

APPRAISING BARNDOMINIUMS

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Section 1 – Introduction of Instructor and Workshop Topic

I. Introduction of Instructor:

II. Workshop Summary:

Rural and often suburban jurisdictions are generally having more and more of a unique type of home being built. These are structures that appear to be metal clad farm buildings but part or all the structure has been finished on the interior and used as living area. Some are used as temporary living area while the owners construct a new stick-built home, while others are built as a permanent residence. The framing can be pole or steel.

Now that we know the type of home, what do we call them? Here are some of the names that were provided from across the country.

- Barndominiums
- Metal-Sided Homes
- Barn Homes
- Metal-Sided Dwellings
- Other
- Ranch
- Shouse
- Pole frame houses
- Pole buildings with living areas
- Single-family residential, pole frame style
- Morton Home – reflects Morton type of agricultural building
- Cleary Home – reflects Cleary type of agricultural building
- Various other names that cannot be printed
- For this workshop we have selected the catchy name of Barndominiums

Jefferson County, Kansas was having more of these structures being built at a fast pace. It was decided in the summer of 2001, a study was needed on how to value these structures. At that point there were 42 of them in the county and by January 1, 2003, there were 53. Jefferson County was just one of the earlier jurisdictions to face this property type.

Information from the Cooke Central Appraisal District in Texas shows how common these are becoming in some areas. "We have a total of 292 in the county, 49 of these are older buildings that have been converted to some type of living area. Until 1990, we only had five (5) of these structures (not counting the 49 that were not built as such). The information that follows shows the trends for these in our county.

- 1990 through 1999 we had 33 built.
- 2000 through 2004 there were 89 built.
- 2005 through 2012 there have been 116 built.

There will be multiple avenues presented on how to value these structures. Information in the workshop is not meant to give you the definitive answer on how to value these structures but to assist in the process of establishing the steps you can use to develop valuation models. The jurisdiction should find the method that best reflects your local market and is easiest for you as most of you can anticipate an increase in the number of these being constructed. It is anticipated more of these will be constructed because of the speed of construction, attractive interior packages, well insulated and low energy costs, are being more and more attractive and have lower construction costs.

Section 2 – USPAP Review

Although this is not a course on appraisal standards, there should be some discussion on USPAP. The outline below shows the topics of discussion and how they apply to our appraisal practice.

- I. What is USPAP and what does the acronym stand for?
 - A. USPAP stands for the Uniform Standards of Professional Appraisal Practice.
 - B. The standards were developed for appraisers and users of appraisal services. It will also assist to maintain a high level of professional practice.
- II. Why USPAP was developed.
 - A. USPAP was developed as a result of unethical appraisal and loan practices in conjunction with a large number of savings and loan closures or bail-outs.
- III. The Appraisal Foundation (TAF)
 - A. Consists of four separate boards.
 - B. The Board of Trustees is the administrative body of the Appraisal Foundation.
 - C. Appraisal Standards Board (ASB) develops, publishes, interprets and amends the USPAP.
 - D. Appraisal Qualifications Board (AQB) sets the requirements for education and experience in order to be qualified as a certified appraiser.
 - E. Appraisal Practices Board is the education arm of the foundation.
- IV. Who must comply with USPAP?
 - A. All certified appraisers and any member of an appraisal organization that is part of The Appraisal Foundation.
- V. Explanatory comments.
 - A. Ethics is divided into three sections.
 - 1. Conduct – Assignments must be performed ethically with impartiality, objectivity and independence.

2. Management – Cannot have undisclosed fees or commissions.
 3. Confidentiality – An appraiser must protect the appraiser-client relationship.
- B. Record keeping – Work file must be kept for at least five (5) years or at least two (2) years after final disposition of any judicial proceeding.
- VI. Competency – No assignment should be accepted if you do not have the knowledge and experience to complete the appraisal competently.
- VII. Jurisdictional Exceptions – Public law or policy will take precedence over USPAP.
- VIII. Eight Standards
- A. Standard 1 – Real Property Appraisal, Development.
 - B. Standard 2 – Real Property Appraisal, Reporting.
 - C. Standard 3 – Real and Personal Property Appraisal Reviews, Development and Reporting.
 - ~~D. Standard 4 – Real Property / Real Estate Consulting, Development.~~
 - ~~E. Standard 5 – Real Property / Real Estate Consulting, Reporting.~~
 - F. Standard 6 – Mass Appraisal, Development and Reporting.
 1. In developing an appraisal an appraiser must
 - a. Be aware, understand, and employ recognized methods and techniques necessary to produce a credible mass appraisal
 - b. Not commit an error of omission or commission that affects a mass appraisal
 - c. Not render a mass appraisal in a careless or negligent manner
 2. In developing an appraisal an appraiser must
 - a. identify the client and other intended users
 - b. identify the intended use of the appraisal
 - c. identify the type and definition of value, and, if the value opinion to be developed is market
 - d. value, ascertain whether the value is to be the most probable price
 - e. identify the effective date of the appraisal

- f. identify the characteristics of the properties that are relevant to the type and definition of value and intended use
 - g. analyze the relevant economic conditions at the time of the valuation, including market acceptability of the property and supply, demand, scarcity, or rarity;
 - h. identify any extraordinary assumptions and any hypothetical conditions necessary in the assignment; and
 - i. determine the scope of work necessary to produce credible assignment results in accordance with the SCOPE OF WORK RULE
- 3. When necessary for credible assignment results, an appraiser must:
 - a. in appraising real property, identify and analyze the effect on use and value of the following factors: existing land use regulations, reasonably probable modifications of such regulations, economic supply and demand, the physical adaptability of the real estate, neighborhood trends, and highest and best use of the real estate; and
 - b. in appraising personal property: identify and analyze the effects on use and value of industry trends, value-in-use, and trade level of personal property. Where applicable, analyze the current use and alternative uses to encompass what is profitable, legal, and physically possible, as relevant to the type and definition of value and intended use of the appraisal. Personal property has several measurable marketplaces; therefore, the appraiser must define and analyze the appropriate market consistent with the type and definition of value.
- 4. In developing an appraisal an appraiser must
 - a. identify the appropriate procedures and market information required to perform the appraisal, including all physical, functional, and external market factors as they may affect the appraisal;
 - b. employ recognized techniques for specifying property valuation models; and
 - c. employ recognized techniques for calibrating mass appraisal models
- 5. In developing a mass appraisal, when necessary for credible assignment results, an appraiser must
 - a. collect, verify, and analyze such data as are necessary and appropriate to develop:

- i. the cost new of the improvements;
 - ii. accrued depreciation;
 - iii. value of the land by sales of comparable properties;
 - iv. value of the property by sales of comparable properties;
 - v. value by capitalization of income or potential earnings - i.e., rentals, expenses, interest rates, capitalization rates, and vacancy data
 - b. base estimates of capitalization rates and projections of future rental rates and/or potential earnings capacity, expenses, interest rates, and vacancy rates on reasonable and appropriate evidence;
 - c. identify and, as applicable, analyze terms and conditions of any available leases; and
 - d. identify the need for and extent of any physical inspection
6. When necessary for credible assignment results in applying a calibrated mass appraisal model an appraiser must:
- a. value improved parcels by recognized methods or techniques based on the cost approach, the sales comparison approach, and income approach;
 - b. value sites by recognized methods or techniques; such techniques include but are not limited to the sales comparison approach, allocation method, abstraction method, capitalization of ground rent, and land residual technique;
 - c. when developing the value of a leased fee estate or a leasehold estate, analyze the effect on value, if any, of the terms and conditions of the lease;
 - d. analyze the effect on value, if any, of the assemblage of the various parcels, divided interests, or component parts of a property; the value of the whole must not be developed by adding together the individual values of the various parcels, divided interests, or component parts; and
 - e. when analyzing anticipated public or private improvements, located on or off the site, analyze the effect on value, if any, of such anticipated improvements to the extent they are reflected in market actions
7. In reconciling a mass appraisal an appraiser must:

- a. reconcile the quality and quantity of data available and analyzed within the approaches used and the applicability and relevance of the approaches, methods and techniques used; and
 - b. employ recognized mass appraisal testing procedures and techniques to ensure that standards of accuracy are maintained.
- 8. A written report of a mass appraisal must clearly communicate the elements, results, opinions, and value conclusions of the appraisal.

Each written report of a mass appraisal must:

- a. clearly and accurately set forth the appraisal in a manner that will not be misleading;
- b. contain sufficient information to enable the intended users of the appraisal to understand the report properly;
- c. clearly and accurately disclose all assumptions, extraordinary assumptions, hypothetical conditions, and limiting conditions used in the assignment;
- d. state the identity of the client and any intended users, by name or type;
- e. state the intended use of the appraisal
- f. disclose any assumptions or limiting conditions that result in deviation from recognized methods and techniques or that affect analyses, opinions, and conclusions;
- g. set forth the effective date of the appraisal and the date of the report;
- h. state the type and definition of value and cite the source of the definition;
- i. identify the properties appraised including the property rights;
- j. describe the scope of work used to develop the appraisal;⁴⁷ exclusion of the sales comparison approach, cost approach, or income approach must be explained;
- k. describe and justify the model specification(s) considered, data requirements, and the model(s) chosen;
- l. describe the procedure for collecting, validating, and reporting data;
- m. describe calibration methods considered and chosen, including the mathematical form of the final model(s);

describe how value conclusions were reviewed; and, if necessary, describe the availability of individual value conclusions;

- n. when an opinion of highest and best use, or the appropriate market or market level was developed, discuss how that opinion was determined;
 - o. identify the appraisal performance tests used and set forth the performance measures attained;
 - p. describe the reconciliation performed, in accordance with Standards Rule 6-7; and
 - q. include a signed certification in accordance with Standards Rule 6-9.
9. Each written mass appraisal report must contain a signed certification that is similar in content to the following form:
10. Appendix 1 – USPAP Standard 6

G. Standard 7 – Personal Property Appraisal, Development.

H. Standard 8 - Personal Property Appraisal, Reporting.

I. Standard 9 – Business Appraisal, Development.

J. Standard 10 – Business Appraisal, Reporting.

IX. Statements on Appraisal Standards – These are specifically for the purpose of clarification, interpretation, explanation, or elaboration of the USPAP.

X. Advisory Opinions – These do not establish new standards or interpret existing standards. The Opinions illustrate the applicability of appraisal standards in specific situations and offer advice.

XI. Advisory Opinion 32 (AO-32) - This advisory opinion looks at ad valorem property tax appraisal and mass appraisal assignments. The advisory opinion talks about the reporting function which is addressed in Standard Rules 6-8 and 6-9. The mass appraisal report must clearly communicate the elements, results, opinions, and value conclusions of the mass appraisal. In mass appraisals for ad valorem taxation, local statutes may prescribe additional reporting requirements and procedures for the delivery of the assignment results¹

¹ Advisory Opinion 32, *Uniform Standards of Professional Appraisal Practice*, 2008/2009 Edition, page A-112

The Advisory Opinion also states “An appraiser may be asked to communicate the assignment results for a single property that was appraised as part of a mass appraisal assignment. USPAP does not address this specific circumstance. The reporting requirements of Standard 2 apply to appraisal assignments developed under Standard 1 and do not apply to mass appraisal assignments prepared under Standard 6. However, the second sentence of the Preamble states: It is essential that appraisers develop and communicated their analyses, opinions and conclusions to intended users of their services in a manner that is meaningful and not misleading. Additionally, the Ethics Rule states: An appraiser must not communicate assignment results in a misleading or fraudulent manner. Therefore, if an appraiser communicates mass appraisal results for a single property, the communication must be meaningful and must not be misleading.”²

The Advisory Opinion also offered to illustrations:

1. An assessment appeal is in process and an appraisal of an individual property is being conducted as part of that appeal. Which development standards apply?

Standard 1 and Standard 7 would apply because an individual property is being appraised rather than a universe of properties.

2. An appraiser is conducting a mass appraisal for ad valorem taxation. A property record card is produced for each property. Is each property record card considered a report under Standard 6?

No. The property record card is not the mass appraisal report; it is only a portion of the information and analysis supporting the mass appraisal.

² Ibid. page A-112.

Section 3 – The Cost Approach

Determining a value for this type of property is difficult. There are limited data in relationship to sales and cost. Normally, the property owner will have the basic building constructed and then will construct all or part of the interior finish themselves. With limited sales of these types of properties and because a large number of assessment jurisdictions rely heavily on the cost approach, this approach to value will be the predominate method used to value these properties.

The information analyzed in this workshop discussion of the cost approach comes from property owners, assessment offices, fee appraisers and the building manufacturers. From this data will be an attempt to estimate replacement cost new (RCN) for the building, interior construction costs, depreciation and the economic life expectancy. If an individual jurisdiction were to use only their or other local data, we suggest you conduct the step of contacting property owners, fee appraisers and contractors. As construction costs normally increases, the costs within this workshop will typically be on the conservative side.

