF2EX+2	305.00
2EXCELLENT+50 | GRDF2EX+5	350.00
2EXCELLENT+75 | GRDF2EX+7	375.00

3EXCELLENT+ | GRDF3EX+	300.00
3EXCELLENT+25 | GRDF3EX+2	325.00
3EXCELLENT+50 | GRDF3EX+5	350.00
3EXCELLENT+75 | GRDF3EX+7	375.00
4EXCELLENT+ | GRDF4EX+	400.00
4EXCELLENT+25 | GRDF4EX+2	425.00
4EXCELLENT+50 | GRDF4EX+5	450.00
4EXCELLENT+75 | GRDF4EX+7	475.00
5EXCELLENT+ | GRDF5EX+	500.00
5EXCELLENT+25 | GRDF5EX+2	525.00
5EXCELLENT+50 | GRDF5EX+5	550.00
5EXCELLENT+75 | GRDF5EX+7	575.00
6EXCELLENT+ | GRDF6EX+	600.00
6EXCELLENT+25 | GRDF6EX+2	625.00
6EXCELLENT+50 | GRDF6EX+5	650.00
6EXCELLENT+75 | GRDF6EX+7	675.00
7EXCELLENT+ | GRDF7EX+	700.00
7EXCELLENT+25 | GRDF7EX+2	725.00
7EXCELLENT+50 | GRDF7EX+5	750.00
7EXCELLENT+75 | GRDF7EX+7	775.00
8EXCELLENT+ | GRDF8EX+	800.00
8EXCELLENT+25 | GRDF8EX+2	825.00
8EXCELLENT+50 | GRDF8EX+5	850.00
8EXCELLENT+75 | GRDF8EX+7	875.00
9EXCELLENT+ | GRDF9EX+	900.00
9EXCELLENT+25 | GRDF9EX+2	925.00
9EXCELLENT+50 | GRDF9EX+5	950.00
9EXCELLENT+75 | GRDF9EX+7	975.00
VERY GOOD+15 | GRDFVG+15	155.00
VERY GOOD+10 | GRDFVG+10	150.00
VERY GOOD+5 | GRDFVG+5	145.00
VERY GOOD | GRDFVG	140.00
VERY GOOD-5 | GRDFVG-5	135.00
VERY GOOD-10 | GRDFVG-10	130.00
VERY GOOD-15 | GRDFVG-15	125.00
GOOD+15 | GRDFGD+15	135.00
GOOD+10 | GRDFGD+10	130.00
GOOD+5 | GRDFGD+5	125.00
GOOD | GRDFGD	120.00
GOOD-5 | GRDFGD-5	115.00
GOOD-10 | GRDFGD-10	110.00

GOOD-15 | GRDFGD-15	105.00
AVERAGE +15 | GRDFAV+15	115.00
AVERAGE +10 | GRDFAV+10	110.00
AVERAGE +5 | GRDFAV+5	105.00
AVERAGE | GRDFAV	100.00
AVERAGE -5 | GRDFAV-5	95.00
AVERAGE -10 | GRDFAV-10	90.00
AVERAGE -15 | GRDFAV-15	85.00
FAIR+15 | GRDFFR+15	95.00
FAIR+10 | GRDFFR+10	90.00
FAIR+5 | GRDFFR+5	85.00
FAIR | GRDFFR	80.00
FAIR-5 | GRDFFR-5	75.00
FAIR-10 | GRDFFR-10	70.00
FAIR-15 | GRDFFR-15	65.00
LOW+15 | GRDFLW+15	75.00
LOW+10 | GRDFLW+10	70.00
LOW+5 | GRDFLW+5	65.00
LOW | GRDFLW	60.00
LOW-5 | GRDFLW-5	55.00
LOW-10 | GRDFLW-10	50.00
LOW-15 | GRDFLW-15	45.00

Excellent +/-

Excellent quality dwellings are generally found on estate-type properties and in some residential developments. They are designed by well-known architects for individual owners and built by reputable contractors specializing in high quality mansion-type construction. This class of dwelling contains top quality materials and workmanship and encompasses the mansion-type, very expensive residences. Very narrate attention has been given to interior and exterior refinements. Cabinets, paneling, molding, and trim are of the best available materials and on many occasions some imported materials are used. Exterior front elevations are elaborate with superior fenestration and customized ornamental features. The Appraiser will determine upon field inspection if a positive + or negative – adjustment is warranted.

Very Good +/-

Very Good quality dwellings are usually individually designed and are characterized by the high quality of workmanship and considerable attention to detail. These homes are designed by well-known architects for individual owners and built by reputable contractors specializing in quality construction. Although this class of home includes high quality materials and workmanship, it does not encompass the mansion-type residences. Considerable attention has been given to interior refinement and detail. Cabinets, paneling, molding, and trim are usually well finished hardwood. Care has been taken in the selection of high quality fixtures and built-in appliances. Exterior front elevations are attractive with good fenestration and custom ornamental features.
The Appraiser will determine upon field inspection if a positive + or negative – adjustment is warranted.

Good +/-

Good quality dwellings are typical of those built in high quality tracts or developments and are frequently individually designed. Good quality standard materials are used throughout. Attention has been given to interior refinement and detail. Exteriors have good fenestration with some custom ornamentation. Architectural design is attractive with attention given to refinement and detail. Interiors are well finished, usually having some good quality wallpaper, hardwood paneling and selected fixtures. Exterior front elevations frequently have an appealing combination of ornamental materials and other refinement. The Appraiser will determine upon field inspection if a positive + or negative – adjustment is warranted.

Average +/-

Average quality dwellings includes the majority of homes. These dwellings are frequently mass-produced and exceed the minimum construction requirements. The interior craftsmanship includes stock items such as cabinets, doors, plumbing, etc. The roof slope is

usually 5 and 12 or less with moderate eaves. The interior is generally drywall taped and painted. The Appraiser will determine upon field inspection if a positive + or negative – adjustment is warranted.

Fair +/-

Fair quality dwellings are frequently mass-produced with Low cost. The Fair dwelling will meet minimum construction requirements. The designs are usually rectangular. There are few doors and windows and typically a gable roof. The Appraiser will determine upon field inspection if a positive + or negative – adjustment is warranted.

Low +/-

Low quality dwellings are of low cost construction and meet minimum building code qualifications. Interior and exterior finishes are plain, modest and inexpensive with little attention given to detail. Architectural design is primarily concerned with function, not appearance. The Appraiser will determine upon field inspection if a positive + or negative – adjustment is warranted.

General Specifications for Single Family Residences

High Value Quality

High Value Quality are individually designed and are characterized by the very finest quality and workmanship, finishes and appointments, and meticulous attention to detail. Residences of this quality level have the finest quality material and workmanship, and each is unique in its design.

The high value residences range from a minimum quality to an excellent quality.

FOUNDATION - A continuous reinforced concrete perimeter.
FRAME - A partial steel frame is included to allow for long spans in great rooms, living rooms etc.
FLOOR STRUCTURE - Wood or steel floor joists and sub-floor on first and upper floors.
FLOOR INSULATION - Yes
FLOOR COVER - The finest quality carpet or hardwoods, terrazzo, ceramic or quarry tile, marble and granite floor tile are used.
EXTERIOR WALL - Fenestration is of finest custom designs, and the entry and sash arc of the highest quality. The finest custom ornamentation and trim above windows, doors, roofline, etc. arc displayed. Select brick. cut stone, glass block, local stone, marble, etc. is used throughout the exterior walls. Extra heavy framed exterior walls are 2 x 6 or 2 x 8 or appropriate steel stud construction with some pocket doors.
ROOF - A roof of the finest quality custom design, with many ridges and valleys. Heavy wood rafters and sheathing. The finest clay tile, composition shingle, built up rock, concrete tile, slate, wood shakes/shingle, rooting. Very good flashing, gutters and downspouts, along with the best custom designed skylights. Large roof overhangs.
INTERIOR FINISH - Plaster and drywall, with the finest grades of paper or vinyl wall covering, hardwood paneling or the finest quality custom ceramic, marble, granite and glass tiles. Built-in book shelving and the finest custom cabinets. All kitchen cabinetry will be the finest quality. Drawer and door hardware will be finest quality grades. Kitchen counters and sink tops will be of the finest grades of solid plastics, the finest with some degree of intricacy in their design and/or finish. Custom ceramic tiles, the finest marble or granite and woods.
HEATINGCOOLING - Heating/Cooling system with multiple controls.
ENERGY PACKAGE - The energy package in the basic residence cost includes those insulation, framing and glazing items typically found in a moderate climate.
ELECTRICAL - Numerous well positioned outlets and finest quality fixtures throughout.
PLUMBING - Finest quality white or colored plumbing fixtures.

Excellent Quality

Residences of Excellent Quality are usually individually designed and are characterized by the high quality of workmanship, finishes and appointments and the considerable attention to detail. Residences at this quality level are inclusive of high quality material and workmanship, and are somewhat unique in their design.

FOUNDATION - A continuous, reinforced concrete perimeter and interior bearing wall foundation.
FLOOR STRUCTURE - Wood or steel floor joists and sub-floor on first and upper floors. Concrete slab on grade.
FLOOR INSULATION- Yes
FLOOR COVER - High-quality carpet or hardwood (parquet or plank), terrazzo, and vinyl, ceramic or quarry tile.

EXTERIOR WALL - Fenestration is well designed with high-quality sash. Custom ornamentation and trim, select brick. cut stone, high quality siding, etc. are used.
ROOF - Heavy wood rafters and sheathing, or excellent quality roof cover.
INTERIOR FINISH - Interior walls are drywall with high grade paper or vinyl wall covering, hardwood paneling or ceramic tile. Built-in book shelving and ample cabinets. Ceramic tile, marble or highest-quality laminated plastic counter tops and splash. Ceilings are mostly painted drywall with molding and coving details and other ornamentation with some degree of intricacy in their design and/or finish. Raised panel hardwood veneer or enameled doors with good-quality hardware. Spacious walk-in closets or wardrobes with many built-in features. Large linen storage closets and pantry are fully shelved. Base interior wall height is 10'.
HEATING/COOLING - Forced-air furnace with air conditioning.
ENERGY PACKAGE - The energy package in the basic residence cost includes those insulation, framing and glazing items typically found in a moderate climate.
ELECTRICAL - Many well-positioned outlets and high-quality fixtures throughout. Large luminous fixtures in kitchen, bath and dressing areas.

Above Average Quality

Average Quality dwellings may be mass produced in above-average residential developments or built tor an individual owner. Above Average quality standard materials are used throughout. These houses generally exceed the minimum construction requirements of building codes. Some attention is given to architectural design in both refinements and detail. Interiors are well finished, usually having some good-quality wallpaper or wood paneling. Exteriors have good fenestration with ornamental materials or other refinements. These residences are typical of the upper middle class or move-up type of development. From the exterior, they frequently copy the above average custom residence, but usually with less detail and workmanship.