- I. The cost approach provides a value indication that is the sum of the estimated land value and the estimated depreciated value of the improvements. Following are the steps in the cost approach:
 1. Estimate the land value as if vacant and available for development to its highest and best use. The best method of finding land value is the use of valid vacant land sales.
 2. Estimate the total cost new of the improvements (RCN) as of the appraisal date, including direct costs, indirect costs and entrepreneurial profit from market analysis. The jurisdiction's costing manual or a national cost manual such as Marshall Valuation Service would probably be the most readily available source to develop the RCN.
 3. Estimate the total amount of depreciation attributable to physical deterioration, functional obsolescence and external obsolescence.
 4. Subtract the total amount of depreciation from the total cost new of the primary improvements to arrive at the depreciated cost of improvements.

5. Estimate the total depreciated cost new of any accessory improvements and site improvements.
6. Add land value to the depreciated cost of the primary improvements, accessory improvements and site improvements to arrive at a value indication by the cost approach.

II. Costing Considerations:

1. Cost manuals are generally not designed to estimate the replacement cost new for non-typical construction types. CAMA Systems (Computed Assisted Mass Appraisal) often will have a field with a title similar to “cost and design” or “cost factor” that allows the appraiser to make an addition or subtraction from the estimated cost new from the cost manual.
2. Most cost manuals, particularly in-house manuals, are not updated annually. Even if you use a national cost manual such as Marshall Valuation, which is typically adjusted annually, you may still need to adjust the cost manual to reflect your local market conditions. How is this process done? It is basically a comparison between the cost manual numbers and the numbers you derive from the local market via interviews with builders or data abstracted from sales of newly constructed properties. The cost modifier formula is:

$$\text{Actual cost} \div \text{current manual cost} = \text{cost index.}$$

Example: Your cost manual has not been updated in several years. A property recently sold for \$160,000 with a new home on a typical lot for the subdivision. Lot sales are well documented at \$40,000. The RCN from your cost manual is \$95,600. The cost index would be:

$$\begin{aligned} \$160,000 - \$40,000 &= \$120,000 \text{ house cost} \\ \$120,000 \div \$95,600 &= 1.2552 \end{aligned}$$

At the back of the Marshall Valuation Residential Cost Handbook is a set of tables that show cost indices for each year. This could be used to measure the change within RCN. Example: If the cost index for seven (7) years ago is shown as 1.45 and the current index is 1.68. By using those indices, you could calculate a trended factor as follows:

$$1.68 \div 1.45 = 1.1586$$

The calculation is representing a 15.86% increase in the cost. If that math formula does not make sense to you, then it can be calculated in the same manner as a time adjustment.

$$1.68 - 1.45 = 0.23 \text{ change in index}$$
$$0.23 \div 1.45 = 0.1586 \text{ percent of change in index}$$

This application is making an assumption that the cost changes for this property type is the same as the more typical homes that the index is based upon. The data may not be perfect but it may be the best available. If the index indicated 1.16 and the RCN in the cost manual was \$124,680, then the updated cost would be:

$$\$124,680 \times 1.16 = \$144,629 \text{ or } \$144,630$$

Problem 3-1:

According to the most recent costing information in the Marshall Valuation manual, the cost index is 1.35. Currently your CAMA system shows an index of 1.18. Rounding your index to three places to the right of the decimal point, what would be the current RCN on a home built for \$60,000?

III. Estimating Replacement Cost New (RCN):

Analysis of the data in developing the RCN in this workshop is somewhat number intensive and very detailed and most of the calculations are not shown. Cost information used is for January 1, 2013.

The year of the information is not as important as the processes to be employed. Information provided on the spreadsheets was from the original workshop. This workshop is not going to set the appraised value of a building, but again help with the steps necessary to establish a reasonable value. For example, where the cost from the Marshall Valuation Service Cost Handbook is used, the numbers may be different because of the updating of cost to the handbook.

The year of construction has to be expanded in order to have sufficient data. The year of construction in which data are available is 2008 – 2012. Because of the various locations throughout the country where we obtained data, no attempt was made to update to current cost.

Because these properties are still somewhat limited in numbers, several avenues will be used to develop a conclusion. As this is real data, not all of the data appears logical or fits nicely together. Appraisal judgment will be required to draw your conclusions. Following are some options to value this type of properties using agricultural building costs:

1. Agricultural Building Method #1 – Actual Contracted Construction Cost

If approaching the cost by use as an agricultural building, this would be the preferred method because all construction costs would be included. The reason for starting with the shell only is that these are normally designed for agricultural use and then the build-out for the living area occurs.

Information provided below is from cost data obtained from jurisdictions in Kansas and Texas and are sorted by cost per square foot.

Sorted by Quality					
		Bldg	Bldg.	Total	Farm Bldg
State	Yr-Built	Sq. Ft.	Cost	Cost/SF	Quality
TX	2012	4,000	\$ 54,982	\$13.75	AV
TX	2012	6,000	\$ 92,000	\$15.33	AV
TX	2012	720	\$ 16,251	\$22.57	AV
KS	2010	3,840	\$ 80,660	\$21.01	GD
KS	2008	3,360	\$ 98,172	\$29.22	VG-
		Overall	Median	\$ 21.01	
		Overall	Mean	\$ 20.37	
		AV	Median	\$ 15.33	
		AV	Mean	\$ 17.22	
		GD		\$ 21.01	
		VG		\$ 29.22	

Median rate per square foot for Average (AV) quality could be set at \$15.50 per square foot and the Good (GD) at \$21.00 per foot and Very Good (VG) at \$29.00 per square foot. This would be indicating an adjustment from Average to a Good of 1.35 ($\$21.00 \div \15.50) and the indicated adjustment from Good to Very Good of 1.38 ($\$29.00 \div \21.00).

Sample Barndominium



Jurisdictions should also consider requesting data on the cost of the agricultural buildings that are just for that use and not necessarily to be used partially or completely for living area. A sample form for this can be found in **Appendix 1 – New Construction Letters**.

It is not unusual that smaller and often rural jurisdictions have a Neighborhood Revitalization Plan (NRP). When properly applied for and if meeting the requirements, there is a partial abatement of taxes over a several year period. Typically any new construction that applies for a partial abatement must provide detailed information about size and cost. Other questions often include if they are participating in the construction or if a total turnkey project. There can be a large amount of very good data on these applications. A sample application can be found in **Appendix 2 – Neighborhood Revitalization Plan**.

2. Agricultural Building Method #2 – Contractor Surveyed Construction Cost

A contractor for Morton buildings from the Midwest was kind enough to provide information about these types of structures. The website for Morton points out that they use a heavier gauge material and thus appear more expensive than some of their competitors but they also provide the best warranties as shown below.

- 5-year for wind load
- 35-year on roof and siding for fading and peeling
- 50-year on poles and for snow load

Cost information was provided for the photo that follows.

- 36'x64' home (2,304 square foot) with extra-large porch (100 linear foot)
- 48'x64' (3,072 square foot) fully steel lined attached heated garage
- The shell, insulated with exterior doors and windows, and concrete = \$230,000
- Budget #s for the Site prep, plumbing, electrical, HVAC, & septic @ +\$12,000 each
- Then the interior framing, drywall, doors & trims @ +\$40,000
- Site prep and septic are often included in the site value for land and thus are not included
- Brings us in at around \$330,000 or \$306,000 after removing site prep and septic
- Building would then be a total of 5,376 square foot at a cost of \$42.78 per square foot ($\$230,000 \div 5,376$)
- Plumbing, electrical and HVAC are \$36,000 + interior finish of \$40,000 = \$76,000 or \$24.74 for living area ($\$76,000 \div 3,072$)

The allocation of cost does not make total sense but some of the doors and probably most of the windows that would be cost to the living area are included in the building cost. No matter the allocation, it will still give a cost that can be used in testing the various cost models that will be discussed. The structure will be assigned a Very Good - quality rating.

Morton Building



3. Agricultural Building Method #3 – Marshall Valuation Service

This method of valuing Barndominiums will start with the agricultural building value and then add for all the modifications for interior finish, heat, plumbing, etc. to arrive at RCN for use as a living unit. When these structures were first being converted and/or built for living units, this was the most typical and most logical approach. Some jurisdictions are still using this method if they have only a few of the structures to value. If a jurisdiction has several of these, this method may prove time consuming and only be used for supporting documentation.

A Washington jurisdiction outlined how they use this method to establish an RCN. The first step given was the use of costs from the Marshall Valuation Service.

- Section 17 Page 26 Sheds & Barns (477) D-Pole (usually) – by saying usually, the author's assume they may select a different cost structure contingent upon the quality of the base structure.

There are several options within Marshall Valuation Service for the cost of an agricultural building structure. A description from Marshall Valuation Service for the three (3) most often used structures in the order they appear in the manual follows.

- Farm Utility Building **(477)** Low Cost
 - Light pole frame, metal siding, sliding door entry only
 - Unfinished dirt floor
 - Minimum electrical service
 - No heat
- Farm Utility Building **(477)** Average
 - Pole frame, metal siding, windows, walkout door
 - Unfinished walls, cheap asphalt or slab floor
 - Adequate wiring and outlets, water service
 - No heat
- Farm Implement (Equipment Shop) Buildings **(476)** Low Cost
 - Pole frame, metal siding
 - Unfinished, light floor, few extras
 - Minimum services
 - No heat
- Farm Implement (Equipment Shop) Buildings **(476)** Average
 - Pole frame, metal siding, good doors, windows
 - Unfinished, concrete or asphalt floors, some cabinets
 - Adequate water, electrical service and outlets
 - No heat
- Farm Implement (Equipment Shop) Buildings **(476)** Good
 - Pole frame, best metal siding, sheathing
 - Unfinished concrete floor, tool cabinets, shop area
 - Good lighting and outlets, water service
 - No heat
- Farm Implement – Equipment Sheds **(478)** Low Cost
 - Open front, metal on pole frame
 - Unfinished, gravel floor, few extras
 - Minimum services
 - No heat

- Farm Implement – Equipment Sheds **(478)** Average
 - Open one side, metal on pole frame, some end-wall windows
 - Unfinished, light concrete or asphalt floor, some cabinets
 - Adequate water, electrical service and outlets
 - No heat

After reviewing the descriptions from Marshall Valuation Service, the authors believe the Farm Implement (Equipment Shop) Buildings (476) are the best fit for use in determining RCN.

The photo below is a somewhat prototypical agricultural building in size and height. It is however better than most structures of this type because of the number of doors. The two-story living area will be part of the interior finish cost.



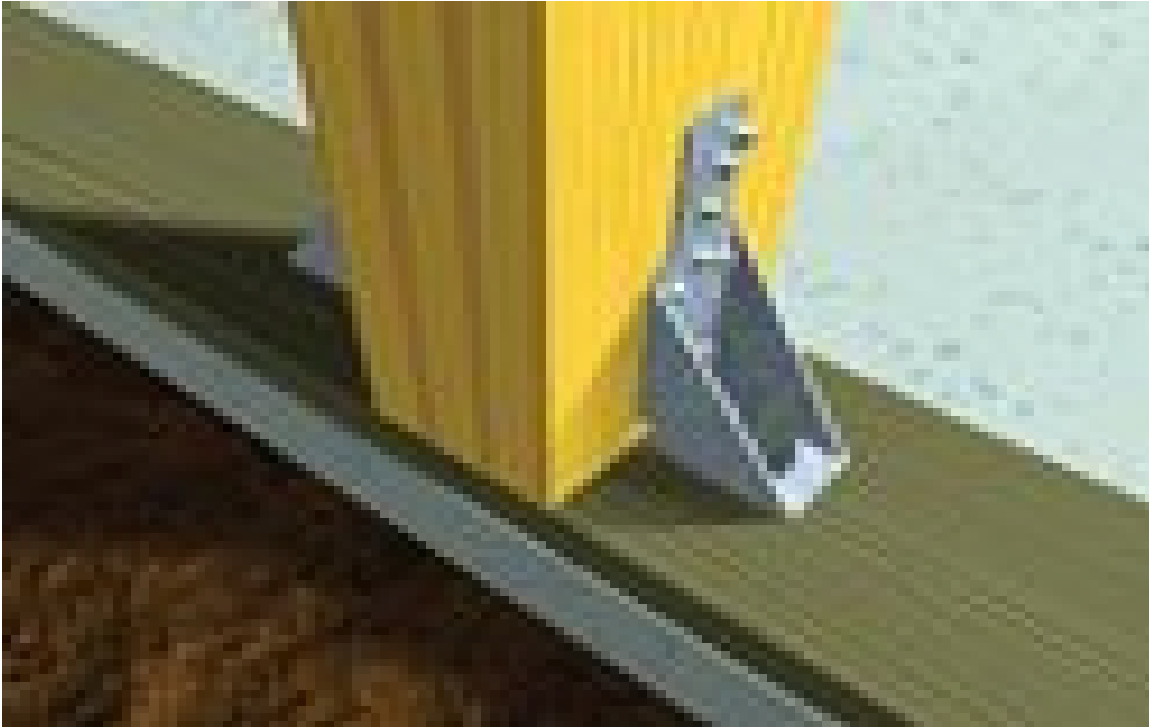
For comparison purposes with Marshall Valuation Service, this structure will be a Class D-Pole and Type of Good. Indicated costs from Marshall Valuation Service are shown below.

Description	Type	Cost per Sq. Ft.
Farm Utility Building (477)	Low Cost	\$5.43
Farm Utility Building (477)	Average	\$9.26
Farm Implement (Equipment Shop) Buildings (476)	Low Cost	\$8.15
Farm Implement (Equipment Shop) Buildings (476)	Average	\$11.78
Farm Implement (Equipment Shop) Buildings (476)	Good	\$17.08
Farm Implement – Equipment Sheds (478)	Low Cost	\$5.65
Farm Implement – Equipment Sheds (478)	Average	\$9.85

The base if a pole building will be the Farm Implement (Equipment Shop) Buildings (476) with a type of Average. If the structure is steel frame, then we suggest the base structure to be the Class S Average with a base rate of \$13.94 per square foot. Making that change results in an 18% difference in cost between pole and steel frame ($\$13.94 \div \11.78). Quality adjustment calculations shown later

Description	Type	Cost per Sq. Ft.
Farm Implement (Equipment Shop) Buildings (476)	Low Cost	\$9.95
Farm Implement (Equipment Shop) Buildings (476)	Average	\$13.94
Farm Implement (Equipment Shop) Buildings (476)	Good	\$19.59

Pole buildings were originally just that, wooden poles used for the support, with larger buildings using steel poles. A trend has stated to appear in the last several years that again use wood but not the round poles. An example follows. The industry states this type of support is sturdier than steel and less expensive. This type of framing is also showing up in commercial construction.



Quality rating

The quality of construction is commonly referred to as the grade of construction. Quality of construction has a direct affect upon the cost of construction. The selection of the appropriate quality rating is a major factor in the development of an accurate cost estimate.

Quality refers to both the workmanship and the materials used. While each residence may have a mixing of higher quality materials and average workmanship and vice-versa, normally there is a high correlation between materials and workmanship. Occasionally, the quality on the interior and the exterior of the home are different. If an interior inspection is conducted and this is present, it should be noted if the overall quality is different than what it appears from an exterior view.

The authors noticed that starting in the 2000's year of construction that the interior were better quality than the exterior. Because of this we highly recommend every attempt should be made to view the interior.

Often costing manuals and CAMA (Computer Assisted Mass Appraisal) Systems will allow for in between ratings. If the home is better than Average but less than Good, there may be ratings such as Average + or Good -. The costing system

will either have predetermined or modifiable cost adjustments to reflect this in between ratings.

These in between ratings are used in mass appraisal for those homes that can be referred to as “tweeners.” These are homes that have the basic materials and construction to be assigned a quality rating but may have some characteristics that make it a little better or little less than the base quality. Often these plus and minuses show up when actual new construction costs are known and it falls outside of what the base quality cost indicates.

A good method to establish consistency for those setting quality ratings is to develop a quality picture guide. With most jurisdictions having digital cameras, it is possible to take a large number of images of various quality homes and then as a group discuss and record the quality. This would be helpful for field review, quality control and for appeals. As the quality is a key element in determining the replacement cost new, consistency in the rating is very important.

For this workshop, the following quality ratings will be used.

- Fair –
- Fair
- Average –
- Average
- Good –
- Good
- Very Good –
- Very Good
- Excellent –
- Excellent
- Excellent +

Workmanship includes such items as:

- Solid and level floors.
- Plumb walls.
- Proper fitting doors.
- Finish work smooth with trim corners meeting, etc.

Quality of materials includes such items as:

- Fixtures – Light, bath and kitchen.
- Floor coverings.
- Roof material.

Design can have a major effect upon the cost of construction and thus upon the quality rating. Lower quality homes are basically stock homes. Average quality homes are typically referred to as “cookie-cutter.” Homes are of better quality giving considerations to such items as:

- Roof materials.
- Number of roof cuts and changes.
- Quality and number of windows.
- Number of corners of exterior walls.
- Non-right angles on exterior walls.

Quality for these types of properties may actually be a mixing of rating the quality as if it is a metal-sided agricultural building with what the finish is in relationship to a stick-built home.

Low Quality:

As an agricultural building, this quality is the very bare bones of structures with no roof overhang, very few windows, normally one (1) large door and maybe one (1) walk-in entry door. This may match-up with the Marshall Valuation Service’s 476 Class D Pole Low or the 476 Class S Steel Low. The pole description includes: 1) Exterior - pole frame, metal siding, 2) Interior – unfinished, light floor, few extras and 3) Other – minimal services and no heat.

Residences of Low Quality 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. Walls are generally straight and house is a box shape.

Some of the key exterior features of a Low Quality home are:

- Exterior walls have minimum fenestration with inexpensive sash with little or no trim. Fenestration is the arrangement, proportion and relationship of doors and windows to the house. Straight walls only with a box shape.
- The roof has rafters or prefabricated trusses with plywood or other inexpensive sheathing with a light-weight composition shingle or a built-up with gravel roof cover. Roof slope is usually less than 4 in 12 with no eaves. “The slope of the roof that is expressed in a ratio of vertical drop to horizontal distance. A 4-inch pitch or 4-in-12 pitch means the roof rises 4 inches for each 12 inches of horizontal distance.” (Houses: The Illustrated Guide to Construction, Design & Systems³).

³ Henry S. Harrison, Dearborn Trade Pub; 2nd edition (November 1991)

Some of the key interior features of a Low Quality home are:

- Walls are taped drywall with paint or textured finish.
- Limited closet space.
- Kitchen and baths are minimal quality finish with low-cost fixtures.
- Interior doors are hollow-core.

Fair Quality:

As an agricultural building, this quality is more than the very bare bones of structures but is also less than what you would think of as typical. It has sufficient windows and maybe a walk-in door but still no roof overhang. This may match-up with the Marshall Valuation Service's 476 Class D Pole Low or the 476 Class S Steel Low. The pole description includes: 1) Exterior - pole frame, metal siding, good doors, windows, 2) Interior – unfinished, concrete or asphalt floor, some cabinets and 3) Other – adequate water, electrical service and outlets and no heat.

Residences of Fair Quality 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 lending institutions, mortgage insuring agencies and building codes. Interior finish is plain with few refinements. Design is from stock plans, and ornamentation is usually limited to the front elevation.

Some of the key exterior features of a Fair Quality home are:

- Exterior walls have moderate fenestration with typically inexpensive sash. The front elevation may have inexpensive trim.
- Roof is the same as Low Quality except it will have a minimal eave and are plain and typically gable.
- Roof lines are plain and typically gable.

Some of the key interior features of a Fair Quality home are:

- Walls and ceilings are taped and drywall.
- Kitchen and bath cabinets are inexpensive with laminated plastic countertops with small splash boards.
- Stock hollow-core doors with minimal hardware.
- Minimal closet space.

Average Quality:

As an agricultural building, this quality is what you would think of as being typical for a pole-framed metal-sided building. It may have several windows, a walk-in door, maybe two (2) overhead doors and some roof overhang. This may match-up with the Marshall Valuation Service's 476 Class D Pole Average or the 476 Class S Steel Average. The pole description includes: 1) Exterior - pole frame, best metal siding, sheathing, 2) Interior – unfinished, concrete floor, tool cabinets, shop area and 3) Other – good lighting and outlets, water service and no heat.

Residences of Average Quality 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 lending institutions, mortgage insuring agencies and 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. House shapes will be rectangular to “ell” shaped.

Some of the key exterior features of an Average Quality home are:

- Exterior walls are typically standard aluminum or wood sash.
- The roof has 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. Roof slope is usually 5 in 12 or less and has good overhang.
- House shapes will be rectangular to “ell” shaped.

Some of the key interior features of an Average Quality home are:

- Interior walls are taped and painted with some wallpaper or paneling.
- Kitchen cabinets are pre-finished with a small vanity in bath areas.
- Countertops are laminated plastic or ceramic tile.
- Doors are medium grade but still hollow core.
- There is adequate closet space.

Good Quality:

As an agricultural building, this quality is better than typical for a pole-framed metal-sided building. It may have several windows, a walk-in door, maybe two (2) overhead doors, some trim, possibly higher side walls and some roof overhang. This may match-up with the Marshall Valuation Service's 476 Class D Pole Average or the 476 Class S Steel Average. **There is a very good chance that the frame is steel and not pole and also there may be multiple stories.** The

pole description includes: 1) Exterior - pole frame, best metal siding, sheathing, 2) Interior – unfinished, concrete floor, tool cabinets, shop area and 3) Other – good lighting and outlets, water service and no heat.

Residence of Good Quality may be mass produced in above-average residential developments or built for an individual owner. Good quality standard materials are used throughout. These houses generally exceed the minimum construction requirements of lending institutions, mortgage insuring agencies and building codes. Some attention is given to architectural design in both refinements and details. Interiors are well finished, usually having some good quality wallpaper or wood paneling. Exteriors have good fenestration with ornamental materials or other refinements that may resemble Very Good Quality but with less detail and interior workmanship.

Some of the key exterior factors of a Good Quality home are:

- Exterior walls have good fenestration using good quality sash with some ornamental trim.
- Roofs use wood rafters and sheathing with hips and valleys. Good quality shingles such as wood shakes may be used.

Some of the key interior factors of a Good Quality home are:

- Walls are taped and painted with some good quality wallpaper or paneling.
- Kitchen cabinets are natural wood-veneer and bath areas have a large Pullman or vanity.
- Countertops and splash are laminated plastic, ceramic tile or simulated marble.
- Some entry areas may be vaulted.
- Doors are good quality but still hollow core but with good hardware.
- Baseboard and casings are good material with mitered corners.
- Closets are walk-ins.
- There are ample linen or storage closets.

Very Good:

As an agricultural building, this quality is better than typical for a pole-framed metal-sided building. It may have several windows, a walk-in door, maybe two (2) overhead doors, some trim, possibly higher side walls and some roof overhang. This may match-up with the Marshall Valuation Service's 476 Class D Pole Good or the 476 Class S Steel Good. **There is a very good chance that the frame is steel and not pole and also there may be multiple stories.** The pole description includes: 1) Exterior - pole frame, best metal siding, sheathing, 2)

Interior – unfinished, concrete floor, tool cabinets, shop area and 3) Other – good lighting and outlets, water service and no heat.

Residences at Very Good Quality are typical of these built-in high quality tracts or developments and are frequently individually designed. Attention has been given to interior refinements and detail. Exteriors have good fenestration with some custom ornamentation. Houses may be irregular shapes and non-right angles will be common.

Some of the key exterior features for a Very Good Quality home are:

- Exterior walls have well designed fenestration with high quality sash. Custom ornamentation and trim are used.
- Roofs are wood rafters and sheathing and have high quality roof materials such as wood, slate and tile as well as large eaves and overhangs and maybe be irregular in shape.

Some of the key interior features for a Very Good Quality home are:

- Walls are taped and painted with high grade paper or vinyl, hardwood paneling or ceramic tile.
- Cabinetry may be specialty items such as cooking island, bar, desk, etc.
- Countertops are high quality laminated plastic and splash.
- Ceilings are often vaulted with some molding and may be in entryways and master bedrooms.
- Doors are raised-panel hardwood with good quality hardware.
- Closets are spacious walk-ins with large wardrobe and storage closets.

It is typical that the assessment office is allowed the ability to make quality ratings between the given qualities. For example: Perhaps it was determined that the structure is actually a Farm Implement (Equipment Shop) Buildings (476) Good -. Using the RCN information shown on page 14, adjustments can be made. The calculation would simply be to find the average of the Average and Good rates. Therefore, the Good - could be at a rate of \$14.43 per square foot as shown below.

$$(\text{Good} + \text{Average}) \div 2$$

$$(\$17.08 + \$11.78) \div 2 = \$14.43$$

But what if you have decided the structure is a Very Good quality. Still using the same structure, you can use interpolation to establish a base RCN. This can be accomplished by looking at the percent of change from one quality rating to another. The Low Cost structure in Marshall Valuation is considered a Fair quality within this analysis.

Average ÷ Low Cost = $\$11.78 \div \$8.15 = 1.45$ or 45% increase for the next quality

Good ÷ Average = $\$17.08 \div \$11.78 = 1.45$ or 45% increase for the next quality

Therefore, to calculate the RCN per square foot for a Very Good quality would be:

Good x 1.45 = $\$17.08 \times 1.45 = \24.77

The author's recognize that we are only using one actual cost to compare to Marshall Valuation Service but again data will be limited and some standardized process must be implemented and demonstrated by the just mentioned jurisdiction. Using the one sample Barndominium photo and the process shown above by the one jurisdiction, the base RCN from Marshall Valuation Service could be set at \$17.08 by selecting Farm Implement (Equipment Shop) Buildings (476) – Good.

Sorted by Quality

		Bldg	Bldg.	Total	Farm Bldg
State	Yr-Built	Sq. Ft.	Cost	Cost/SF	Quality
TX	2012	4,000	\$ 54,982	\$13.75	AV
TX	2012	6,000	\$ 92,000	\$15.33	AV
TX	2012	720	\$ 16,251	\$22.57	AV
KS	2010	3,840	\$ 80,660	\$21.01	GD
KS	2008	3,360	\$ 98,172	\$29.22	VG-
		Overall	Median	\$ 21.01	
		Overall	Mean	\$ 20.37	
		AV	Median	\$ 15.33	
		AV	Mean	\$ 17.22	
		GD		\$ 21.01	
		VG		\$ 29.22	

The actual cost is \$21.01 and thus a cost adjustment to reflect actual cost would be: $\$21.01 \div \$17.08 = 1.23$ or an increase in the base agricultural building cost in Marshall Valuation Service of + 20% to + 25%. This is reflecting the cost as a pole frame. It is more likely the structure is steel frame and the Marshall Valuation Service cost would be \$19.59. Comparing to the actual cost would then be $\$21.01 \div \$19.59 = 1.07$ and is not a material difference in the cost. Therefore, if you are using this method to value Barndominiums, you may need to review any local costs to see if a similar adjustment is needed.