FOUNDATION - A continuous, reinforced concrete perimeter foundation and foundation or piers under interior bearing wall.
FLOOR STRUCTURE - Wood or steel floor joists and sub-floor on first and upper floors. Concrete slab on grade.
FLOOR INSULATION - None
FLOOR COVER - Carpet, hardwood, sheet vinyl or vinyl tile floor.
EXTERIOR WALL - Good fenestration using good-quality sash. Some ornamental trim.
ROOF - Wood rafters and sheathing with hips and valleys. Good quality roof cover.
INTERIOR FINISH - Interior walls are drywall with some good-quality wallpaper or wood paneling. Kitchen and baths have enamel-painted walls and ceilings. An ample amount of cabinetry. Countertops and splash are laminated plastic, ceramic tile or simulated marble. Ceilings are painted drywall. Doors are good quality, hollow core with attractive hardware. Walk-in closets or large sliding door wardrobes.
Ample linen and storage closets. Workmanship throughout is of good quality. Base interior wall height is 8' or higher.
HEATING/COOLING - Forced-air furnace with air conditioning.
ENERGY PACKAGE - The energy package in the basic residence cost includes those insulation, framing and glazing items typically found in a moderate climate.
ELECTRICAL - A good amount of convenient outlets. Luminous fixtures in kitchen and bath areas.

Above Average Custom Quality

Above Average Custom Quality dwellings are typical of those built in high-quality tracts or developments and are frequently individually designed houses in the move-up bracket. Attention has been given to interior refinements and detail. Exteriors have good fenestration with some custom ornamentation.

FOUNDATION - A continuous, reinforced concrete perimeter and interior bearing wall foundation.
FLOOR STRUCTURE - Wood or steel floor joists and sub-floor on first and upper floors. Concrete slab on grade.
FLOOR INSULATION - Yes
FLOOR COVER - High-quality carpet, hardwood, sheet vinyl and ceramic tile.
EXTERIOR WALL - Fenestration is well designed with high-quality sash. Custom ornamentation and trim are used.
ROOF- Wood rafters and sheathing. Very good roof cover.
INTERIOR FINISH - Interior walls are drywall with high-grade paper or vinyl wall covering.
hardwood paneling or ceramic tile. Ample amount of cabinetry. Ceramic tile or highest-quality laminated plastic countertops and splash. Ceilings are drywall with some molding and coving details. Raised-panel hardwood veneer or enameled doors with good-quality hardware. Spacious walk-in closets or wardrobes and large linen storage closets. Base interior wall height is 8' or higher.
HEATING/COOLING - Forced-air furnace with air-conditioning.
ENERGY PACKAGE - The energy package in the basic residence cost includes those insulation, framing and glazing items typically found in a moderate climate.
ELECTRICAL - Well positioned outlets and high-quality fixtures throughout Good luminous fixtures in kitchen and bath areas.

Average Quality

Average Quality dwellings typically will be encountered more frequently than residences of other qualities. They are usually mass produced and will meet or exceed the minimum construction requirements of building codes. By most standards, the quality of materials and workmanship is acceptable, but does not reflect custom craftsmanship, cabinets, doors, hardware and plumbing are usually stock items. Architectural design will include ample fenestration and some ornamentation on the front elevation.

FOUNDATION - A continuous concrete perimeter foundation and foundation or piers under interior bearing wall.
FLOOR STRUCTURE - Wood structure and sub-floor on first and upper floors. Concrete slab on grade.
FLOOR INSULATION - None FLOOR COVER—Carpet, hardwood, vinyl composition tile or sheet vinyl,
EXTERIOR WALL - Standard aluminum sash or wood sash is typical of the fenestration at Average Quality.
ROOF - Rafters or prefabricated trusses with exterior-grade plywood or wood sheathing with a medium-weight composition shingle or a built-up with small rock roof cover.
INTERIOR FINISH - Interior walls are drywall with an allowance for some inexpensive wallpaper or paneling. Kitchen and baths have enamel painted walls and ceilings. Prefinished plywood cabinets in the kitchen with a small Pullman or vanity in bath areas. Countertops are laminated plastic or ceramic tile. Doors are medium grade, hollow core with standard-grade hardware. Baseboard and casing are stock. An adequate amount of closet space. Workmanship throughout is or average quality. Base interior wall height is 8 or higher.

HEATING/COOLING - Forced-air furnace with air condition
ENERGY PACKAGE - The energy package in the basic residence cost includes those insulation, framing and glazing items typically found in a moderate climate.
ELECTRICAL - An adequate number of outlets with some luminous fixtures in kitchen and bath areas.

Below Average Quality

Below Average Quality dwellings are frequently mass produced. Low-cost production is a primary consideration. Although overall quality of materials and workmanship is below average, these houses are not substandard and will meet minimum construction requirements of building codes. Interior finish is plain with few refinements. Design is from stock plans, and ornamentation is usually limited to the front elevation.

FOUNDATION - A continuous concrete perimeter foundation and piers.
FLOOR STRUCTURE - Wood structure and sub-floor on first and upper floors. Concrete slab on grade.
FLOOR INSULATION - None
FLOOR COVER - Carpet, asphalt or vinyl composition tile used.
EXTERIOR WALL - Moderate fenestration with inexpensive sash is typical. Front elevation may have inexpensive trim.
ROOF - Rafters or prefabricated trusses with plywood or other inexpensive sheathing with a lightweight composition shingle or a built-up with small rock roof cover. Roof slope is usually less than 4 in 12 with a minimal ease.
INTERIOR FINISH - Interior walls are taped and painted drywall with enamel painted walls and ceilings in kitchen and baths. Inexpensive stock cabinets of paint-grade wood or vinyl veneer in kitchen with a small Pullman or vanity in bath. Countertops are laminated plastic with a small splash. Stock, hollow core doors with inexpensive hardware. Minimal amount of closet space. Base interior wall height is 8' or higher.
HEATING/COOLING - Floor, wall furnace
ENERGY PACKAGE - None
ELECTRICAL - A minimum number of outlets and lighting fixtures.

Minimum Quality

Minimum Quality dwellings are of low-cost construction and meet minimum building code requirements. Interior and exterior finishes are plain and inexpensive with little or no attention given to detail. Architectural design is concerned with function, not appearance. The residence is a substandard dwelling, usually built prior to code enforcement.

FOUNDATION - A continuous concrete perimeter foundation and piers.
FLOOR STRUCTURE - Wood structure and sub-floor on first and upper floors. Concrete slab on grade.
FLOOR INSULATION - None
FLOOR COVER - Inexpensive carpet, and asphalt or vinyl composition tile,
EXTERIOR WALL - Minimum fenestration with inexpensive sash with little or no trim.

ROOF - Rafters or prefabricated trusses with plywood or other inexpensive sheathing with a lightweight composition shingle or a built-up with gravel roof cover.

INTERIOR FINISH Walls are drywall Kitchen and baths may have enamel painted ceiling and walls. Cabinets are paint grade wood or vinyl veneer with low-cost laminated plastic countertops. Doors are hollow core with low cost hardware. Minimal amount of closet space. Base interior wall height is 8' or higher.

HEATING/COOLING None ENERGY PACKAGE None

ELECTRICAL A minimum number of outlets and low-cost lighting fixtures.

PLUMBING An adequate amount of white plumbing fixtures.

Percentage Completion Chart

This chart is to be used as a guide to determine a buildings percentage of completion subject to the appraiser's best judgement.

Construction Workflow	Percent of Total	Cumulative Percent of Total
Plans - Permits - Surveys	2	
Excavation – Forms – Water - Sewer/Septic	4	
Concrete	8	
Rough Framing	21	
Windows – Exterior Doors	2	
Roof Cover	3	
Rough-in Plumbing	4	
Insulation	1	
Rough-in Electrical - Mechanical	11	
Exterior Cover	6	
Interior Drywall	8	
Built-in Cabinets – Interior Doors – Trim – Etc.	13	
Plumbing Fixtures	5	
Flooring Covers	3	
Built-in Appliances	3	
Light Fixtures – Finish Hardware	2	
Painting – Decorating	4	
Totals	100	

Valuation of Commercial and Industrial Properties

The Rutherford County Revenue Department along with Wampler-Eanes has utilized Local Sales, Local Contractors, Collection of Material Cost Data, and National Cost Estimator Guides to determine Market Derived Rates for Commercial and Industrial Properties.

The field appraiser for Wampler-Eanes will be responsible for the correct identification of the building being appraised. Wampler-Eanes will value the properties based on Occupancy Codes (Restaurant Auto Service, etc.). Steps in data collection and valuation are as follows:

- List and measure the structure, label construction class
- Establish how the property is being used (use code)
- Photography the structure
- Grade for quality, measure wall height, and perimeter
- Estimate the year built and effective age
- The Market Derived Rates ranges for various commercial building can be found A copy of the depreciation charts follows this section for commercial.

Commercial Summary

Base Rates		
Homes for the Elderly	$78.09 -	$181.10
Dormitories	$71.81 -	$256.64
Luxury Apartments	$134.00 -	$240.64
Apartments (high rise)	$59.85 -	$148.11
City Clubs	$121 .58 -	$187.00
Shell Apartments (high rise)	$46.57 -	$88.16
Hotels (limited service)	$71.55 -	$161.59
Hotels (full service)	$90.24 -	$226.47
Rooming Houses	$53.98 -	$104.06
Rectories	$66.18 -	$168.73
Fraternity Houses	$91 .80 -	$163.22
Group Care Homes	$68.91 -	$191.98
Recreational (pool) Enclosures	$15.13 -	$72.72
Clubhouses	$54.20 -	$173.19
Senior (clubhouse) Centers	$86. 1 9 -	$230.24
Country Clubs	$82.69 -	$217.11
Health Clubs (spas)	$71.90 -	$150.07
Mortuaries	$63.96 -	$199.58
Motels	$48.20 -	$151.72
Extended-Stay Motels	$60.13 -	$121.42
Office-Apartment Motels	$47.29 -	$165.23
Motel Guest Rooms	$48.31 -	$144.98
Lodges	$49.49 -	$182.87
Guest Cottages	$42.10 -	$168.78
Bed and Breakfast Inns	$61 .19 -	$160.96
Multiple Residences	$47.80 -	$127.01
Multiple Residences (senior citizen)	$54.35 -	$120.18
Multiple Residences (elderly assisted living)	$64.82 -	$129.43
Multiple Residences (retirement comm. complex)	$88.79 -	$149.81
Shell Multiple Residence Buildings	$48.66 -	$77.22
Bars/Taverns	$60.73 -	$112.37
Cocktail Lounges	$67.65 -	$160.13
Restaurants	$67.24 -	$255.20
Restaurants (cafeterias)	$60.32 -	$171.11

Restaurants (truck stop)	$1 12.84 -	$177.27
Restaurants (fast food)	$78.26 -	$210.68
Snack Bars	$28.32 -	8163.56
Banquet Halls	$56.23 -	$184.01
Modular Restaurants-Diners	$184.40 -	$222.02
Supermarkets	$58.38 -	$109.38
Drug Stores	$72.62 -	$11.00
Markets	$49.46 -	$95.91

Florist Shops	$5 1.22 -	$94.23
Convenience Stores	$58.72 -	$118.15
Gas Station Mini-Mart Convenience Stores	$104.05 -	$181.83
Roadside Markets	$9.1 5 -	$84.53
Luxury Boutiques	$141 .64 -	$277.92
Winery (tasting-display) Shops	$55.61-	$283.78
Barber Shops/Beauty Salons	$610. 19 -	$92.53
Laundromats	$62.92 -	$75.38
Laundry/Dry Cleaning	$65.59 -	$96.42
Dairy Sales	$76.97 -	$83.51
Retail Stores	$48.10 -	$164.50
Department Stores	$97.51 -	$191.62
Mall Anchor (departments/big box) Stores	$55.81 -	$117.92
Discount Stores	$39.84 -	$75.02
Warehouse Discount Stores	$3 1 .20 -	$60.90
Warehouse Showroom Stores	$34.58 -	$64.98
Warehouse Food Stores	$38.93 -	$78.59
Mega Warehouse Stores	$30.55 -	$55.99
Retail Basements and Mezzanines	$1 9.28 -	$88.65
Neighborhood Shopping Centers	$57.87 -	$96.62
Mixed Retail with Residential Units	$55.40 -	$99.88
Mixed Retail with Office Units	$58.56 -	$99.17
Community Shopping Centers	$70.28 -	$131 .10
Regional Discount Shopping Centers	$63.59 -	$105.95
Regional Shopping Centers	$89.38 -	$176.50
Shopping Center Mall Concourses and Basements	$10.85 -	$141.09
Regional Shopping Center Shell Buildings	$32.06 -	$73.1 1
Community Shopping Center Shell Buildings	$36.93 -	$68.01
Neighborhood Shopping Center Shell Buildings	$15.69 -	$48.17
Regional Shopping Center Interior Retail Space	$59.43 -	$103.43
Neighborhood & Community Shopping Center		
Interior Retail Space	$31.54 -	$60.26
Lofts	$39.55 -	$141.62
Industrial Flex (mall) Buildings	$26.16 -	$64.21
Industrials, Light Manufacturing	$26.47 -	$73.63
Industrials. Heavy (process) Manufacturing	$66.42 -	$227.21
R&D	$41.86 -	$167.81

Laboratory Buildings	$120.57 -	$358.85
Computer (data) Centers	$91.865-	$352.22
Broadcasting Facilities	$78.15 -	$240.15
Passenger Terminals	$55.12 -	$404.42
Main Post Offices	$1 15.31 -	$232.43
Mail-Processing Facilities	$76.82 -	$130.93
Branch Post Offices	$72.85 -	$132.39
Armories	$40.71 -	$145.20
Distribution Warehouses	$25.07 -	$97.38
Transit Warehouses	$53.28 -	$85.42
Cold Storage Facilities	$39.19 -	$103.10
Creameries	$45.47 -	$ 106.63
Mega (storage/distribution) Warehouses	$1 6.04 -	$50.04
Storage Warehouses	$20.77 -	$83.02
Mezzanines-Industrial Buildings	$14.26 -	$61.47
Miscellaneous Dock Structures	$7.45 -	$54.00
Mini-Warehouse	$16.61 -	$43.12
High-Rise Mini Warehouses	$41 .42 -	$58.60
Maintenance Hangars	$3 1 .53 -	$103.79
Storage Hangars	$14.03 -	$80.54
T-Hangars	$20.65 -	$33.27
Complete Auto Dealerships	$49.05 -	$155.60
Automotive Service Centers	$44.47 -	$82.25
Showrooms	$56.39 -	$172.53
Service (repair) Garages	$27.66 -	$97.92
Service Garage Sheds	$13.1 7 -	$31.13
Municipal Service Garages	$65.73 -	$152.59
Mini-Lube Garages	$37.28 -	$1
Parking Structures	$27.67 -	$65.95
Underground Parking Structures	$84.82	
Storage Garages	$43.72 -	$66.77
Light Industrial/ Warehouse Shell Buildings	$13.09 -	$44.56
Industrial. Interior Office Space	$20.88-	$121.07
Office Buildings	$59.96 -	$256.40
Atriums/Vestibules	$47.75 -	$466.59
Parking Levels (intermediate/under building)	$23.00 -	$98.45
Mezzanines-Office Buildings	$12.96 -	$78.34
Mechanical Penthouses	$30.22 -	$87.09
Banks-Central Offices	$142.86 -	$319.76

Mini-Banks (walk-up and drive-through)	$223.48 -	$463.43
Banks-Branches	$1 18.73 -	8263.31
Medical Office Buildings	$88.75 -	$277.38
Dental Clinics	$91.31 -	$232.37
Dispensaries (urgent care)	$88.79 -	$159.36
General Hospitals	$141 .79 -	4
Outpatient (surgical) Centers	$13 1 .28 -	$415.00
Convalescent Hospitals	$95.67 -	$249.21
Kennels	$39.83-	$21 1.93
Veterinary Hospitals	$83.20 -	$218.90
Fire Stations-Volunteer	$39.1 1-	$103.54
Fire Stations-Staffed	$60.1 1 -	$252.29
Governmental Buildings	$88.34 -	$312.21
Governmental-Community Service Buildings	$73.64 -	$209.27
Public Libraries	$88.35 -	$280.95
Jails-Correctional Facilities	$137.40 -	$399.59
Jails-Police Stations	$97.81 -	$264.22
Religious Buildings (Churches with Sunday Schools)	$78.48 -	$227.70
Religious Buildings (Churches)	$79.29 -	$327.91
Religious Building Balconies	$42.48 -	$73.55
Religious Buildings (Fellowship Halls)	$46.16-	$183.49
Religious Buildings (Foyers/Narthexes)	$81.71 -	$257.57
Religious Buildings (Church Educational Wings)	$58.47-	$150.90
Theaters (live stage)	$69.34 -	$341.12
Mezzanines and Live-Stage Balconies	$32.06 -	$83.65
Theaters-Cinema	$57.20 -	$215.18
Cinema Balconies	$46.59 -	$58.35
Auditoriums	$70.93 -	$332.99
Fraternal Buildings	$73.22 -	$211.28
Visitor Centers	$70.45 -	$217.41
Convention Centers	$82.23 -	$233.15
Casinos	$86.22 -	$241.66
Community Recreation Centers	$87.13 -	$209.04
Arcade Buildings	$48.13 -	$139.51
Museums	$79.48 -	$256.21
Ice Skating Rinks	$56.84 -	$ 180.03

Handball/Racquetball Clubs	$82.89 -	$ 134.24
Fitness Centers	$87.54 -	$188.33
Bowling Centers	$48.82 -	$1 17.82
Indoor Tennis Clubs	$34.66 -	$83.97
Pavilions	$33.03 -	$229.27
Light Commercial-Commodity Warehouse	$1 1 .19 -	$34.75
Material-Commodity Shelters	$7.09 -	$17.64
Light Commercial Utility Buildings	$10.94 -	$33.87
Toolshed Buildings	$7.38 -	$23.65
Light Commercial Arch-Rib (Quonset) Buildings	$14.00 -	$28.61
Light Commercial Equipment (shop) Buildings	$13.09 -	$37.84
Light Commercial Equipment Sheds	$17.79 _	$30.73
Shed Office Structures	$34.60 -	$75.54
Golf Cart Storage Buildings	$35.69 -	$75.66
Golf Starter (guard house) Booths	$46.16 -	$138.49
Material Storage Buildings	$18.45 -	$41.16
Material Storage Sheds	$8.25 -	$19.08
Bulk Oil Storage	$27.26 -	$29.63
Lumber Storage Buildings	$13.33 -	$31.10
Lumber Storage Sheds	810.16 -	$26.08
Boat Storage Buildings	$19.17 -	$28.46
Boat Storage Sheds	$12.36 -	$29.85
Bag Fertilizer Storage	$30.07 -	$32.39
Bulk Fertilizer Storage	$34.56 -	$41.01
Tobacco Barns-Flue Curing	$22.13-	$28.99
Tobacco Barns-Air Curing	$17.38 -	$24.02
Dehydrator Shed Buildings	$1 1.85 -	$89.76
Farm Cold Storage Buildings	$18.81 -	$45.60
Fruit Packing Barns	$25.48 -	$30.87
Potato Storage Buildings	$8.73 -	$51.24
Vegetable Buildings-Environmental	$28.63 -	$44.89
Controlled Atmosphere Buildings	$33.41 _	$39.40
Greenhouse-Straight-Wall Structures	$3.62 -	$29.77
Greenhouse-Hoop (arch-rib/Quonset) Structures	$2.80 -	$17.19
Greenhouse Shade Shelters	$1 .62 -	$2.39
Lath Shade Houses	$4.81 -	$8.19
Flat house Storage Buildings	$20.25 -	$40.61

Feed Handling and Mixing Shed Building	$12.63 -	$15.2l
Cotton Gins	$46.74 -	$63.49
Seed Processing Storage	$9.86 -	$29.42
Secure Storage Modular Shed Buildings	$15.35 -	$67.75
Prefabricated Storage Shed Buildings	$5.03 -	$17.65
Corn Crib Bins	$3.99 _	$7.22
Farm Utility Buildings	$6.98 -	$25.70
Arch-Rib (Quonset) Farm Utility Buildings	$5.78 -	$23.84
Farm Utility/Grain Storage (granary) Buildings	$14.84 -	$21.48
Farm Utility Storage Sheds	$5.12 -	$l 1.26
Farm Utility Lean-To's	$4.90 _	$l 1.50
Farm Commodity Storage Sheds	$10.26 -	$16.21
Corn Crib Buildings-Spaced Boards	$5.52 -	$16.84
Corn Crib Buildings-Wire Mesh	$4.51 -	$15.47
Farm Implement (equipment shop) Buildings	$9.77 -	$26.67
Arch-Rib (Quonset) Farm Implement Buildings	$8.87 -	$24.70
Farm Implement-Equipment Sheds	$6.10 -	$17.03
Barns-General Purpose	$13.31 -	$35.24
Bank Barns (two story)-General Purpose	$1 1 .00 -	$25.42
Haylofts	$5.09 -	$12.23
Barns-Special Purpose	$20.13 -	$61.92
Bank Barns (two-story)-Special Purpose	$14.72 -	$42.55
Free-Stall Barns	$7.42 -	$28.61
Confinement Barns	$6.15 -	$19.94
Feeder Barns-Sheds	$5.21 -	$8.45
Loafing Sheds	$5.26-	$7.36
Farm Utility Shelters (open hay sheds)	$4.71 -	$8.00
Calving Barns-Sheds	$7.66 -	$20.94
Arena Shelters	$7.46 -	$15.19
Farm Sun Shelters	$3.20 -	$4.05
Arenas	$6.83 -	$56.73
Equestrian lean-tos	$8.33 -	$15.75
Stables	$5.69 -	$45.14
High Value (estate) Stables-Horse Barns	$55.33 -	$190.30
Dairies (milking parlors)	$21.80 -	$68.99
Milk houses	$36.79 -	$57.19
Milk house Sheds	$31 .52 -	$
Hog Barns-Nursery	$33.93 -	$46.29
Hog Barns-Breeding/Gestation	$1 6.28 -	$36.82