4. Agricultural Building Method #4 – Owner Participation

As mentioned previously, the owner often participates in the construction of the home and thus it is not a turnkey/contractor cost. This method will look at how you could use the material cost and then allow for the cost of erecting the structure as performed completely or partially by the owner.

The information shown below is from our files of actual data from several years ago. This is shown as an example of how you could use this method.

The materials were purchased with the buyer doing the construction. This building was 40 x 60 or 2,400 square feet with a living area of 20 x 40 or 800 square feet. This shows that the living area constitutes 33% of the area.

As the owner is doing the actual construction, some additional cost must be added for the labor. Morton Buildings provided an ad on the cost of a 42 x 60 building. Information from the property above gave the material only cost for a 40 x 60. A comparison of these would indicate what percentage of cost is attributable to labor. Information date is December 1999.

Morton Building 42 x 60 = 2,520 SF \$ 18,275 \div 2,520 = \$ 7.25 per SF

Material Cost 40 x 60 = 2,400 SF \$ 14,620 \div 2,400 = \$ 6.09 per SF

Cost Attributable to Labor: $\$ 7.25 \div \$ 6.09 = 1.19$ or 19%

It is difficult to know what percentage to add for the owner building the structure and serving as the general contractor. The following were used from the Marshall Valuation Service Percentage Breakdown of Base Cost.

Carpenter labor rough	9.6%
General contractor's overhead and profit	<u>11.1%</u>
Total percentage	20.7% Say 21%

This percentage corresponds with the amount extracted from the market in the 1999 data. A reasonable conclusion would be to add 20% to the cost of the materials to attain an RCN when the owner is building the structure.

5. Agricultural Building Method #5 – Adding Interior Finish Cost (Marshall Valuation Service)

If the agricultural building cost is the basis for valuation, then the interior finish cost could be added. Earlier a jurisdiction stated the starting point for them was using a Marshall Valuation Service agricultural building. That same jurisdiction in Washington further outlined how they would account for the interior finish when it is used as a residence. The steps given were:

- Section 17 Page 26 Sheds & Barns (477) D-Pole (usually) – by saying usually, the author's assume they may select a different cost structure contingent upon the quality of the base structure.
- Section 17 Page 60 Floor area Perimeter multiplier and Story Height multiplier
- Section 12 Page 34 Town Houses Interior Build-out (988) Fair-Excellent

Using an average quality structure with 5,450 square feet, 1,700 square foot of finish, 300 linear feet of perimeter, 14 foot wall height and low quality build-out for the interior cost would be:

- Structure $\$11.78 \times 0.924 \times 1.077 = \11.72
- Interior \$32.20

6. Agricultural Building Method #6 – Adding Interior Finish Cost (Market Information)

Some interior cost was received from jurisdictions and is shown.

				Finshed	Int.	Farm Bldg
State	Yr-Built	Sq. Ft.	Int. Cost	Int. Sq. Ft.	Cost/SF	Quality
KS	2010	3,840	\$ 40,222	1,920	\$ 20.95	GD
TX	2012	6,000	\$ 60,000	1,650	\$ 36.36	AV
	2010	5,450	\$ 43,719	1,700	\$ 25.72	AV+
	2012	4,000	\$ 51,000	2,080	\$ 24.52	AV
				Median	\$ 25.12	
				Mean	\$ 26.89	

Just like any other data, it does not appear to be perfect as you would expect the finish for Good would be greater than for Average. A reasonable estimate for interior finish cost could be set at around \$25 per square foot for Average.

Ironically, the first analysis that the author's conducted was in 2001 and the interior cost that was extracted at that time is the same as extracted above.

	Finshed	Int.	Farm Bldg
Int. Cost	Int. Sq. Ft.	Cost/SF	Quality
\$ 35,551	1,500	\$ 23.70	AV
\$ 10,650	540	\$ 19.72	AV
\$ 20,558	800	\$ 25.70	AV
\$ 43,413	1,500	\$ 28.94	AV
	Median	\$ 24.70	
	Mean	\$ 24.52	

Following are some options to value these types of properties as houses:

1. House Method #1 – Jurisdiction Valuation Models

One jurisdiction (Texas Appraisal District #1) provided very good information on the process they have set up for costing models on their Barndominiums and is very definitely worth a review. Some findings using this process were:

- Detached metal buildings with living area:
- Finished out area includes a kitchen and bath. Ceilings are typically 8ft in living area.
- Application applies to all Barndominium buildings regardless if single or multi story.

Class	Size of finished out area	typical # bedrooms	typical # bathrooms
FAIR	less than 700sq ft	1	1
AVG	between 700sq ft & 1200sq ft	2	1
GOOD	greater than 1200sq ft	3	2

CLASS	VALUE	SQ. FT.
FAIR	\$56.83	1,200
AVG	\$39.33	2,400
GOOD	\$33.80	4,000

At first glance these rates do not make sense but is explained with the different number of square foot of living area each is based upon.

RES-METAL CLASS CALCULATION WORKSHEET – 2013

CLASS	TOTAL AREA PER UNIT				
	900	1200	1500	1800	2400
FAIR	\$22,500	\$24,200	\$26,900	\$28,600	\$32,400
	\$44,000	\$44,000	\$44,000	\$44,000	\$44,000
	\$66,500	\$68,200	\$70,900	\$72,600	\$76,400
	\$73.89	\$56.83	\$47.27	\$40.33	\$31.83
AVG	\$22,500	\$24,200	\$26,900	\$28,600	\$32,400
	\$62,000	\$62,000	\$62,000	\$62,000	\$62,000
	\$84,500	\$86,200	\$88,900	\$90,600	\$94,400
	\$93.89	\$71.83	\$59.27	\$50.33	\$39.33
GOOD	\$22,500	\$24,200	\$26,900	\$28,600	\$32,400
	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000
	\$112,500	\$114,200	\$116,900	\$118,600	\$122,400
	\$125.00	\$95.17	\$77.93	\$65.89	\$51.00

CLASS	TOTAL AREA PER UNIT			
	3000	4000	6000	99999
FAIR	\$37,200	\$45,200	\$58,400	\$65,800
	\$44,000	\$44,000	\$44,000	\$44,000
	\$81,200	\$89,200	\$102,400	\$109,800
	\$27.07	\$22.30	\$17.07	\$15.68
AVG	\$37,200	\$45,200	\$58,400	\$65,800
	\$62,000	\$62,000	\$62,000	\$62,000
	\$99,200	\$107,200	\$120,400	\$127,800
	\$33.07	\$26.80	\$20.07	\$18.25
GOOD	\$37,200	\$45,200	\$58,400	\$65,800
	\$90,000	\$90,000	\$90,000	\$90,000
	\$127,200	\$135,200	\$148,400	\$155,800
	\$42.40	\$33.80	\$24.73	\$22.25

In order to calculate adjustment factors between quality class rating, the same size must be used for each quality class. A home of 1,700 square feet will be used.

- Fair = \$42.69
- Average = \$53.37
- Good = \$69.98

Adjustment factors would be:

- Fair ÷ Average = $\$42.69 \div \$53.37 = 0.80$ or a 20% reduction
- Good ÷ Average = $\$69.98 \div \$53.37 = 1.31$ or a 31% increase

Explanations:

The first line of each quality class is the base cost of the metal building with a 10 foot ceiling contingent upon the total area per unit. Therefore, the first line values the base agricultural style building.

The second line of each quality class is the average cost for finish out of living area between the lower and upper area of living area which drives the quality rating as shown in the first table.

The third line of each quality class is the total cost.

The fourth line of each quality class is the cost per square foot.

2. House Method #2 – Jurisdiction Valuation Models

Texas Appraisal District #2 has also developed tables to value this type of property. They work within their system and use the class code of "T" for the metal siding or "Tin". The residential cost would be \$48.50 per square foot for average quality.

3. House Method #3 – Jurisdiction Valuation Models

An appraisal company indicated they have their clients make a one-step reduction in the quality of the home in order to properly calculate an RCN within their CAMA system. For example: If it is an average quality agricultural structure, then the living area would be listed as a Fair quality stick-built home. The remaining structure would be listed and a cost generated as an agricultural building.

Typical Frame vs. Metal Home Construction Comparison

1,000 Sq. Ft. One-Story Frame Dwelling	Typical One Story Frame w no Basement	One Story Metal/Pole
Excavation	\$896	\$0
Footing	\$1,079	\$0
48"Fdn. Wall	\$4,717	\$0
Exterior Walls/Windows	\$24,999	\$17,275
Doors	\$1,280	\$1,280
Roof/Ceiling	\$7,600	\$6,700
Floor (Slab)	\$3,650	\$3,650
Floor Coverings	\$3,650	\$3,650
Partitioning	\$10,139	\$10,139
Kitchen & Misc.	\$6,845	\$6,845
Misc. Items	\$1,100	\$1,100
Heating	\$3,680	\$3,680
Electrical	\$4,535	\$4,535
Plumbing	\$8,200	\$8,200
Total	\$82,370	\$67,054
Cost per square foot	\$82.37	\$67.05
% From Typical Frame (Grade Multiplier)	100.00%	81.41%
Indicated Grade	4	5

The Indicated grade of 4 is equal to an Average quality of home and a grade of 5 is equal to a Fair quality of home.

In order to calculate adjustment factors between class ratings, the same size must be used for each class. A home of 1,700 square feet will be used.

- Fair = \$67.05
- Average = \$82.37

Adjustment factors would be:

- Fair ÷ Average = $\$67.05 \div \$82.37 = 0.81$ or a 20% reduction

Author's Note: When Rick Stuart was the County Appraiser in Jefferson County, Kansas, the method just discussed was how Barndominiums were appraised. Research indicated that the RCN of an Average quality agricultural building matched up with a Fair quality stick built home. Therefore, the quality of the Barndominium was determined and then reduced by one full quality rating for use in the CAMA system.

The most current cost (November 2016) that has been provided was from Ottawa County, Kansas. The owner stated the total cost was between \$150,000 and \$160,000. The house contained 1,260 square feet with an attached garage of 768. Using the square foot of living area only would indicate a cost of \$119 to \$127 per square foot. The photo appears to indicate a fair quality stick-built home.



Another jurisdiction provided a shell cost as of November 2016. It was listed as an Average quality with 1,676 square foot of living area and 624 square foot of attached garage. The cost per square foot of living area was \$42.35.

House Method #4 – Marshall Valuation Service

In a previous analysis, the author's looked at the use of Marshall Valuation Service for valuing the living unit portion. Information from that analysis is shown below:

The only true construction cost we have is shown under Cost # 1, has 1,500 square feet with central air and a cost per square foot of \$51.21. When reviewing the quality of construction and type of materials, consideration could be given to rating these as a Fair quality home within Marshall Valuation Service.

The following was calculated by use of Marshall Valuation Service.

Fair Quality 1,500 Square Foot Metal Siding	
Base Cost / Square Foot	\$ 45.25
Air Conditioning	+ 1.41
Cost per Square Foot	\$ 46.66

In order to calculate adjustment factors between class ratings, the same size must be used for each class. Marshall Valuation Service has within the base cost central heat but not central air. The current costs below are the base cost for each quality rating shown. A home of 1,700 square feet will be used.

- Low \$58.32
- Fair \$66.41
- Average \$77.90

Adjustment factors would be:

- $\text{Low} \div \text{Fair} = \$58.32 \div \$66.41 = 0.88$ or a 12% reduction
- $\text{Fair} \div \text{Average} = \$66.41 \div \$77.90 = 0.85$ or a 15% reduction

4. House Method #5 – Double-Wide Manufactured Home

When the Barndominiums were first starting to be constructed, one (1) fee appraisal showed the structure priced like a double-wide manufactured home. This approach had enough merit to be considered. A 52 x 32 or 1,644 square foot double-wide manufactured home was used and the costs below were derived from Marshall Valuation Service base cost plus forced air conditioning.

- Low \$29.83
- Fair \$33.57
- Average \$37.55

Adjustment factors would be:

- $\text{Low} \div \text{Fair} = \$29.83 \div \$33.57 = 0.89$ or a 11% reduction
- $\text{Fair} \div \text{Average} = \$33.57 \div \$37.55 = 0.89$ or a 11% reduction

Quality Adjustment Recap

Quality	Adj.	Adj.	Adj.	Adj.
Low to Fair	0.88	0.89		
Fair from Average	0.80	0.81	0.85	0.89
Good from Average	1.31	1.17		

Replacement Cost New (RCN) Conclusion:

If valuing by the component method, the Marshall Valuation Service Farm Implement (Equipment Shop) Buildings (476) cost appears to be a reasonable estimate for the shell. Perhaps the best interior cost would be via the Washington method of using interior townhouse cost. The authors suggest you only use this method if you have a few of these. The best method is to determine how to best list as a stick built home and use the CAMA system.