Hog Barns-Farrowing	$18.61 -	$41.29
Hog Barns-Finishing	$10.20 -	$26.1 1
Modified Hog Sheds	-	$25.72
Hog Sheds	$7.29 -	$16.71
Sheep Barns	$1 8.56 -	$27.68
Sheep Sheds	$5.48 -	$14.95
Turkey Barns	$5.28 -	$12.55
Individual Livestock Shelters	$5.82 -	$17.65
Poultry Floor Operation-Breeder Houses	$6.44 -	$20.68
Poultry Floor Operation-Boiler Houses	$5.40 -	$12.30
Poultry Cage Operation-Enclosed Houses	$10.18 -	$33.62
Poultry Cage Operation-Screened Houses	$7.08 -	$14.15
Farm Labor Housing-Dormitories	$23.75 -	$46.97
Transient Labor Cabins	$29.88	
Hunting Shelters	$8.03 -	$19.92
High Schools	$94.19 _	$257.55
Middle (junior high) Schools	$92.80 -	$240. I I
Elementary Schools	$92.41 -	$252.47
Vocational Schools	$75.66 -	$202.31
Alternative (high) Schools	$l 15.79 -	$204.44
Day Care Centers	$73.69 -	$192.04
Classrooms	$55.31 -	$230.76
Special Education Classrooms	$107.32 -	$209.18
Relocatable Classrooms	$52.83 -	$127.71
Manual Arts (shop) Buildings	$58.20 -	$134.82
Lecture Classrooms	$108.46 -	$l70.83
Multipurpose Buildings	$72.60 -	$206.74
Laboratory Classrooms	$108.82 -	$212.09
Elementary and Secondary Media Centers (Libraries)	$80.28 -	$207.92
Academic (College) Libraries	$87.48 -	$294.19
Fine Arts Buildings	$83.05 -	$222.76
Book Stores	$56.31 -	$1 12.12
Restroom Buildings	$67.55 -	$255.66
Maintenance (storage) Buildings	$36.49 _	$70.83
Natatoriums	$73.16 -	$205.85
Shower Room Buildings	$62.03 -	$215.52
Field houses	$76.72 -	$109.14
Physical Education Buildings	$64.99 -	$204.08
Gymnasiums	$47.89 _	$188.03
Colleges	$94.60 -	314.83
College Classrooms	$89.08 -	$271.53

Technical Trades Buildings	$78.66 -	$204.78
Lecture Hall Buildings	$126.63 -	$287.57
Arts & Crafts Buildings	$90.71 -	$303.75
Theater-Arts Balconies	$49.37 -	$77.42
Science Buildings	$1 14.47 -	$318.82
Commons	$105.75 -	$278.22
Administration (office) Buildings	$71.96 -	$243.66
Relocatable Offices	$54.92 -	$115.31

*The stated ranges are subject to change based on perimeter and height adjustments.

The Valuation of Campground & Mobile Home Lots

Campgrounds and mobile homes parks will be valued as follows:

The land value will be determined on a per acre basis from comparable land sales within the County. Second, the pads or hookups will be valued along with any pertinent structures belonging to the park. The pad values are based on whether they are a full hookup (water, electric. sewer), partial or primitive.

Mobile Home Parks – Campgrounds - Mobile Home Lots: $2,500 - $8,600 per pad

Golf Courses

Prices include normal grading, sprinkler systems. service roads and cart paths and architect fees.

Class I — Minimum Quality: (Typical Features)	open terrain no bunkers gravel cart paths
Class Il — Semi-Private and Municipal Clubs: (Typical Features)	94.750 - $135.000 per hole 6,000 yards to 6,400 yards few bunkers few trees green sprinkled paved cart paths
Class Ill — Private Club: (Typical Features)	$137.000 - $202.000 per hole 120 to 160 acres 6,400 yards to 6.700 yards bunkered at most greens some trees driving range sprinklers manual or automatic paved cart paths
Class IV — Championship: (Typical Features) $66,250 - $90.750 per hole 80 to 100 acres 5,600 yards to 6.000 yards	Average $207,000 - $330,000 per hole Good 8296.000 - $458.000 Excellent $579,000 - $908,000 160 to 200 acres 6.700 to 7.200 yards long bunkered greens and fairways large trees. greens and thirways driving range name architect automatic sprinklers for greens and fhirways paved cart paths Bridges or Tunnels Lakes or Ponds

This schedule represents replacement cost. Depreciation may be used to consider economic factors.

Real and Personal Property Classifications

DESCRIPTION	REAL	PERSONAL
ACOUSTICAL FIRE RESISTANT DRAPES & CURTAINS	XX	
AEROBIC FLOORS		
AIR CONDITIONING-BUILDING AIR CONDITIONING, INCLUDING REFRIGERATION EQUIPMENT, FOR COMFORT OF OCCUPANTS, BUILT-IN, CENTRAL & WALL UNITS		
AIR CONDITIONING - WINDOW UNITS, PACKAGE UNITS. INCLUDING E.G., THAT USED IN DATA PROESSING ROOM AND IN MANUFACTURING PROCESSING		XX
AIRPLANES		XX
ALARM SYSTEMS (SECURITY OF FIRE) & WIRING	XX	
APARTMENTS - CARPETING INSTALLED & ATTACHED		
APARTMENTS-BUILT-IN (RANGES, DISHWASHER, DISPOSAL) UNLESS INCOME APPROACH IS USED)		XX
ASPHALT PLANTS - BATCH, MIX. ETC. - MOVABLE		XX
ATM-ALL EQUIP. & SELF STANDING BOOTHS		
AUTO EXHAUST SYSTEMS FOR BUILDING	XX	
AUTO EXHAUST SYSTEMS FOR EQUIPMENT		XX
BALERS (PAPER, CARBOARD, ETC.)		XX
BANKS - CANOPY, DRIVE-IN	XX	
BANKS - DRIVE-IN WINDOWS		XX
BANK TELLER COUNTERS - SERVICE AREA & RELATED		XX
BANKS - NIGHT DEPOSIT CHUTES		

BANKS PNEUMATIC CHUTES	XX
BANKS TELLER LOCKERS - MOVABLE OR BUILT-IN	XX
BANKS - SAFE DEPOSIT BOXES	xx
COUNTERS/RECEPTION DESKS - MOVEABLE OR BUILT-IN	
CRANEWAYS	xx
DAIRY PROCESSING PLANTS - ALL PROCESS ITEMS, BINS. TANKS	
DANCE FLOORS	
DATA PROCESSING EQUIPMENT - ALL ITMES	
DELI EQUIPMENT	
DESK - ALI.	XX
DIAGNOSTIC CENTER EQUIPMENT	
MOVEABLE OR BUILT IN	
DISPLAY CASES-MOVEABLE OR BUILT-IN	XX
DOCK LEVELERS	
DOORS	
DOORS-AUTOMATIC OPENERS	XX
DRAPES AND CURTAINS, BLINDS, ETC.	
DRAWINGS	
DRINKING FOUNTAINS	XX
DRIVE-THRU WINDOWS-ALL (EXCEPT BANKS)	XX
DRYING SYSTEMS-PROCESS OR PRODUCT	XX
DRYING SYSTEMS-SPECIAL HEATING IN PROCESS	
SYSTEM	XX
DUMB WAITERS	XX
DUMPSTERS	XX
DUST CATCHERS, CONTROL SYSTEMS, ETC	XX
ELECTRONIC CONTROL SYSTEMS	XX
ELEVATORS	XX
ESCALATORS	

EXTERIOR STRUCTURES FOR KILNS	XX	
FANS-FREESTANDING		
FARM EQUIPMENT-ALL		
FENCING - INSIDE		
FENCING-OUTSIDE		
FIRE ALARM SYSTEMS		
FITNESS CENTER EQUPMENT- (ALL)		XX
FLAGPOLE		XX
FOUNDATIONS FOR MACHINERY AND EQUIPMENT		
FREIGHT CHARGES		XX
FUELS-NOT FOR SALE (LIST AS SUPPLIES)		XX
FURNACES-STEEL MILL PROCESS, ETC, FOUNDRIES		XX
FURNITURE AND FIXTURES		XX
GENERATORS		xx
GOLF COURSE AND IMPROVEMENTS (DRAINAGE/ IRRIGATION)	xx	
GRAIN BINS - NOT PERMANENTLY ATTACHED		xx
GRAIN ELEVATORS		
GREENHOUSE BENCHES, HEATING SYSTEM, ETC.,		
IRRIGATION, VENTILATION		XX
GREENHOUSES-MOVABLE		XX
GREENHOUSE-STRUCTURE IF PER. AFFIXED	XX	
HEATING SYSTEMS, PROCESS		XX
HOPPERS - METAL BIN TYPE		XX
HOSPITAL SYSTEMS-OXYGEN, PUBLIC ADDRESS, EMERGENCY ELECTRIC, CLOSED TV CALL SYSTEM AUTOCLAVE, ETC.		XX
HOT AIR BALLOONS		XX
HOTEL/MOTEL TELEVISIONS & WIRING, FURNITURE, ETC		
HUMIDIFIERS-PROCESS		xx
INCINERATORS-EQUIPMENT AND/OR MOVEABLE		

INDUSTRIAL PIPING-PROCESS

INSTALLATION COST

INVENTORIES (EXEMPT)

IRRIGATION EQUPMENT

KLINS-META[. TUNNEL OR MOVEABLE XX

LABORATORY EQUPMENT

LAGOONS/SEELING PONDS XX

LAUNDRY BINS XX

LAW AND PROFESSIONAL LIBRARIES XX

LEASED EQUIPMENT-LESSOR OR LESSEE POSSESSION XX

LEASEHOLD IMPROVEMENTS (LIST IN DETAIL XX
(YEARLY)

LIFTS-OTHER THAN ELEVATOR XX

LIGHTING-PORTABLE/MOVEABLE/SPECIAL XX

LIGHTING-YARD LIGHTING, POLE XX

LIVESTOCK (EXEMPT) XX

LP STORAGE TANKS

MACHINERY AND EQUIPMENT XX

MEDICAL EQUIPMENT XX

MEDICAL HANDLING - MILKING. COOLING PIPING STORAGE XX
MINERAL RIGHTS XX

MIRRORS (OTHER THAN BATHROOM) XX

MOBILE HOME PARKS-POLES & LIGHTING XX

MOBILE HOME PARKS-LAUNDRY BLDG, BATH HOUSES, XX
SWIMMING POOLS, SEWER SYSTEMS, WATER PIPING,
WALKS, DRIVEWAYS AND PARK AREA

MOBILE HOMES-ALL SINGLE WIDE & DOUBLE WIDES ON LAND NOT OWNED BY MOBILE HOME OWNER

See General Statue G.s. 105-273(13)

MOBILE HOMES-ALL SINGLE WIDE AND DOUBLEWIDES ON LAND OWNED BY MOBILE HOME OWNER

See General Statue G.s. 105-273(13)

MONITORING SYSTEMS BUILDING OR EQUIPMENT		XX
NEWSPAPER STANDS		XX
NIGHT DEOSITORY		XX
OFFICE EQUIPMPENT-ALL		XX
OFFICE SUPPLIES (LIST AS SUPPLIES)		XX
OIL COMPANY EQUIPMENT-PUMPS, SUPPLIES. ETC.		
OIL STORAGE AND TANKS		XX
OVENS-PROCESSING/MANUFACTURING		XX
OVERHEAD CONVEYOR SYSTEM		XX
OVERHEAD DOORS	XX	
OVERHEAD WALKWAYS		
PACKAGE AND LABELING EQUPMENT		XX
PAGING SYSTEMS		XX
PAINT SPRAY BOOTHS		
PAINTING-NO ADDED VALUE (MAINTENANCE)		
PARKING LOT LIGHTING		XX
PARTITIONS		XX
PAVING	XX	
PIPING SYSTEMS-PROCESS PIPING	XX	
PLAYGROUND EQUIPMENT-ALL	XX	
PNEUMATIC TUBE SYSTEMS	XX	
PORTABLE BUILDINGS		xx
POULTRY HOUSE EQUIPMENT-WATER & FEEDING EQUIPMENT, CURTAINS, ETC.	xx	

POWER GENERATOR SYSTEMS (AUXILIARY, EMERGENCY, ETC.)

POWER TRANSFORMERS-EQUIPMENT

PROCESSING SILOS

PUBLIC ADDRESS SYSTEMS (INTERCOM. MUSIC OWNED)

PUMPS-GASOLINE, ETC xx

RAILROAD SIDING (OTHER THAN RAILROAD OWNER

REFRIGERATION SYSTEMS-COMPRESSORS, ETC.

REPAIRS-BUI-DING

REPAIRS-EQUIPMENT xx

RESTAURANT FURNITURE (INCL. ATTACHED TO FLOOR OR BLDG.) xx

RESTAURANT/KITCHEN EQUIP. VENT HOODS, SINKS, ETC. (COMMERCIAL) xx

RETURNABLE CONTAINERS xx

ROCK CRUSHERS xx

ROLL-UP DOORS (INSIDE WALL)

ROLL-UP DOORS (OUTSIDE WALL) xx

ROOFING xx

ROOM DIVIDERS/PARTITIONS-MOVEABLE OR BUILT IN

ROOMS. SELF-CONTAINED OR SPECIAL PURPOSE (WALL/CEILING FLOOR) xx

SAFES (WALL OR SELF-STANDING) xx

SALES/USE TAX xx

SATELLITE DISHES (ALL WIRING & INSTALLATION TO TV AND EQUIPMENT) XX

SCALE HOUSE (UNLESS MOVEABLE) XX

SCALES

SEATS-THEATER XX

SECURITY SYSTEMS XX

SERVICE STATION EQUIPMENT-PUMPS, TANS, LIFTS. & RELATED

SEWER SYSTEMS xx

SHELVING xx

SIGNS ALL TYPES INCLUDING ATTACHED TO BUILDING			
SILOS-FARM ONLY		XX	
SINKS-BATHROOM		XX	
SINKS-KITCHEN AREA			XX
SKATING RINKS-ROLLER	XX		
SOFTWARE-CAPITALIZED			XX
SOUND SYSTEMS & PROJECTION EQUIPMENT			XX
SPARE PARTS-LIST AS SU-PPLIES (FOR EQUIPMENT)			XX
SPEAKERS-BUILT-IN OR FREESTANDING			XX
SPRAY BOOTHS			
SPRINKLER SYSTEM-ATTACHED TO PRODUCT STORAGE RACKS			
SPRINKLER SYSTEM-BUILDING		XX	
STORE FRONTS			XX
SUPPLIES (OFFICE & OTHER)			XX
SWIMMING POOLS (IN GROUND, INDOOR)		XX	
SWIMMING POOLS-ABOVE GROUND, PRE-FABRICATED			XX
SWITCHBOARD (MOTEL, ETC.-WHEN NOT OWNED BY UTILITY)			
TANKS (ALL-ABOVE AND BELOW GROUND)		XX	
TELEPHONE SYSTEMS & WIRING		XX	

THEATER SCREENS-INDOOR, MOVIE SCREENS, SEATS & EQUIPMENT

THEATER SCREENS-OUTDOOR, MOVIE SCREENS xx

THEATERS OUTDOOR-DRIVE IN-SPEAKERS, POSTS & U.G. WIRING

THEATER SEATS ,xx

THEATER, OUTDOOR-CONCESSION STANDS AND

OTHER PERMANENT BUILDINGS xx

TOOLS, DIES, MOLDS xx

TOWERS-MICROWAVE, EQUIPMENT, WIRING & FOUNDATION xx

TOWERS - TV, RADIO, CATV, TWO-WAY RADIO, WIRING AND FOUNDATION

TRACKAGE xx

TRANSFORMER BANKS

TRANSPORTATION COST-ALL

TUNNELS-UNLESS PART OF PROCESSING SYSTEM xx

UNGRADE EQUIPMENT xx

VACUUM SYSTEM, PROCESSS xx

VAULT-ALL xx VAULT DOOR INNER GATES, VENTS & EQUIPMENT xx

VENDING MACHINES xx

VENT FANS xx

VENTILATION SYTEMS-GENERAL BUILDING (BUILDING IMPROVEMENTS) xx

VENTILATION SYTEMS-NEEDED FOR MANUFACTURING, PROCESS xx

VIDEO TAPES/MOVIES/REEL MOVIES xx

UTILITY SYSTEM BUILDINGS FOR PRIVATE SYSTEMS

UTILITY SYSTEMS-OTHER THAN IN STATE ASSESSED ULITIES xx
OTHER THAN CENTRAL HEATING AND COOLING FOR BUILDINGS. ETC. (E.G.: MOTEL OWNED TELEPHONE SWITCHBOARD SYSTEMS. PRIVATE RAILROAD SIDINGS, PRIVATE WATER SYSTEMS, EMERGENCY POWER

GENERATING EQUIPMENT. ETC xx

GENERATING EQUIPMENT. ETC.)

WALLS-INSIDE MALL. BETWEEN TENANTS xx

WALLS - PARTITIONS. MOVEABLE AND ROOM DIVIDERS xx

WATER COOLERS-ALL		
WATER LINES - FOR PROCESS ABOVE OR BELOW GROUND		
WATER SYSTEM-RESIDENTIAL OR GENERAL BUILDING		xx
WATER TANKS & SYSTEM - FOR PROCESS EQUIPMENT		xx
WELLS - PUMPS, MOTORS, EQUIPMENT	xx	
WHIRLPOOL/JACUQQI/HOT TUBS - PORTABLE		
WHIRLPOOL/JACUZZI/HOT TUBS - BUILT IN	xx	
WIRING- POWER WIRING FOR MACHINERY AND EQUP.		xx

Depreciation

Depreciation is the loss of utility and consequently value from any cause. For these losses there are three forms of depreciation: I) physical deterioration. 2) function obsolescence, and 3) economic obsolescence. Physical depreciation is evidenced by wear and tear, decay, dry rot, weather, cracks, encrustations. or structural defects. Obsolescence is divisible into two parts, functional and economic. Functional obsolescence may be due to poor house plans. oversized or over built for the neighborhood. mechanical inadequacy or over adequacy and/or style and age. It is evidenced by conditions within the dwelling. Economic, external and/or location obsolescence is caused by factors outside the property or home.

The most common form of depreciation is physical deprecation. Functional obsolescence is used in Rutherford County due to size, poor floor plan. design, etc. Economic obsolescence is used due to situations such as a dwelling abutting commercial or inferior properties, or the home site being located close to a major highway.

Many efforts have been made to compile schedules, which reflect the combined effects of deterioration and obsolescence into a single guideline for depreciation estimates in appraising. The schedules most frequently attempt to identity an overall economic or useful life for various structural classes, then set out percentage remainders of reproduction or replacement cost of properties of a given age and class. The term age used in these schedules is intended to be understood as effective age. The classes may be generally described as typical ranges of lite expectancy for certain structural classes and implies the amount of time an improvement would normally be expected to remain an asset to the land in its present or intended use.

While such schedules are recognized to be only guides at best (with depreciation estimated for a particular property by current market data, considered most accurate), their use in mass appraisal efforts is well founded and generally considered sufficient.

Use of Depreciation

Unlike residential buildings. commercial and industrial buildings are usually built to a special design for a special purpose. The appraiser must first establish for what purpose the building was constructed. Then he must select from the listing of the commercial buildings the type of structure that most closely fits the building he is about to appraise. To do this he would go to the listing of building types listed in the manual. Once the appraiser has classified and graded the building, he then must consider the age and condition of the building in order to apply the proper amount of depreciation. All commercial and industrial properties in the taxing jurisdiction will be appraised at replacement cost less normal depreciation. The income approach will be used when data is available and reliable. Factors, which would normally influence the amount of depreciation given to a commercial or industrial property, are as follows:

1. Age — consideration for life expectancy and normal wear.
2. Functional depreciation — consideration for uses of building, for example, being used tor another purpose than that for which it was originally intended.
3. Economic depreciation — consideration for the location of the building, for example, a service station at a location where there is no longer a high volume of traffic.

Depreciation Terms

Depreciation — A loss in value due to any cause.

Physical Depreciation — Is loss in value due to physical deterioration. It is readily observed as the decaying effect of the elements (and) or lack of maintenance, in conjunction with the chronological age of the structural components of the buildings.

Functional Obsolescence — Is a loss in value due to lack of utility or desirability of part or all the property.

Economic Obsolescence — Is loss in value due to causes outside the property and inadequacy of the property.

Effective Age — An age which reflects a true remaining life for the property, taking into account the typical life expectancy of building of its class and usage. It is a matter ofjudgment, taking all fåctors into consideration.

Remaining Life — The length of time the improvement may be expected to continue to perfòrm its function economically.

Percent Good — 100% less the percentage of depreciation.

Examples of Functional Obsolescence — Old fashion bathroom and kitchen fèatures. inadequate hot water or heating systems, inadequate placement of electrical outlets, low hanging pipes in commercial or industrial building, and absence of ventilating facilities, poor room arrangements. super adequacies such as extra high ceilings, inadequate column spacing in a warehouse, multistory construction in an old industrial building, and undesirable shape or location on a site of a commercial structure.