Qual. Adj.		
Total	Actual	
Estimate	Cost	Ratio
\$ 139,776	\$120,882	1.16
\$ 157,810	\$ 98,172	1.61
\$ 134,250	\$152,000	0.88
\$ 154,469	\$ 99,460	1.55
\$ 114,000	\$105,982	1.08
	Median	1.16
	Mean	1.26

Classification states:

States also may have a property classification system that provides for fractional assessments. Fractional assessments are when the assessed value used to calculate taxes is less than the 100% market value. The property value is multiplied by the assessment rate to find the assessed value and then the assessed value is multiplied by the tax rate or levy to determine the property tax.

Market Value x Assessment Rate = Assessed Value (Taxable Value)

Assessed Value x Tax Rate = Taxes

In this type of situation, jurisdictions will have to divide out the value between uses. If the building is used only for agricultural or living area then the RCN model above can work well. However, if some or all the building that is not used for living area is a residential garage or shop area, the breakdown by property class becomes more difficult. Example: It is an agricultural building by

construction but one-third is living area and the other two-thirds are used for a residential garage. How then does the RCN model change?

In classification states the type of use is identified by a class code in order for the appropriate value(s) for each structure to be placed in the valuation file and the appropriate assessment rate applied. If the structure is labeled as agricultural (A) then the value will be placed in the agricultural file. Therefore, a different method must be developed if used for a residential garage in order that the associated value has the residential rate applied.

There are several ways this can be accomplished:

- Develop a corresponding building code for the agricultural structure but one that tells the CAMA system this belongs in the residential assessment file.
- Label the area used as a garage as either an attached or detached garage.

By the clearest sense, the garage area is attached to the living area. However, the cost of an attached garage can be too high. Experience of the authors have found that listing as a residence with detached garage more closely reflects the cost and still allows for the system to be used for the correct classification.

Depreciation;

Depreciation can be defined as the loss in value, from all causes, for property having a limited economic life. In valuing property by the cost approach, depreciation is the difference between replacement or reproduction cost new (RCN) of a property and its market value (less site value) as of the date of the appraisal. When determining depreciation all three types, physical, functional and external may need to be addressed.

1. Physical deterioration - The loss in value due to wear and tear in service and the forces of nature. Physical deterioration can be curable or incurable.
 - A. Curable is also called deferred maintenance. An item may be considered curable when the cost of repair or replacement is at least offset by the value added to the property.
 - B. Incurable is deterioration that is not generally economical to repair or replace, or in other words, the value added is less than the cost to repair or replace the item. Incurable can be broken down into short-lived and long-lived items, that is

generally for demonstration report writing only and is beyond the scope of this workshop.

To fully understand condition and the amount of depreciation to apply, we must be familiar with some terms. All the definitions below are from the IAAO Glossary.

Overall Age/Life Method – Method of estimating accrued depreciation based on straight-line depreciation in which the building is assumed to depreciate by a constant percentage each year over its economic life.

Effective age (EA) – This is the typical age of a structure equivalent to the one in question with respect to its utility and condition, as of the appraisal date. Knowing the effective age of an old, rehabilitated structure or a building with substantial deferred maintenance is generally more important in establishing value than knowing the chronological age.

Remaining Economic Life (REL) – As of the appraisal date, the number of years in the future over which the operation of an asset is anticipated to be economically feasible; often expressed as a percentage of the total economic life.

Total Economic Life (TEL) – This is the period of time or units of production over which the operation of an asset is economically feasible, not necessarily the same as its physical life. The formula to calculate the total economic life:

$$TEL = EA + REL.$$

The formula for depreciation by the overall age-life method is:

$$EA \div TEL$$

Estimating Total Depreciation Based on Comparable Sales:

Select a sample of comparable sales where the selected properties have been determined to have an effective age equal to their actual age (generally newer but not brand new homes) and the homes should be of equal or similar quality of construction. For jurisdictions having limited sales, sales

from other comparable jurisdictions may have to be included. The best comparable jurisdictions would be those most like the subject jurisdiction.

Measures of comparability may be; 1) Personal knowledge of the comparable jurisdiction: 2) similar economic influences: 3) census data for population count, age and income levels. All the sale prices must be valid “arms-length” transactions where sufficient market data is available to estimate land value as if vacant and where the replacement cost new can be calculated. The steps in estimating the total economic life are:

- a. Subtract the estimated value of land, site improvements and other accessory buildings from the sale price. The remaining value is the residual or contributory value of the building.
- b. Calculate the replacement cost new (RCN) as of the date of sale. The RCN would be developed using the jurisdiction’s cost manual.
- c. Subtract the residual building value from the sale from the RCN to determine the amount of accrued depreciation.
- d. Divide the dollar amount of the depreciation by the RCN to convert depreciation to a percentage.
- e. Divide the percent depreciation by the effective age to determine the annual percent of depreciation.
- f. Divide the number one (1) by the annual percent of depreciation to determine the estimated Total Economic Life.

Example: An improved property sold for \$180,000. Sales of comparable land indicate a land value of \$40,000. The house is 40 years old and has a replacement cost new (RCN) of \$200,000.

The actual depreciation for the example would be as follows based upon the six (6) steps outlined above.

Sale Price	\$180,000
Land Value	- <u>\$ 40,000</u>
Improvement Value	\$140,000

The total property sold, but only the improvement depreciates. Land does not depreciate. Therefore, the land value must be subtracted to find the indicated or residual improvement value. If the improvement did not suffer from any depreciation then the improvement value would be \$200,000 or equal to the replacement cost new. The difference between the cost new and the residual value is the dollar amount of depreciation.

RCN		\$200,000
Improvement Value	-	<u>\$140,000</u>
Depreciation		\$ 60,000

Although homes may have the same effective age, making this dollar amount of adjustment for various prices of homes would not be appropriate. The amount of depreciation must be converted into a percentage.

Depreciation	\$ 60,000
RCN	<u>÷\$200,000</u>
Percent of Depreciation	0.30 or 30%

Calculating depreciation is best determined by using sales. However, as sales may not be readily available in the jurisdiction the county may have to use sales outside of the jurisdiction. That means there has to be an assumption that all land values and other building values are accurate. This process can be difficult.

Instead, the authors have looked at the economic life assignments that have been noted by those providing information and from other sources. A discussion of the economic life assignment for the agricultural structure will be shown and then a recap of the residential portion of the structure.

1. Agricultural Structure #1 – Marshall Valuation Service

Farm Implement (Equipment Shop) Buildings (476)

- Class C – 25 year economic life
- Class D&S – 20 year economic life

2. Agricultural Structure #2 – Morton Buildings

Morton Building gives the following warranties:

- 5-year wind load
- 35-years for steel siding and roof for fading or peeling
- 50-years for pole frame and snow load

1. Living Area #1 - Texas Appraisal District #1

CLASS	LIFE EXPENTANCY
FAIR	50
AVG	50
GOOD	50

2. Living Area #2 – Marshall Valuation Service Stick-Built

CLASS	LIFE EXPENTANCY
LOW	45
FAIR	50
AVG	55
GOOD	60

3. Living Area #3 - Marshall Valuation Service Double-Wide Manufactured Home

The economic life Marshall Valuation Service recommends for double-wide manufactured homes based upon the quality are:

- Low 30-years
- Fair 35-years
- Average 40-years
- Good 45-years

4. Living Area #4 – Historical Research

In the previous research that was conducted in 1999, the indicated economic life was 40-years for the average quality of metal agricultural building.

Physical Deterioration Conclusion:

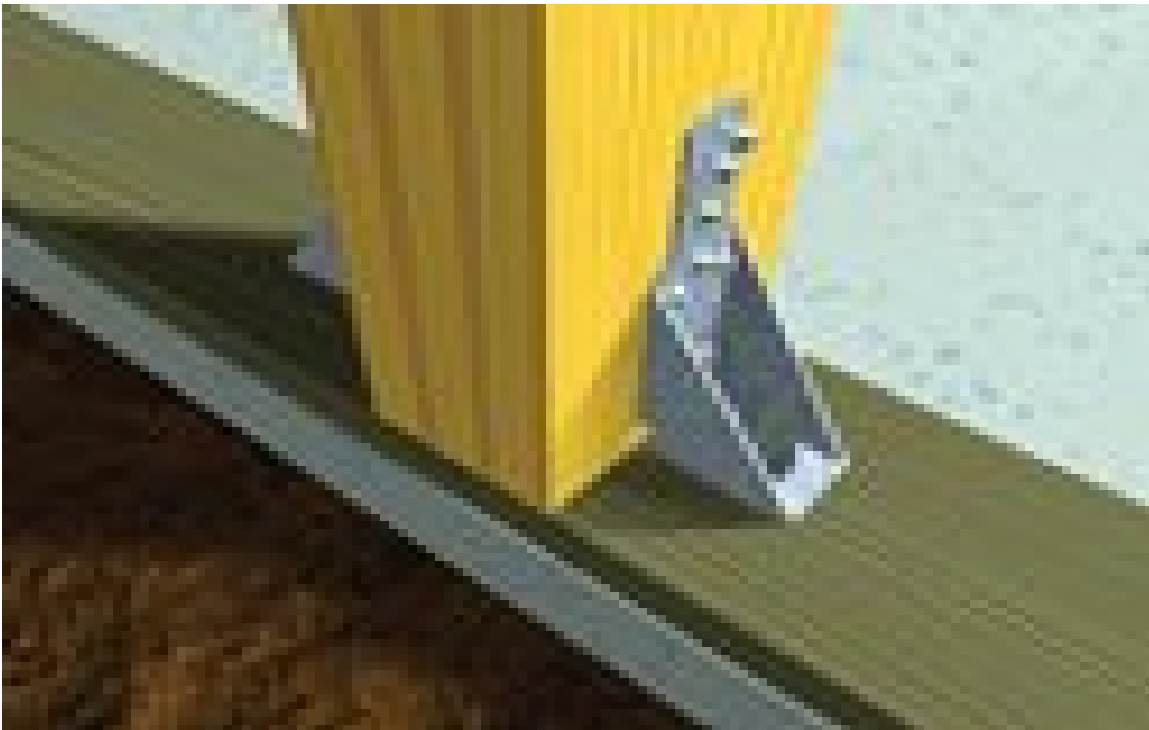
The economic life assignment by Marshall Valuation Service for double-wide manufactured homes fits well into all the data and thus will be used for this workshop. Therefore, the Marshall Valuation Service depreciation tables will be used also and can be found in **Appendix 3 – Marshall Valuation Depreciation Schedule**.

After this material was correlated, a home close to Topeka was discovered that allowed us to view and the owners provided cost data. We realize the cost data is for construction year 2006, but the information is very good and will be included in the value comparisons shown for each method that follows.



- Exterior Structure Quality: Good -
- Interior Structure Quality: Good
- Overall Quality: Good
- Structure Cost: \$116,300
- Structure Square Foot: 4,096
- Structure Cost per Square Foot: \$28.39

- Interior Cost: \$101,889
- Interior Square Foot: 1,744
- Interior Cost per Square Foot: \$58.42
- Total Structure & Interior Cost: \$218,189
- Pole building with the house portion using support lumber that are 3 - 2" x 4" boards with 2 extra boards about 2' up from the base, versus the previous photo.
- There is 28" of insulation above the house section. Hail does not sound any different than for a typical stick-built home.



The Percentage Cost Breakdown from Marshall Valuation can be used to try and separate more accurately the structure cost and the interior cost (**Appendix 4 – Marshall Valuation Percentage Cost Breakdown**). The items and their percentage of construction costs for the interior cost are shown in the following table.

Interior finish: plaster, drywall	6.3
Sash, doors & shutters	4.1
Lumber, finish	2.4
Carpenter labor, finish	3.0
Hardware, rough	0.4
Hardware, finish	0.5
Cabinets	4.0
Countertops/tile	2.2
Floor covering	3.8
Plumbing	6.4
Shower doors/mirrors/tub enclosure	0.5
Electrical	4.8
Light fixtures	1.2
Built-in appliances	1.9
Heating	3.9
Cleanup	11.1
Total	56.4 Say 55%

Other forms of depreciation:

1. Functional obsolescence - Functional obsolescence is the impairment of functional capacity or efficiency and is a loss in value brought about by such factors as overcapacity, inadequacy and changes in style, taste, technology and demands. Functional obsolescence can be either curable or incurable, depending on whether the cost to cure is economically justified as of the appraisal date.

Normal functional obsolescence is considered a part of most physical deterioration tables. This comment is found in Marshall Valuation's costing manual and is logical as older homes may have some

functional obsolescence due to design and desires in today's markets but insufficient sales are available to truly separate out physical and functional.

Normal functional incurable obsolescence can best be determined by use of paired sales analysis. This is the easiest method of measuring functional obsolescence. What are required are two sales exactly alike except for the characteristic (functional problem) that you believe may create a loss in value. The sales need to be adjusted for market conditions (time) if necessary. After the time adjustment has been made, the difference between the two sale prices would be the dollar amount of functional obsolescence.

There is a potential for Barndominiums to have incurable functional obsolescence because of an unusual design or poor room arrangement.