Examples of Economic Obsolescence — Inharmonious land uses, location of obnoxious commercial or industrial businesses in a residential neighborhood. narrow streets with poor traffic access, and lack of adequate parking in a retail business district.

Reconciliation

This is the final step in which the appraiser brings all elements of the appraisal together to present a final conclusion of the market value of the subject property.

The separate value estimates reached by the different appraisal approaches rarely will be identical. Through the process of reconciliation the appraiser compares and analyzes the estimates derived from the approaches used (sales comparison, cost and/or income). By considering the appropriateness of each approach for the property appraised, the value estimate that most accurately represents the market value of the subject can be determined.

The process of reconciliation is not a simple averaging of figures. One approach may have more validity for certain properties at certain times. Another approach may have little utility tor the type of property being appraised. For instance, because most single-family residences are not purchased for their income-producing capability, the value reached by applying the income approach in the appraisal of a single-family residence is rarely a significant determinant of market value.

The Income Approach will only be used on income producing properties. In Mass Appraisal the
Cost Approach less depreciation is the most acceptable form to use with the type of software (Pro-Val). The Market Approach is strongly considered and is referenced to with the County or City sales study.

The Pro-Val appraisal system is a cost system adjusted and blended by local sales to reach market value.

Glossary of Terms

Exterior Walls

Aluminum Siding-Flat or corrugated aluminum sheets fastened to a wood or metal frame.
Asbestos Shingle Wall-Reels to asbestos shingle laid over wood frame with sheathing. The principle composition of these shingles is asbestos which is a mineral fiber occurring in long and delicate fibers or fibrous masses. It is incombustible. non-conducting and chemically resistant. Typically these shingles are hard and brittle in nature with a noticeable grain or texture. Board and Batten on Plywood with Strips-Sheathing placed on walls in a vertical position with the joints covered by narrow wooden strips called battens.
Board and Batten 1 2" boards nailed to sheathing in a vertical position and the joints covered by battens (which are narrow wooden strips). this form of siding commonly used on small buildings. Cedar or Redwood Siding-Horizontal cedar or redwood lap siding or panel siding normally. unfinished or naturally stained which is desirable because of color and maintenance free characteristics.
Cement Brick-Cement brick is normally a 4" cement brick wall backed with masonry or wood.
Cement bricks lack the reddish clay color of common brick.
Common Brick-Brick commonly used for construction purposes. primarily made for building and not specially treated for color. They are made from clay or a clay mixture molded into blocks which are then hardened in the sun or baked in a kiln.
Composition or Wall Board-Refers to composition siding which comes in varied thickness and rolls. and is usually fastened over wood framing by nailing. Can be any of the various manmade materials on wood or metal framing such as Homosote or Cleotex or other trade name products. These must be treated or painted to withstand weather.
Concrete or Cinder Block-The standard concrete or cinder block which can range in size from 8 to 26 inches.
Corrugated Asbestos-Sometimes called by trade names such as "Transit", this is asbestos manufactured in corrugated sheets which can be fastened to wood or metal framing.
Corrugated Metal (Light)-An inexpensive steel or galvanized siding with minimum thickness.
This is usually manufactured in sheets which can be fastened to wood or metal framing.
Corrugated Metal (Heavy)-An expensive steel or galvanized siding generally used tor commercial construction.
Exterior Insulating Finish System (EIFS)-Resembles traditional masonry stucco available in drainable and barrier systems. Also called synthetic stucco. Where the siding is retaining moisture or likely to do so additional depreciation should be considered.
Face Brick-A quality of brick such as that used on exposed parts of a building and is usually color treated and finished.
Glass/Thermo-pane-A glass sandwich designed for use on exterior walls. Usually tinted and with an aluminum or metal framing system. This normally occurs only on large commercial office buildings.
Hardboard-Portland Cement-Ground Sand-Cellulose Fiber-Select Additives-No Asbestos-No Formaldehyde=Sizes 6 to 9 $^{1}/4$ inches-8 inches is considered standard.
Masonite-Hardboard siding 6 to 12 inches wide.

Modular Metal-This refers to the type walls used in mobile homes and commercial construction and other similar prefab metal walls.
Precast Panel-A modular construction material usually with a washed pebble finish. Such panels are precast and brought to the site to be erected. Normally used as the major exterior wall finish it is most often found on commercial buildings.
Prefinished Metal-This refers to the enameled or anodized metal which is commonly used on service stations and other metal. commercial structures.
Reinforced Concrete-Structural frame of concrete which has been reinforced with steel bars and used as exterior walls.
Siding Average-Used to describe infrequent unusual combinations not otherwise described. and reflects average quality material and workmanship.
Siding Maximum-A mixture of expensive siding.
Siding Minimum-Used to describe infrequent or unusual combinations not otherwise described and reflects very low quality materials.
Single Siding with Wood Framing Not Sheathing-Denotes inexpensive wood framing without sheathing.
Stone-refers to various good stone or stone veneers. usually on masonry.
Stucco on Concrete Block-A wall of concrete block with cement stucco applied to the exterior creating a textured surface.
Stucco on Tile or Wood Frame- Tile stucco refers to terra cotta tile with cement stucco applied to the exterior. Wood frame stucco is a type of wall which is formed by applying cement stucco to a framework of wood with wire or wood lath. (Stucco is a coating in which cement is used for covering walls and is put on wet. but when dry it becomes exceedingly hard and durable). Wood on Sheathing or Plywood-Wood is either lapped or 4x8 panels. Horizontal wood siding which is normally lapped over the sheathing and pained or a wood panel (plywood) nailed to the sheathing.
Wood Shingle-These are usually cedar or redwood shingles and usually appear on expensive homes-the irregular shaped cedar shakes being the most expensive.

Roofing Structure

Bowstring Truss-A large curved truss common to airplane hangars and Quonset huts.

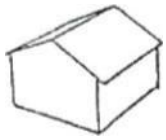
Bowstring

Flat Roof

A flat roof refèrs to a structural material which spans a horizontal or nearly horizontal position from wall-to-wall or beam-to-beam.

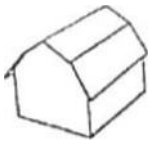
Flat

Gable-A gable roof is pitched (pitch is the slope of the roof) in two directions.



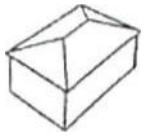
Gable

Gambrel-A type of roof which has its slope broken by an obtuse angle so that the lower slope is steeper than the upper slope; a roof with two pitches such as is common on a barn.



Gambrel

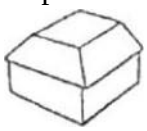
Hip Roof-The hip roof is usually pitched in four directions.



Hip

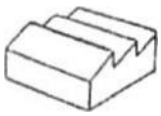
Irregular Roof-Any of a variety of unusual slopes which does not have the same rise per foot run throughout.

Mansard-A roof with two slopes on all four sides, the lower slope is very steep. the upper slope is almost flat.



Mansard

Pre-stressed Concrete-Roofs which are made up of concrete which has been made up elsewhere, pre-stressed and erected in place with cranes. Pre-stressing makes it possible to use less steel and usually less bulky than reinforcing.
Reinforced Concrete Roof - framing where concrete is formed and poured in place with a system of steel rods or mesh for absorbing tensile and shearing stresses. Roof framing of this type has been formed and poured on the ground and through a system of hydraulic jacks raised to proper position.
Rigid Frame with Bar Joist-Bar joists are fabricated steel open trusses which have been set close together and serve as roof beams or ceiling joists. The span of these is limited due to their lightness and depth. Bar joists limit roof shape to flat or shed and is to be used in place of flat or shed roofs on commercial buildings with medium spans.
Saw Tooth Roof-A roof which is formed of a number of trusses having unusual slopes. When viewed from the end, such a roof presents a serrated profile similar to the teeth of a saw.



Sawtooth

Shed Roof-Similar to Flat roof except that it has a noted slope in one direction.

Shed

Steel Frame or Truss-A truss made up of various shapes of steel members either bolted or welded together and which can, due to strength of steel and depth of truss, cover large spans in either flat, shed, hip. gable, mansard or gambrel shapes and is to be used on commercial buildings with heavy loads or wide spans in place of flat, shed, gable. mansard or gambrel shapes.

Steel Truss

Wood Truss-This is made up of various size lumber or timber such as beams. bars and ties usually arranged in triangular units to form a rigid framework and may be flat, shed or pitched. Spans are limited due to the strength of the material. This is to be used in place of the flat or shed on commercial buildings with limited spans. Roofing Cover

Asbestos Shingle-Shingles made of rigid, fireproof asbestos products which come in individual shingles and are fastened down in the same manner as wood or composition.

Asphalt or Composition Shingle-Refers to shingles made from asbestos fèlt saturated with asphalt. These are pliable shingles which are fastened down by nailing to some type of sheathing.

Built up Tar and Gravel-Gravel embedded in tar is hot mopped over various types of composition concrete. metal or gypsum roofing. This product requires a very low pitched or flat roof shape. Built up refers to the building up of waterproof layers with the mopped tar.

Cedar Shakes-Comes in random widths. lengths and very expensive.

Clay or Bermuda Tile-Clay tile is usually a half round clay product which has been kiln baked to a hardness which gives a wearing surface that needs no paint. Bermuda roofing is formed from light weight cement and/or gypsum products to give the appearance of a heavy. wide lapped roof.

Concrete Tile-A cement product in either flat or half round form which is laid over a built up surface and painted.

Corrugated Asbestos-Asbestos manufactured in sheets which can be fastened to either wood or metal.

Enameled Metal Shingle-Metal shingles with an enamel coating. This type of shingle is usually predrilled and fastened down by nailing to some type of sheathing on strips.

Corrugated or Sheet Metal-Sheet metal is either flat, corrugated or V-crimp metal of either aluminum or steel products and is fastened over wood or steel framing.

Rolled or Built-up Composition-A roofing consisting of asbestos felt saturated with asphalt and assembled with asphalt cement, which comes in rolls and is fastened down to a wood, composition or gypsum decking with tar and nails.

Rubberized-All of the new lines of rubber composition or plastic roofing materials used on flat roof surfaces.

Slate-Shingles made of slate fastened down to sheathing or strips.

Wood Shingles-These are usually cedar and redwood shingles and usually appear on expensive homes.

Interior Wall Construction

Drywall-A sandwich of plaster with paper surfaces normally available in 4' x 8' sheets which are cut to fit. It is fastened to studding or furring strips and requires a seal where joints occur. Masonry Interior Wall-Normally exterior walls which serve as an interior wall usually of brick or block material which are usually unfinished although they may be painted.
Plastered-This refers to all plaster on lath interior walls.
Plywood Panel-These are mostly inexpensive 4' x 8' plywood panels which are decorative in nature and characteristically a veneer.
Wall Board or Wood Wall-Wall Boards come in many makes or trade names but all are made up of a composition of materials to form boards which are usually 4' x 8' in size. These are treated paper such as • •Celotex", plaster boards or other paper products pressed together.
Wood Panel or Custom-Very high grade plywood veneers or solid hardwoods in tongue and groove which are used as interior finish.

Interior Flooring

Asphalt Tile- This applies to the various composition tiles that are laid over wood or concrete floors and includes the concrete or wood.
Carpet-Carpeting is the floor finish where the base is prepared and the carpet acts as the finish and includes the underlay. Carpet is fastened to the floor.
Ceramic Clay Tile-Same as finished or baked clay tile set in grout or concrete.
Concrete Tapered-Same as finished concrete except raised usually to a loading dock level. Concrete Finished-A floor finish where the concrete is troweled or a hardener applied with no other floor covering.
Cork or Vinyl Tile-All types of solid vinyl or cork tile.
Hardwood-A layer of hard wood usually over subflooring.
Marble-Refers to various expensive stones set in grout on concrete.
Parquet-Refers to a wearing surface made up of small pieces of hardwood set in patterns or designs over a subflooring. Can also be made up in blocks and laid in mastic over concrete.
Pine or Soft Woods-Floor finish of pine or other similar soft wood.

Plywood/Linoleum-A single layer of light wood usually of small thickness laid on floor joists; a composition material known as linoleum, which comes in sheets or tiles and is used as a floor covering.
Precast Concrete-Applies in this case to either pre-stressed or poured concrete floors which are suspended as in multi-story commercial buildings.
Quarry or Hard Tile-Refers to tiles which are machine made and unglazed.
Sheet Vinyl-A smooth seamless floor covering material manufactured with a resilient backing usually to either concrete or wood subflooring.
Slate-Refers to cut or random broken slate set in grout over concrete.

Terrazzo Epoxy Strip-A ground and polished terrazzo where metal with a finite modular spacing are incorporated in the poured terrazzo.
Vinyl Asbestos-A tough, strong, non-crystalline, thermoplastic tile.

Heating Fuel

Electric-Electrical
Gas-Natural or manufactured gas
Oil-Oil fired
Solar-Use of surfs radiation to heat

Heating Type

Baseboard-This refers to heating units which employ no mechanical methods to circulate the heated air.
Forced Air-Ducted-A central heating system that provides for the distribution of the air through duets or conduits to the various parts of the building.
Forced Air-Not Ducted-A heating element and fan and/or blower enclosed in a common housing for circulating the heated air but no duct distribution system.
Heat Pump-A reverse cycle refrigeration unit which can be used for heating or cooling.
Hot Water-(Steam heat) A system of heating a building, usually commercial, by means of hot water and/or steam circulating through pipes, coils and radiators placed in rooms fòr that purpose.
Radiant Electric- A heating system which heats a room only by use of the floor. ceiling or walls as heating panels. Most contemporary radiant heating systems have extensive pipe coils in the floor structure or in the walls and ceilings which are to be used as heating panels.
Radiant Water-Same as radiant electric only the fuel or radiant source is from heated water as opposed to electric current. Usually used with solar heat.
Direct Steam Heat-A heating system using radiators in the rooms to be heated, the steam or vapor being delivered from boiler to radiators through one of several arrangements of piping.
The one pipe gravity vapor system is used fòr larger installations.

Air Conditioning Type

Central-Refers to a central cooling system with duct work, thermostats and forced cold air.
Chilled Water-Usually a commercial air conditioning system utilizing a cooling tower as a heat exchanger and associated compressors with ducting.
Packaged Roof Top-Usually found in commercial buildings. The air conditioning unit is located on the roof of the property.
Wall/Window Unit-A unit air conditioning system self-contained usually placed in a window although sometimes placed in an exterior wall.

Quality Adjustment

Minimum-To be used on low cost construction which meets the minimum building code requirements. Interior and exterior finished are plain with little or no attention given to detail.

Below Average-To be used on low cost construction which meets the minimum construction requirements of lending institutions, mortgage insuring agencies and building codes. Interior finish is plain. Exterior ornamentation is typically' limited to the front of the structure.

Average-To be used on mass produced construction which meets or slightly exceeds the minimum construction requirements of lending institutions, mortgage insuring agencies and building codes. Cabinets, doors and plumbing fixtures are standard stock items. Exterior fenestration will be adequate. Exterior ornamentation is typically limited to the front of the structure.

Above Average-To be used on construction which exceeds the minimum construction requirements of lending institutions, mortgage insuring agencies and building codes. Interior finish typically consists of good quality wallpaper or wood paneling. Exteriors have good fenestration with ornamental materials.

Above Average Custom-to be used on construction typically found in high quality developments. Interior finish consists of high quality wallpaper. hardwood paneling or ceramic tile. Cabinets and countertops are high quality. Doors are usually hardwood veneer. Bedrooms typically contain large walk-in closets. Exteriors have well designed fenestration with some custom ornamentation and trim.

Excellent-To be used on construction which contains the highest quality of workmanship. finishes and appointments. These structures are usually individually designed and have considerable attention to detail. Interior finish consists of the highest quality wallpaper, hardwood paneling or ceramic tile. Cabinets are usually custom designed. Bedrooms contain large walk-in closets with built-in features. Exteriors have well designed fenestration. Custom ornamentation such as select brick and cut stone are frequently used.

Depreciation

Actual Year Built-The year a structure was built.

Effective Year Built-The age indicated by the condition and utility of a structure.

Economic Obsolescence-A percentage to be added to the normal depreciation to account for increased depreciation due to the impairment of desirability or useful life of the property from an external factor.

Functional Obsolescence-A percentage to be added to the normal depreciation to account for increased depreciation due to the impairment of desirability or usefllll life of the property from an internal factor.

Special Condition Code- UTC-Under Construction

PD-Physically Damaged

AP-Abnormal Physical Depreciation

Percent Condition- The actual total percent condition of the improvement after the depreciation reflected by one of the Special Condition Codes. NOTE: To use the Percent Condition one of the Special Condition Codes must be used. Also care must be taken in the use of these codes as they will override the depreciation developed from the normal depreciation. economic obsolescence and functional obsolescence.

Ownership - The percentage of common land, recreational building, golf privileges, etc. which are available to the unit owner.

Dwelling Information

Number of Bathrooms- The total number of bathrooms in the building. A full bath consists of a tub or shower, bowl and basin. A half bath is any lesser combination having a bowl and one other feature.

Number of Bedrooms-Check the appropriate number of bedrooms for single family homes.

Number of Single Family Residential Stories-Check the appropriate number of stories for single family homes.

Fireplaces- None

2. Prefab
3. One story single stack with one outlet
4. Two story single stack or a double fireplace outlet with a single story stack
5. Two or more fireplaces
6. Massive: A large hearth and stack with stone or brick usually wider than six feet
7. Two or more massive
8. Prefab two or more

Commercial Heating & Air Conditioning

Heating & Air Conditioning Package-Provides for heating and cooling together. The distribution of the air is provided through ducts or conduit leading from the unit to the various parts of the building. The source of supply normally is a single reverse cycle unit.

Heating & Air Conditioning Split-A system which provides for both the heating and cooling of the building. The distribution system includes ducts for distributing the air to the rooms. The source of supply is normally two separate units, one for heating and one fòr

cooling. Condominium, Townhouse or Apartment Floor-The floor level the subject unit is on.
Location-Use the following two digit codes:

CN: Corner, no view
CV: Corner, with view
NV: No corner, with view
NN: No corner, no view

Number of Units-The total number of units in the condominium or townhouse.

Quality Adjustment

Minimum-Low cost construction that meets minimum building code requirements.
Below Average-Low cost construction that meets construction requirements of lending institutions, mortgage insuring agencies and building code requirements.
Average-Meets or exceeds the minimum construction requirements of lending institutions, mortgage insuring agencies and building codes. Usually mass produced.
Above Average-Typically constructed of the best grade of standard stock materials.
Above Average Custom-Constructed with high grade materials. Workmanship is of high quality.
Attention is given to detail.
Excellent-Usually individually designed and contain the highest quality workmanship. All materials used are top quality. Extensive attention is given to detail.

Structural Frame

Fireproof Steel-A steel structural frame which has been encased in fire resistive material.
Masonry-Structural frame of stone, brick, cement, concrete, etc, which is not reinforced.
Reinforced Concrete-Structural frame of concrete which has been reinforced with steel bars.
Special-Used where the structural frame is more costly due to complicated combinations or uses of any of the structural frames.
Steel-Structural frame of steel.
Wood Frame-Wooden structural frame supporting the floors, walls. roofs and partitions. Prefabricated-pre-engineered framing utilizing sections assembled at the construction site. Ceiling and Insulation Quality Ceiling Insulated Only:

I. Suspended Acoustical Ceilings
2. Non-suspended Ceilings
3. No Finished Ceiling

Wall Insulated Only
I . Suspended Acoustical Ceilings
2. Non-suspended Ceilings
3. No Finished Ceiling

Ceiling and Walls Insulated
I . Suspended Acoustical Ceilings

2. Non-suspended Ceilings
3. No Finished Ceiling

No Insulation
l . Suspended Acoustical Ceilings
2. Non-suspended Ceilings
3. No Finished Ceiling

Average Number of Rooms Per Floor-For commercial buildings, determine the average number of rooms per floor and enter here. A room is defined as any area having three or more sides in the form of walls reaching to the ceiling of the room. Enter 01, 02. etc.
Estimated Percent Common Wall-Estimate the percentage of shared wall to the nearest 25% based upon the perimeter of the wall.
Nonstandard Wall Height-The height in feet, applied to some industrial warehouse properties. Record the height of the base area only.
Marketability-The subject's comparability in terms of marketing to other properties within the neighborhood.
Pre-Engineered Building-A building constructed of pre-designed manufactured and assembled units such as wall, framing, floor and roof panels erected at the construction site.
Prefabrication-The manufacturing and assembling of construction materials and parts into component structural units, such as wall, floor and roof panels which are later erected at the construction site.