Measuring this amount of functional obsolescence would be difficult using paired sales. Finding sales of properties such as this would be almost impossible and then finding a matched sale with normal room arrangement for comparison purposes would increase the probability of not finding the needed sales. Using other sales of unique design and or poor room arrangement and applying the indicated adjustment to the subject as a percentage of functional obsolescence would be superior to simply making an appraisal judgment.

An example of extracting additional or non-typical functional obsolescence is as follows. An older home sold and indicated depreciation of 48% and another home that is well documented to have poor room arrangement sold and is very similar to the first sale. The indicated percentage of depreciation for the second sold property was 60%.

	Sale #1	Sale #2
Sale Price	\$55,000	\$67,000
Land Value	- \$12,000	- \$12,000
Improvement Value	\$43,000	\$55,000
RCN	\$83,000	\$138,000
Improvement Value	- \$43,000	- \$55,000
Depreciation	\$40,000	\$83,000
RCN	÷ \$83,000	÷ \$138,000
% Depreciation	0.48 = 48%	0.60 = 60%

Calculating the percent of additional functional obsolescence is not as easy as finding the difference between the two sales. The functional adjustment is actually a percentage of the physical. The calculations are follows.

RCN	\$138,000
Physical at 48%	- \$66,240
RCN Less Physical	\$71,760

The market extracted RCNLD was \$55,000. The percentage of additional adjustment is calculated at 23%

RCN Less Physical	\$71,760
RCNLD from sale	- \$55,000
Additional Depreciation	\$16,760

Percentage Additional Functional: $0.23 = 23\%$ ($\$16,760 \div \$71,760$). Typically, the functional and economic adjustments are rounded to the nearest 5%.

2. External obsolescence - The loss in value brought about by changing economic forces such as changes in highest and best use, legislation, etc. External obsolescence is often referred to as locational or economic obsolescence. This may be found in a jurisdiction by comparing sales of comparable properties in different economic areas of the jurisdiction. This could very easily be found in the market if you are comparing sales from one jurisdiction to another jurisdiction. Some jurisdictions or regions may have the same economic climate, but the market will dictate this if it exists.

Normal external obsolescence can best be determined by use of paired sales analysis. This is the easiest method of measuring external obsolescence. What are required are two sales exactly alike except for the characteristic (external problem) that you believe may create a loss in value. The sales need to be adjusted for market conditions (time) if necessary. After the time adjustment has been made, the difference between the two sale prices would be the dollar amount of external obsolescence.

One method of exacting a locational adjustment between jurisdictions is by vacant land sales. The percent of difference

would be an indication of the market differences for the location and then can be applied to the improvement also. The perfect situation would be if the subject was a recent land sale and an exact match was found. Lacking that, you could use similar properties. Additionally you could determine the median price per unit for the subject area land sales and the median price for another area. The difference would be the percentage adjustment for location.

Comparable sales in other similar jurisdictions can be used to calculate external location to adjust any sales that may be used from that jurisdiction. Sales selected to calculate the external obsolescence should be homes that are readily available in each jurisdiction. A detailed example follows. Although the example is obviously not a Barndominium, the presentation is for the concept that can be used.

If the appraiser finds comparable sales, how would they know if the value indication for the subject is reasonable? A subject property was chosen and then two (2) counties were contacted for up to four (4) comparable sales each. The subject was described as a ranch style home containing 1,200 to 1,600 square foot of living area and was built from 1960 to 1970. Two (2) sales were chosen from each county. These counties were selected because of comparable locations, market activity and economic climates. The land value should be recalculated using your jurisdiction values. A cost value for each of the other jurisdiction sales was determined as if they were located in your jurisdiction. Then the difference would be a check for any external obsolescence. The percent of difference is calculated by dividing the cost approach by the time adjusted sale price of each alternate comparable sale.

	TASP	Cost Approach Value	Percent Difference
Jurisdiction #1	\$83,000	\$93,200	12.29
Jurisdiction #1	\$84,900	\$97,300	14.61
Jurisdiction #2	\$88,600	\$92,160	4.02
Jurisdiction #2	\$105,600	\$118,440	12.16

Based upon this limited data, Jurisdictions #1 and #2 are about 12% less valuable and this would be attributable to external or locational obsolescence. Therefore, any low-end sales used from

these jurisdictions would have to be increased by 12% to reflect the superior location of your jurisdiction.

Stigma:

Stigma is “a perception that a property continues to be contaminated even though it has been cleaned up” (IAAO 1997). Stigma is intangible but may have an effect upon the subject property’s fair market value. “This creates a situation similar to obsolescence, because, if the market will pay less for a once contaminated, but now restored property, the value of the property has been diminished” (IAAO, 2001). Although these properties are not contaminated, is there a negative public perception about this property type those could limit the market interest and thus reduce the market value?

Another question that needs to be asked is “How can we measure loss in value due to stigma?” Some experts in the field of contamination note that stigma can be measured by comparing the amount of time a contaminated property stays on the market compared to the amount of time it typically takes to sell a non-contaminated comparable property. The perfect method is paired-sales where you have a property that is a normal stick-built home that is exactly like the Barndominium that sold and the difference would be reaction in the market of buyers and sellers. The probability of that is almost non-existent.

If there is a loss of value for this property type, would it be functional or external obsolescence?

Upper floors and basements:

All of the previous analysis was based upon first floor cost. As we can tell by the photos, more and more Barndominiums have upper floors and some have basement with some finished living area in the basement. It is the author’s suggestion that you treat those living areas not on the first floor in the same manner as you would normal stick-built homes. Look in your CAMA system or in Marshall Valuation Service to see the relationship between first floor and second floor cost. If for example the second floor cost is 75% of the first floor cost, then apply that same concept to your Barndominiums. The same concept would apply for base finishes. Basement cost would be the same as for stick-built homes.

The photos that follow are perfect examples of the type of homes we are discussing. The first photo has upper floor living area that appears to be the same size as the main floor living area.



The next home started as a pole-frame building and then living area was added to the second floor. As most CAMA systems will not allow an entry only on the second floor, you may have to enter as being on the first floor and then make a cost & design adjustment or apply a cost adjustment factor to make the square foot cost equal to that of a second floor.





The next home has first floor living area in the middle and right-hand section and living area in the entire second floor. If your CAMA system allows for a second floor area greater than the first floor, then you should have no problem calculating an RCN. If your system will not allow that, you can consider making two listings. One would be for the first floor area and then a separate listing as being on the first floor and with the adjustment factor that was mentioned in a previous example.



General Land Information:

Establishing land values can often times be a problem for assessors/appraisers especially if there are not adequate vacant land sales available. This workshop is designed to help assessors/appraisers with the process of developing land value both for vacant and improved parcels.

General Land Information:

- Land is defined as not only the ground or soil, but also the surface and anything under the surface. It is the basis for social, legal and geography and economic activities. The production of most all goods, directly or indirectly require the use of land. Land is immovable. It is also important to keep in mind that the supply of land is fixed.
- Land can be either unimproved or improved. Unimproved is land that is not ready to be built upon. It is in its raw state and is often referred to as raw land. Improved land is developed to the point that it is ready to be built upon. It is also called a site.
- Improvements to land are those things that prepare the land for development. It includes on-site improvements such as landscaping, grading and driveways along with off-site improvements such as streets, sidewalks and streetlights. Improvements to the land increase the land's usefulness and thus the value.
- Improvements on land are anything that has been constructed on the parcel such as residential houses, commercial buildings, agricultural building, etc.
- A large portion, if not most of these property types will be in the rural areas and have some acreage associated with them. Jurisdictions often require that agricultural land is treated based upon use and valued at something other than market value. Therefore, the actual area used as a home-site for the residential portion must be delineated and calculated at market value.

Economic Principles that Influence Land Value:

- Supply and Demand - Supply of land is fixed. Demand for land rises and falls with market forces. Generally, land prices continue to rise because the supply is fixed. That creates competition for available tracts of land.

- Substitution - The value of land is determined by the cost of acquiring a substitute property that is equally desirable and valuable. It is the underlying principle for all three approaches to value.
- Contribution - Based on the concept of what the individual components contribute to the total value of the property. The principle of contribution is the basis for the adjustment process in the sales comparison approach. It is also the basis for physical, functional and external obsolescence. Some land attributes that may add or create value loss are location, topography, access, view, roads, traffic, etc.
- Anticipation - Land value is created by the anticipation of benefits to be received in the future. Often you will see individuals that are non-farmers purchase agricultural land. The price paid may exceed the net cash flow from the commodities produced. These individuals are investors that are considering the principles of supply, demand and anticipation. They realize there will always be a demand, a limited supply and based upon historical analysis, are anticipating that land values will continue to increase. Therefore, this is a long-term investment that the desired return is recovered at the time of selling.
- Competition – When the amount of available land for sale of a certain classification is large in relation to demand for that type of land, competition will reduce prices. Competition will force prices up when the opposite situation occurs.
- Surplus Productivity - This principle states that property has value based on four agents of production (labor, management, capital and land). What is left over after the other three agents of production have been accounted for is the land value. This is a difficult principle to understand. Example: A property is currently in the highest and best use as pastureland. If it is the highest and best use, then the four agents are being met. If there is commercial encroachment and now the highest and best use is as vacant commercial land, the difference between the value as commercial land and pastureland would be surplus productivity.
- Consistent Use - This principle states that the land cannot be valued at one use and the improved property at another use. One mistake often seen in highest and best use analysis is the violation of this principle. Often appraisers will state that the highest and best use would be as

vacant commercial land and then add on a residual or salvage value for the existing improvement.

- Highest and Best Use - The use that provides the highest net return on the investment. The appraisal principles noted above all need to be analyzed by the appraiser to determine the highest and best use of land. In the mass appraisal world, the current use tends to be the use selected as the highest and best use by most assessors/appraisers. If the highest and best use as improved is different from the highest and best use as if vacant then you typically have a property that is in “transitional use” or “interim use”.

Trends that Influence Land Value:

- Physical factors – These factors are both natural and manmade. Examples of physical factors include climate, utilities, size, topography, etc. The most significant physical factor is location. The physical factors that are common to both rural and residential land parcels such as soil type have a different effect on the two classes of property. Soil type for agricultural class properties affect the type of crops that can be grown on the land or the amount of livestock that can be grazed. Soil type for residential class would affect the drainage or ability of the land to support certain type of structures. Another term for physical factors is environmental factors.
- Economic factors – These factors influence supply and demand. These factors have an impact on all classifications of land. Examples of economic factors include interest rates, land use patterns, family income and wages, etc.
- Social factors – These factors are demographic attitudes, characteristics and trends. Examples of social factors include crime rates, income levels, education levels, etc.
- Governmental factors – These are policies and regulations adopted by local governmental units that affect how land can be used and how land is zoned. Governmental factors tend to affect all the different classes of properties. Examples of governmental factors include building codes, zoning codes, property taxes, development regulations, etc.

Site analysis:

A site is a tract of land that has been developed to the extent that it is ready to be built on. The site analysis process involves the collection of site-specific data and the analysis of that data to see how it affects market value. The appraiser should look at the appropriate appraisal principles, the land classifications and the regional, city and neighborhood trends that have an effect on value.

Site Characteristics:

- Frontage – The measured distance along the side of the parcel that is adjacent to the street. Another way to look at it is the number of feet from the side lot to the other side that faces on the street. For residential properties, the frontage may be a desirable unit of measure for areas such as a lake, golf course, etc.
- Width - This measurement is the same as frontage on a regular shaped lot. For irregular shaped lots it is generally the average of the front and rear measurements.
- Depth – The measurement from the front property line to the rear property line.
- Shape – The shape of the lot and how it affects what can be built on the lot. Typical parcel shapes include regular, irregular, very irregular, square, rectangle and triangle.
- Area – The total square footage or acreage of a parcel.
- Topography – The physical features of land, that, include slope, drainage, soil type, etc.

On-Site Improvements and Off-Site Improvements:

- These are improvements to the land that prepare the land for development.
- On-Site Improvements - Items such as grading, paving, driveways, landscaping, water lines, etc.
- Off-Site Improvements – Items such as streets, sidewalks, street lighting, utilities, etc. Other things that can be considered in this analysis are such

things as parks and recreational areas, schools, churches, shopping centers, etc.

Estimating cost of site improvements:

As stated earlier, a parcel with all the site improvements in-place will sell for more than the same size tract that is raw land. This is the economic principle of substitution. The jurisdiction should establish the value of the site improvements and add that to the raw land value to reflect the market. Questionnaires can be developed and sent to property owners that recently built a new home, to contractors that perform the work and possibly from forms used for Neighborhood Revitalization Programs. Some additional cost items to request information on are:

- Water meter, pipe and installation cost
- Well costs
- Septic system costs
- Electrical service from the pole to the house

A sample questionnaire can be found in **Appendix 5 – Site Improvement Questionnaires**.

Stratification:

- The first step in the site analysis process is stratification. Stratification is simply the sorting of data into homogeneous groups. It is important to group properties together that are affected by the same trends and characteristics that drive value. Location (neighborhood or economic area) is typically the first criteria used in the stratification process. Other factors that should be considered include school districts, zoning, land use controls, off-site and on-site improvements, etc. An example of the stratification process is shown below:
- Stratification Example:
 - As noted, one of the first steps in the sales comparison approach is to stratify your sales into similar groupings. A sample using limited data is shown below. Unimproved road type is a dedicated road but not hard-surfaced.