Weights and Measures

Metric Measure		
Millimeter		0.001 meter
Centimeter		0.01 meter
Decimeter		0.1 meter
Meter		39.3685 inches
Kilometer		1000 meters
Kilometer		.00137 miles
Meter		1.0935 yards
Meter		3.2807 feet
1 Foot		0.30480 meter
1 Foot		3.04 centimeters
1 Inch		2.54 centimeters
Linear Measure		
1 Foot		12 inches
1 Yard		3 feet-36 inches

1 Rod		5 1/2 yards-16½ feet
1 Furlong		40 rods-220 yards-660 feet
1 Mile		8 furlongs-320 rods-1,760 yards-5,280 feet
Surveyor's Linear Measure		
1 Link		7.92 inches
1 Rod		25 links
1 Chain		4 rods-100 links-66 feet
1 Furlong		10 chains
1 Mile		8 furlong-80 chains
Square Measure		
1 Square Foot		144 square inches
1 Square Yard		9 square feet- 1,296 square inches
1 Square Rod		1 pole/perch -30 1/4 square yards-272¼ square feet
1 Rod		40 square rods
1 Acre		160 square rods - 4,840s square yards -43,560 square feet
1 Square Mile		640 acres
Surveyor's Square Measure		
1 Square Rod		625 square links
1 Square Chain		16 square rods
1 Acre		10 square chains

1 Square Mile		640 acres
Cubic Measure		
1 Cubic Foot		1,728 cubic inches -7,481 Gallons
1 Cubic Yard		27 cubic feet
1 Cord Foot		16 cubic feet
1 Cord of Wood		8 cord-128 cubic feet
1 Perch of Mason		$24^3/4$ cubic feet
1 Bushel		12445 cubic feet
Angles And Arcs Measure		
1 Minute		60 seconds
1 Degree		60 minutes
1 Right Angle		90 degrees - 1 quadrant
1 Circumference		360 degrees-4 quadrants
Board Measure		
1 Board Foot		Length in feet x width in feet x thickness in inches
Measurement In General Use		
1 Link		7.92 inches
1 foot		12 inches
1 yard		3 feet or 36 inches
1 rod		16½ feet, 5 $^1/2$ yards or 25 links

1 surveyor's chain		66 feet, or 4 rods, or 100 links
1 furlong		660 feet, or 40 rods
1 mile		8 furlongs, 320 rods, 80 chains, or 5,280 feet
1 square rod		272 ^{1}/4 square feet or 30 ^{1}/4 square ards
1 acre contains		43,560 square feet
1 acre contains		160 square rods
1 span		9 inches
1 hand		(horse measurement) 4 inches
1 knot		(nautical) 6,080.27 feet
1 fathom		(nautical) 6 feet
1 stone		14 pounds
1 square acre		Approximately 208.7 feet on each side
1 Acre		Approximately 8 rods b 20 rods, or any two combinations or rods whose product is 160

Simple Formula Converting Square Feet to Acre

Multiply by 23 and point off 6 places (This method is not exact but is useful for rough calculations) Example: 1500 feet x 2050 feet = 3,075,000 square feet x 23 = 70.73 acres

Board Measure

Multiply thickness in inches by width in inches, divide product by 12 and multiply result by the length in feet. The result is board measure content.

Conversion factors for converting lineal feet of lumber into board feet.

Example: 50 —2 inches x 10 inches 20 feet long

50 x 20 feet = 1000 lineal feet
2 inches x 10 inches = 20 square inches divided by 12 =
1.667 board feet x 1000 lineal feet equals 1,667 board feet

Conversion of Lineal Feet into Board Feet

2 inches x 4 inches	(1 lineal foot)	.667 board feet
3 inches x 4 inches	(1 lineal foot)	1.000 board feet
2 inches x 6 inches	(1 lineal foot)	1.000 board feet
2 inches x 8 inches	(1 lineal foot	1.333 board feet
2 inches x 10 inches	(1 lineal foot)	1.667 board feet
2 inches x 12 inches	(1 lineal foot)	2.000 board feet
2 inches x 14 inches	(1 lineal foot)	2.333 board feet
2 inches x 16 inches	(1 lineal foot)	2.667 board feet
3 inches x 6 inches	(1 lineal foot)	1.500 board feet
4 inches x 6 inches	(1 lineal foot)	2.000 board feet
4 inches x 8 inches	(1 lineal foot)	2.667 board feet
4 inches x 10 inches	(1 lineal foot)	3.333 board feet
4 inches x 12 inches	(1 lineal foot)	4.000 board feet
6 inches x 6 inches	(1 lineal foot)	3.000 board feet
6 inches x 8 inches	(1 lineal foot)	4.000 board feet
10 inches x 12 inches	(1 lineal foot)	10.000 board feet
12 inches x 12 inches	(1 lineal foot)	12.000 board feet

Principles

PLANE FIGURE —A plane surface bounded by either straight or curved lines and having no thickness.
SOLID — A body, such as a barrel, building, etc.

SQUARE MEASURE — Area calculation requiring only two dimensions, length and width.
CUBIC MEASURE— Cubic or cubage means volume and gives size in terms of its bulk. Calculation requires 3 dimensions, length x width x depth or height or thickness.

Measures and Their Equivalents

A gallon of water (U.S. Standard) weighs 8 1/3 pounds and contains 231 cubic inches.

A cubic foot of water contains 7 1/2 gallons, 1,728 cubic inches and weighs 62 and 1/2 pounds.
Doubling the diameter of a pipe increases its capacity four times.

To find the pressure in pounds per square inch of a column of water, multiply the height of the column in feet by .434.
To find the capacity of tanks any size, given the dimensions of a cylinder in inches, to find its capacity in U.S. gallons: square the diameter, multiply by the length and by .0034 (Note: See table of tank capacities.)
Rectangular tanks multiply the length by the width by the depth (All in inches) and divide the result by 231. The answer is the capacity in gallons.
3 and 1 1/2 gallons equals one barrel.
B.T.U. (British Thermal Unit) is the amount of the heat required to raise one pound of water one degree Fahrenheit.
A ton of refrigeration is measured by the displacement of the amount of heat required to melt a ton of ice in 24 hours. One motor horsepower of an electrically powered unit is normally required to produce one ton of refrigeration. Twelve thousand B.T.U. equals one tone.
Kilowatts multiplied by 1.3405 equal horsepower.

Weights and Measures

1 cubic inch of Cast Iron	0.26 Pounds
1 cubic inch Wrought Iron	0.28 Pounds
1 cubic inch Water	0.036 Pounds
1 inch of Water	62.321 Pounds
1 United States Gallon	8.33 Pounds
1 Imperial Gallon	10.00 Pounds
1 United States Gallon Equals	231.01 Cubic Inches
1 Imperial Gallon Equals	277.274 Cubic Inches
1 Cubic Foot of Water Equals	7.48 U.S. Gallons
1 Gallon of water	8.34 Pounds
1 Gallon Equals	.1337 Cubic Feet
1 Gallon Equals	. 1074 Bushels

1 Cubic Foot Equals	.8032 Bushels
1 Barrel (oil) Equals	42 Gallons
1 Barrel Water Equals	31.5 Gallons

Areas

Square foot area of surface equals square of one side multiplied by factors shown.

Regular Shaped	Number of Sides	Factor
Equilateral Triangle	3	.433
Pentagon	5	1.721
Hexagon	6	2.598
Heptagon	7	3.634
Octagon	8	4.828
Nonagon	9	6.128
Decagon	10	7.694
Undecagon	11	9.366
Dodecagon	12	11.196

Diameter in Feet	Circum.	Square Foot Area	Gallons	Bushels	Barrels (Oil) (Oil-42 Gal Each)
3	9.42	7.07	53	6	1.26
4	12.57	12.57	94	10	2.24
5	15.71	19.63	147	16	3.5
6	18.85	28.27	212	23	50
7	21.99	38.48	288	31	6.8
8	25.13	50.27	376	42	9.0
9	28.27	63.62	477	51	1 1.3
10	31.42	78.54	587	63	14.
1 1	34.56	95.03	711	76	16.9
12	37.69	113.10	846	91	20.2
13	40.84	132.73	993	107	23.7
14	43.98	153.94	1,151	124	27.4
15	47.12	176.72	1,322	142	31.5
16	50.26	201.06	,504	162	35.8
17	53.41	226.98	1,698	182	40.4
18	56.55	254.47	1,903	204	45.3
19	59.69	283.53	2,121	228	50.5
20	62.83	314.16	2,350	252	56.0
21	65.97	346.36	2,591	278	61.7
22	69.12	380.13	2,843	305	67.7
23	72.26	415.48	3,108	334	74.0
24	75.40	452.39	3,384	364	80.6
25	78.54	490.87	3,672	394	87.4
26	81.68	530.93	3,971	427	94.6
27	84.82	572.56	4,283		102.0
28	87.97	615.75	4,606	495	109.7
29	91.11	660.52	4,941	531	117.6
30	94.25	706.86	5,287	568	125.8
31	97.39	754.77	5,646	606	134.4
32	100.53	804.25	6,016	646	143.2
33	103.67	855.30	6,398	687	152.3
34	106.81	907.92	6,791	730	161.6
35	109.96	962.11	7,197	773	171.3

36	113.10	1,017.88	7,614	818	181.3
37	116.24	1,075.21	8,043	864	191.5
38	119.38	1,134.11	8,483	91 1	202.0
39	122.52	1,194.59	8,936	960	212.7
40	125.66	1 ,256.64	9,400	1,010	223.8

Area and Content Capacity Computations

Areas and Measurement

To find the capacity in gallons = Diameter squared x
5.8748 x height (Diameter & height in feet).
To find the circumference of a circle, multiply the diameter by 3.1416.
To find the diameter, multiply circumference by 0.3183 or divide circumference by 3.1416.
To find the radius, multiply circumference by O. 15915.

To find the side of an inscribed square, multiply the diameter by 0.07071 or multiply the circumference by 0.2551.
To find the side of an equal square, multiply the diameter by 0.8863 or multiply the circumference by 0.2821.

Square: A side multiplied by 1.1142 equals the diameter of its circumscribing circle.
A side multiplied by 4.443 equals the circumference of its circumscribing circle.
A side multiplied by l . 126 equals the diameter of an equal circle.
A side multiplied by 3.547 equals circumference of an equal circle.
To find the area of a circle, multiply the circumference by one-quarter of the diameter or multiply the square of the diameter by 0.7854 or multiply the square of the circumference by 0.07958 or multiply the square of one-half of the diameter by 3.1416.

To find the surface of a sphere or globe, multiply the diameter by the circumference or multiply the square of the diameter by 3.1416 or multiply four times the square of the radius by 3.1416.
To find tank capacities, diameter square x .0034 = gallons per inch of height — Base 42 gallons per barrel.

To find area of a triangle — multiply base by 1/2 perpendicular height.
To find area of an ellipse — product of both diameters x .7854.
To find area of a parallelogram — base x altitude.

To find cu. inches in a ball — multiply cube of diameter by .5236.

To find cubic contents of a cone — multiply area of base by one-third the altitude.

Area of rectangle equals length multiplied by width.

Surface of frustum of cone or pyramid equals sum of circumference of both ends x 1/2 slant height plus area both ends.

Contents of frustum of cone or pyramid: multiply area of two ends and get square root — add the two areas and time.
1/3 altitude.

Conversion Tables

To convert bushels to ton, multiply number of bushels by 60 and divide the product by 2000 (average maximum weight of commodities 60 pounds per bushel.)
To convert gallons to bushels, divide gallons by 9.35. Answer in bushels.
To convert cubic measure into bushels, multiply by 0.8035.
To find capacity of cylindrical tanks standing on end: To find the capacity in cubic feet of a round tank or cistern, multiply the square of the average diameter by the depth and multiply the product by .785.