Sale #	Sale Price	Size	Road Type
1	\$35,000	5.00	Unimproved
2	\$40,000	4.20	Unimproved
3	\$38,900	5.00	Unimproved

4	\$46,000	3.20	Paved
5	\$49,000	4.00	Paved
6	\$39,000	4.00	Unimproved

- The first stratification would be for the unimproved road type and then give consideration to the size.

Sale #	Sale Price	Size	Price per Acre
1	\$35,000	5.00	\$7,000
2	\$40,000	4.20	\$9,524
3	\$38,900	5.00	\$7,780
6	\$39,000	4.00	\$9,750

- Analyzing the limited sales would show that there is a change in the price per acre for size. This would support the concept of diminishing marginal utility in that the larger tracts are selling for less per acre. Diminishing marginal utility recognizes that the more units you add, the price per unit will go down.
- The second stratification would be for paved roads.

Sale #	Sale Price	Size	Price per Acre
4	\$46,000	3.20	\$14,375
5	\$49,000	4.00	\$12,250

- Once again, there are limited sales but it does appear to also indicate that size determines the price per acre.
- An adjustment for the type of road surface could also be calculated. This calculation would be determined upon which is the base, most typical, type of road. If the unimproved were most typical, then that would be the base. To calculate an adjustment, the base is always the denominator in the division function. Thus, the calculation would be as follows.
- Sale #5 and Sale #6 are both 4.00 acres.
 $\$12,250 \div \$9,750 = 1.2564$ or 125%
- This is stating that paved roads contribute 25% more value than unimproved roads. As the number of sales is often limited to

determine adjustments, it is fairly standard to round the adjustments in increments of 5%, such as 20%, 25%, 30%, etc.

Size Adjustment:

A size adjustment may be needed, whenever per unit values vary with the number of units, for example per acre value. Any adjustments should be extracted from the market. In developing a size adjustment, a typical size and value per unit for the typical tract should be established for the neighborhood. Then the adjustment factor can be developed as follows:

- Typical land size 2.00 acres
- Value per unit: \$15,000 per acre

A tract of land containing 3.60 acres sells for \$42,000. The base 2.00 acres is \$30,000.

- $\$42,000 - \$30,000 = \$12,000$
- $3.60 \text{ acres} - 2.00 \text{ acres} = 1.60 \text{ acres}$
- $\$12,000 \div 1.60 \text{ acres} = \$7,500 \text{ per acre}$

The adjusted per acre shown above often is referred to as an incremental or decremental value. This is a method to adjust the total value of a parcel downward if smaller than the base size and to adjust upward for a parcel larger than the base. Normally the incremental value for the larger parcels are less per unit than the base as shown by sales and recognized as the term “diminishing marginal utility”.

The adjustment can be converted into a percentage adjustment.

- Using the base rate of \$15,000 per acre, the 3.60 acres would be valued at \$54,000 ($\$15,000 \times 3.60 \text{ acres}$)
- Sale price of $\$42,000 \div \$54,000 = 0.78$ or 0,80 adjustment factor

Manually plotting sales on graph paper or using graphing tools in a spreadsheet such as EXCEL will graphically display various potential adjustment factors. This is particularly useful for size adjustments but can also display outliers that may indicate other adjustments such as location, access, topography, etc. All outliers should be reviewed for possible adjustments but also to verify is it really an arms-length transaction that should be included.

Problem 3-2 Size Adjustment

You are developing size adjustments for a neighborhood with a typical parcel size of 1.00 acre and a per unit value of \$18,000 per acre. What would be the size adjustment factor for the following two sales?

Tract #	Sale Price	Acres
1	\$26,500	1.85
2	\$35,000	3.10

By graphing out all the sales, you will often find the same incremental/decremental value applies up to a certain point and then an additional adjustment may be required. Using the process shown above for calculating the adjustment factor would then be used.

At times there actually may be more than one (1) adjustment necessary. An example would be when a size adjustment is indicated in the market and you have also found in the market that there is a reduction for being on a non-paved road. The size adjustment was shown to be 0.65 and the adjustment for the non-paved road is 0.85, a composite adjustment can be applied as follows:

- $0.65 \times 0.85 = 0.55$ composite adjustment

It is recommended when a composite adjustment is made, that a brief description of the adjustments is shown in a note field.

Section 4 – Sales Comparison Approach

The sales comparison approach uses the market to estimate value by comparing the subject property to similar properties that have recently sold. It is based on sales that have already occurred, therefore, it requires the assumption that market behavior in force in the past, will continue into the future. It is based on the economic principles of supply and demand, substitution and contribution. The current inventory of properties on the market represents the supply side and such items as population, mortgage rates and cost of substitute housing represent the demand side. The sale price represents the interaction of supply and demand.

The sales comparison approach is generally the preferred approach to find market value for most types of properties however the number of valid sales for this type of properties may be limited.

Who is the market for these types of properties?

- Is it primarily those actively involved in farming/ranching operations that want the benefit of an agricultural building for machinery and equipment and then have their living there also?
- Is it predominantly a transitional home until a stick-built home is constructed?
- Is it mainly single men?
- Could it be empty-nesters and those in retirement?

The steps in the sales comparison approach are:

- Define the appraisal problem:

This step is important in finding an accurate market value because the nature of the problem determines the sources of information, methods of comparable selection and adjustment techniques. Some of the steps in the process are identifying the property, the rights to be appraised, date of the appraisal, the use and the type of value to estimate.

- Collect and analyze the data:

This phase involves both analyzing the sales and property data. In the area of sales it is the process of determining whether the sales are open market transactions and comparable to the subject properties. As for data, it is important to analyze market data to identify important supply and demand factors and determine data needs.

- Select the appropriate unit of comparison:

The unit of comparison tends to represent how the property sells in the market place, i.e. price per square foot, price per front foot or price per unit. The typical unit of comparison for Barndominiums would be price per square foot. The unit of comparison should never be the grounds for selecting a comparable. Property attributes should be used instead.

- Make reasonable adjustments based on the market:

Adjustments are based on the principle of contribution. The amount of the adjustment is its contributory value to the total property value rather than its cost. Sales data should be used to determine the contributory value of individual property characteristics. Typical adjustment methods to develop adjustments are paired sales analysis and resale analysis.

For Barndominiums the number of adjustments used in the sales comparison approach may be limited. Typical adjustments that might need to be considered would include: market conditions, location, size, quality grade, physical condition and amenities.

Any adjustments that were used in the cost approach such as location adjustments, cost and design factors, functional obsolescence and external obsolescence should also be considered in the sales comparison approach.

- Apply the data to the subject property:

Adjustments should always be made to the comparable properties not to the subject property. If the comparable is better than the subject then adjustment will be negative or if the comparable is inferior then it would be a positive adjustment. The order of adjustments is: financing, market condition (time) and other adjustments for physical characteristics differences. The other physical characteristic adjustments should be made to the market condition adjusted sale price (MASP). The comparable with the smallest percentage adjustment should be given the most weight in estimating the market value of the subject property.

Adjustments can either be lump sum dollar, cumulative percentages or multiplicative percentages.

What are comparable properties for valuing Barndominiums? Obviously other Barndominiums that have sold, but can that be very many? Are

there any other house styles that could be comparable in the eyes of the property owner?

Market Condition Adjustment:

The market condition adjustment can be determined by using resale analysis or paired sale analysis.

- Resale analysis – This method involves using the same property that has sold twice within a given time frame. One factor that has to be taken into consideration is that the property cannot have any physical changes between the sale dates. Following is the formula for resale analysis:

Current Sale Price – First Sale Price ÷ First Sale Price = Total percent of change

Total percent of change ÷ Number of months between the two sales = Monthly percent of change

Monthly percent of change x 12 = Annual percent of change

Monthly time trends are normally calculated to four (4) places to the right of the decimal

- Paired sale analysis – This method involves using two (2) separate sale properties that have the same physical characteristics and other features but they sold at different times. The formula for this method is the same as the resale analysis method.

Problem 4-1: Based on these three paired sales what monthly market condition adjustment would you recommend?

	First Sale	Second Sale	Time between sales
Sale #1	\$95,000	\$106,400	26 months
Sale #2	\$110,000	\$116,600	14 months
Sale #3	\$82,000	\$89,400	19 months

Physical Characteristic Adjustment:

The preferred method used to develop these adjustments would be paired sale analysis. When using this method the first step would be to adjust the sales for market condition if the sale dates are not current. If there are no sales of these types of properties you can also use your costing manual to develop adjustments for such things as fireplaces, bathroom fixtures, etc. The adjustments would be the depreciated cost value.

Problem 4-2: Based on the following data, what would be the recommended adjustment for a fireplace? The appraisal date is January 1.

- Sale #1:
- A five (5) year old Barndominium sold 12 months ago for \$82,000.
 - The building has 1,500 square feet with two baths.
 - There is no fireplace.
 - The market condition adjustment for this neighborhood is 6% per year.
- Sale #2:
- A five (5) year old Barndominium sold six months ago for \$87,000.
 - The building has 1,500 square feet with two bathrooms and a wood burning fireplace.
 - The market condition adjustment for this neighborhood is 6% per year.

The sales provided were of qualities average to very good but the rates per square foot are an extreme spread from \$16.30 to \$239.85. No real conclusions can be drawn for the sales. It is suggested that if you do a comparable sales approach, you use the same contributors of value and the contributory values as for a normal stick-built structure. It is the author's recommendation that if possible you create a separate style code. Therefore, if you use comparable sales, you can calibrate the CAMA system to first select other sales of that style and then maybe manufactured homes as a second choice.

Sales of this property type may be limited in your jurisdiction and will require seeking sales in similar jurisdictions. The selection of comparable jurisdictions was discussed previously in the cost approach section within the discussion of external obsolescence. Those same considerations and the process of extracting a locational adjustment can be done for the sales comparison approach. The process for that follows.

If the assessor finds comparable sales, how would they know if the value indication for the subject is reasonable? A subject property was chosen and then two (2) counties were contacted for up to four (4) comparable sales each. The subject was described as a ranch style home containing 1,200 to 1,600 square

foot of living area and was built from 1960 to 1970. Two (2) sales were chosen from each county and combined with one (1) sale from Jefferson County. Sales from the other counties were keyed into our CAMA System and saved into the sales history file. Actual land value as established by the counties was used. These counties were selected because of comparable locations, market activity and economic climates.

As the purpose of this is to deal with limited sales, a different process will be considered. The four (4) alternate sales will each become the subject property for our county. This is saying we keyed the sales into our database and then ran comparable sale value as if they were comparables in our county. We did not allow the sales to be used as a comparable in determining the value. Then a comparison will be made between the time adjusted sale price and the indicated sales comparison values. This difference would be another check for any external obsolescence. The percent of difference is calculated by the sales comparison approach divided by the time adjusted sale price.

	Time Adjusted	Sales Comp.	%
	Sale Price	Approach	Diff.
Alternate Sale #1	\$ 83,000	\$ 97,100	16.99
Alternate Sale #2	\$ 84,900	\$ 100,000	17.79
Alternate Sale #3	\$ 88,600	\$ 94,500	6.67
Alternate Sale #4	\$105,600	\$114,100	8.05

Sales #1 and 2: This would indicate that any sales used from that county would be inferior to our county market. If these sales were used, then the time adjusted sale price would have to be increased by 17% for location.

Sales #3 and 4: This would indicate that any sales used from that county would be inferior to our county market. If these sales were used, then the time adjusted sale price would have to be increased by 7% for location. Some sales data can be found in **Sales.xls I Work Sheet Model**.

Hunt County Texas Appraisal District was kind enough to provide a number of sales. All sales occurred in 2013 – 2015. Some comments about the author's analysis:

- Sales were not adjusted for market conditions (time)
- Remove sales included those with negative building values or extreme indications

The rate per square foot for the Barndominium was calculated by:

- Sale price
- Land value
- Other building value

Value indications:

Quality	Comparisons			
Quality	Median/SF	Mean/SF	Model/SF	# of Sales
Fair	\$26.29	\$38.20	\$38.00	4
Average	\$45.91	\$50.29	\$50.00	18
Good	\$59.89	\$53.31	\$60.00	4

Normally the median is good indication and is used. The select rates per square foot for Model/SF are a combined selection of the median and mean to show a more reasonable difference between quality ratings. The Model/SF rates could be used as a quick check against other value indications.

Section 5 - Income Approach

The Income Approach:

The income approach is considered the most appropriate when valuing income producing properties. The underlying economic principle in the income approach is the principle of anticipation, which states that value is created by the expectation of benefits to be derived in the future. When you are valuing a Barndominium used for residential purposes you would typically use the gross rent multiplier (GRM) method to arrive at an income value. To value a Barndominium used for commercial purposes, like office space, you would use the income capitalization method. It would also be possible to use the gross income multiplier (GIM) method on a commercially used manufactured home. Considering these are a somewhat new, non-typical and normally built for each individual need, there is probably a very limited chance you would use the income approach for a residential use.

Gross Rent x Income Multiplier:

This method looks at the relationship between income (rent) and sale prices. The multiplier is simply a factor and can be used in an income valuation method called the VIF formula where: **Value (V) = Income (I) x Factor (F)**. When using this method it is important to remember that the subject property and comparable sale properties used to develop the multipliers must be similar or adjusted for any differences.

- Gross rent multiplier - the GRM, as noted earlier, is used for property that is used for residential purposes. Residential GRM will typically be in a range of 80 to 120. The GRM on Barndominium may be less than a GRM for stick-built properties. In calculating the GRM for residential property use the actual monthly rent of comparable sale property. The formula to calculate the GRM is:

Sale Price ÷ Gross Monthly Rent: When using the GRM to calculate a market value for the subject property always use the market rent in the subject property's neighborhood. The formula using the GRM to find market value is:

GRM x Monthly Market Rent.

Example 5-1: Barndominium GRM – Gross Rent Multiplier

Generally, any income approach to value on single-family residential property is by use of a gross rent multiplier. A gross rent multiplier shows the ratio between a property's value and the gross or effective income. The GRM is calculated by dividing the sale price by the rent at the time of sale. The example below is not based upon actual data but an example of the process.

An analysis of this data is shown below.

Home sale price	\$ 110,500
House rent per month	\$1,500
GRM ($\$110,500 \div \$1,000$)	73.67 rounded to 75
House rent per month	\$1,500
Square feet	1,300
Rent per square foot per month ($\$1,500 \div 1,300$)	\$1.15
Annual rent per square foot ($\$1.15 \times 12$)	\$13.80

- Typically in appraisal courses a GRM is in the range of 80-120. Older homes in less than average condition and in areas of decline will have a lower GRM. Generally, manufactured homes have a lower GRM because of a shorter economic life. The lower the GRM, the faster a landlord will recover their investment. It may make sense that a GRM for Barndominium might be closer to a manufactured home, contingent upon the quality of the Barndominium.
- Adjustments to the GRM for quality different than the base could be made in the same manner that adjustments in the cost approach.

Income Capitalization:

This method involves the process of converting (capitalizing) the future net benefits of property ownership (net operating income) into an expression of present worth (value). The basic formula used in this income approach is the IRV formula which states: **Value (V) = Income (I) ÷ Rate (R)**. Following are the steps in the income capitalization method:

1. Estimate potential gross income (PGI) - when estimating PGI use market rent. A subject property's actual rent may be used if it is representative of the market rent for the neighborhood. When determining market rents it is important to look at properties that are comparable to the subject property in age, quality, physical condition, size, etc. In finding PGI monthly rent must be converted to annual income.

The formula to find PGI is: Monthly Rent x Number of Units x 12.

Example 5-2: The subject property, a 28 by 68 Barndominium, currently rents for \$475 per month per unit and contains two (2) office units. A review of the market place shows that the market rent for the neighborhood is \$500 per month per unit. What is the subject property's PGI?

$$PGI = \$500 \times 2 \times 12 = \$12,000$$

2. Estimate vacancy and collection loss - both vacancy and collection loss are expressed as a percentage of the potential gross income and are the dollar amount of each deducted from the PGI.

The formula for finding vacancy loss is:

$$\text{Vacant Units} \div \text{Total Number of Units} \times 100$$

The formula for finding collection loss is:

$$\text{Amount Uncollected} \div \text{Total Rents Billed} \times 100.$$

3. Estimate miscellaneous income - this is income generated from the property other than rent. Examples would be parking rental, resale of utilities, laundry, vending machines, etc. Miscellaneous income is added to PGI.
4. Estimated effective gross income (EGI) - effective gross income is found by the following formula: PGI - vacancy and collection loss + miscellaneous income.
5. Determine operating expenses - not all expenses incurred by a commercial property are considered allowable expenses in this method. Allowable expenses are only those necessary to operate and maintain the property. Typical expense amounts, like market rent, should be pulled from the market place. Examples of allowable expenses are management, utilities, insurance, lawn care, repairs and maintenance, supplies, advertising, etc. Non-allowable expenses include such things as depreciation, debt service, taxes, franchise fees, capital improvements, etc.

Also considered an allowable expense is reserves for replacements. Reserve for replacements is an expense set aside annually so that at the end of an item's economic life there is money available to replace the item. Examples of items that are

considered as reserves for replacements are roof cover, HVAC systems, floor coverings, dishwashers, refrigerators, etc. To calculate a reserve for replacement expense you need to know the economic life of the item and the replacement cost new. For example, if an item costs \$10,000 and has an economic life of 15 years the annual reserve for replacement amount would be:
 $\$10,000 \div 15 = \$667.$

If you are unable to itemize expenses you may have to develop an expense ratio.

The formula used to find an operating expense ratio is:

Allowable Operating Expenses (including reserves for replacements) \div Effective Gross Income = Expense Ratio.

6. Find net income - net income is what is left over after the expenses have been removed.

The formula is:

Effective Gross Income - Operating Expenses = Net Operating Income.

Net operating income also can be found by the following formula:

Effective Gross Income \times (1 - the Expense Ratio).

7. Develop the appropriate capitalization rate - determining the capitalization rate can be more difficult. There are three (3) components to the rate: discount, recapture and effective tax rate. The capitalization rate can either be abstracted from the market place or developed using the build-up method. To find the capitalization rate from the market place you need to know the net operating income and the sale price of a property. The formula to find the rate is:

Net Operating Income \div Sale Price = Overall Capitalization Rate.

In the build-up method the capitalization rate is determined by finding each component separately and then adding them together. The discount rate, the return on the investment, can be found by either the band-of-investment or mortgage-equity methods. Both methods will require conversations with lenders and borrowers to

determine loan rates and terms. Typically the discount rate will be higher for a manufactured home than a stick-built structure because as discussed in the section on financing, the loan rate may be higher.

The recapture rate can be found using the remaining economic life of the subject property. This method gives you straight-line depreciation. To find the recapture rate simply take **1 divided by the remaining economic life**. Normally manufactured homes have a shorter economic life than a stick-built structure, which means they would have a higher recapture rate.

The effective tax rate is computed by multiplying the assessment rate by the local current tax rate. The effective tax rate for a manufactured home and a stick-built home should be the same unless manufactured homes have a different assessment rate than stick-built homes. Use of the property and any state classification system would also be considered.

8. Convert net income into value - this is the final step in the process and it utilizes the IRV formula.

$$\text{Value} = \text{Income} \div \text{Rate}$$

Residential Rentals:

Pulaski County Arkansas was able to provide rental information on a small development of Barndominiums. The land owner built a series of the same buildings as rentals.

- All buildings are 1,008 square feet
- All are 3 bedroom
- Those with 1 ½ baths rent for \$600 per month
- Those with 2 baths rent for \$650 per month



Establishing an income approach value for this property type would normally be through application of a GRM (Gross Rent Multiplier). The GRM is calculated by $\text{Sale Price} \div \text{Monthly Rent}$. The difficulty in this application is to find properties that have sold and were rented or similar properties where one sold and another was rented. The authors are not sure if a GRM extracted from similar quality stick-built homes would be applicable or not. An argument can be made that the Barndominium has a shorter economic life and would thus have a lower GRM.

Section 6 - General Information

It is suggested that you value all of the Barndominium properties at one time. This will help create equity among this class of property. It is often beneficial for any properties that are limited in number or unique to maintain, created an EXCEL spreadsheet of the properties and show items such as parcel number, neighborhood number, year built, quality, living area per floor and total area and maybe a rate per square foot for just the Barndominium. This would allow a quick reference to see if the values are relational prior to mailing valuation notices.

Property types that are different from the typical often encounter difficulty in obtaining homeowners insurance and financing. One insurance agent indicated that the area used as a residence is treated the same for coverage and rates as a typical stick-built home.

A loan officer in a financial institution made the following comment concerning loans for this property type, "We have made loans for these types of buildings but the biggest problem we have is appraisals. The appraisals are based upon recent sales of similar type properties and there are not many of these buildings and/or sales. The down payment requirements are usually 20% or more."

Section 7 – Conclusion

Of course there are always property owners of Barndominiums that create extra problems for us. The latest problem child is brought you from Waco, Texas and concerns a home featured on HGTV's *Fixer Upper*.



Jennyxie @canonind, April 11, 2017, <http://bit.ly/2p5K3g8>

Loyal fans of HGTV's hit show *Fixer Upper* will probably recognize Season 3's "Barndominium," which epitomizes the "farmhouse chic" style that series leading lady Joanna Gaines has evangelized in house after house that she transformed on screen. Now, the five-bedroom home on the northern border of Waco, Texas is on the market, complete with a charming Dutch roof, contemporary interior styling, 16 acres of private land, and a whole bunch of drama.

Indeed, the seller, real estate investor Kristi Bass, is unloading the property after running into some trouble turning it a lucrative rental business. Bass purchased the home last year from the original family that appeared on the show, who moved away for job reasons. She then put it up as a short-term vacation rental for an eye-popping rate of \$1,200 a night, immediately drawing ire from neighbors who were worried about increased traffic and effects on property values. According to Realtor, Bass is also selling the house after receiving two tickets from the city for running the business without permits.

While Barndominium certainly stands out with its hefty nightly rate, it's definitely not the first *Fixer Upper* property to get the vacation rental treatment. There were, at one point, at least six of them on Vrbo and Airbnb. And the Gaineses aren't pleased.

"We are going to be more strict with our contracts involving *Fixer Upper* clients moving forward," Brock Murphy, a spokesman for the Gaineses's company, Magnolia, said in a statement last summer, in light of hoards of *Fixer Upper* properties popping up on rental sites.

Barndominium is listed for \$1.2 million, in a neighborhood where the average median value for a property is in the mid-\$80,000 range. It does come fully furnished with private lake access, though. What say you, Curbed readers? Is \$1.2M worth it for 2,653 square feet of Joanna Gaines-approved accoutrements (Wooden kitchen island, massive barn door and farmhouse sink!)

So now it is your turn:

Do your homework. The gathering and analysis of data are difficult. As it is anticipated the number of this type of property will grow, get ready to deal with the issue now.

Appendix 1

New Construction Cost Letters



Jefferson County Appraiser

Date: _____

Parcel ID: _____

Dear Property Owner,

In order to establish costs in Jefferson County, we would appreciate your help. If your pole building constructed this past year was a turn-key project (contractor only) please provide the information below. The market value is generally well below the cost to construct. Your information allows us to verify our cost manual.

Total Building Cost: _____ Date Completed: _____

Building Type (Astro, Morton, etc.): _____

Building Size: _____ x _____

Building Height: _____

Wood Lined: Yes _____ No _____

Insulated: Yes _____ No _____

Concrete Floor: Yes _____ No _____

Utilities: Yes _____ No _____

Plumbing: Yes _____ No _____

Daytime Phone Number

Signature

We would appreciate your reply within 15-days and thank you for your assistance.

Sincerely,

Teresa Hattemer; RES, RMA
Jefferson County Appraiser

Appendix 2

Neighborhood Revitalization Plan

COUNTY OF COMANCHE

NEIGHBORHOOD REVITALIZATION PLAN

Date Received: _____

☐ Approved ☐ Not Approved

Part 1: Application for tax rebate

(A non-refundable \$100 application fee must accompany this application)

(Please print)

Owner's name _____

Daytime Phone _____

Owner's mailing address _____

Address of Property _____

Parcel identification number: _____

(Copy from your tax statement or call appraiser's office)

Legal description of property _____

Proposed property use (Please Circle one)

Residential: New or Rehab Rental or Owner-occupied
Residence Other
Explain _____

Single Family Multi Family Number of unit's _____

Agricultural: New Rehab Rental or Owner-occupied

Commercial: New Rehab Rental or Owner-occupied

Does the applicant own the land? Yes or No

Will the Proposed Project be on a foundation? Yes or No

Will it be permanently attached to the property? Yes or No

Checklist: ☐ **Check made out to Comanche County Treasurer for \$100.00**

☐ **Blueprints Provided to Comanche County Appraiser**

Tax Status: (Please Circle)

Current

Delinquent

(I have read and do hereby agree to the following all applications procedures and criteria. I further understand that this application will be void one year from the date below if improvements or construction has not begun on this project. I further agree to complete the applicable portions of the questionnaire attached to this application.)

Signature of Owner

Date

Signature of Comanche County Treasurer

Date

Signature Comanche County Appraiser

Date

COUNTY OF COMANCHE

NEIGHBORHOOD REVITALIZATION PLAN

Part 2: Residential

(Any and all financial information reported on this form will be considered confidential and will not be subject to public disclosure as provided in K.S.A. 45-221(b))

General

Estimated date of completion _____

Are buildings being demolished? If so please list: _____

Estimated cost of improvements:

Materials \$ _____ Labor \$ _____

Total Cost \$ _____

(Must be over \$5,000 to qualify for rebate)

(Please attach copies of cost documentation, and blueprints or plans)

Property Construction: *(Please Circle)*

All contractor-built

Pre-built home moved on site

All owner-built

Modular Home

Contractor-built

Other

Owner participation: (please rate amount of owner participation, in one category)

Hours _____ % of project _____

Value \$ _____

New Residential

Story Height _____ Basement size: Full Half Crawl none

No. of bedrooms _____

No. of Bathrooms _____ Heating/cooling _____

Square feet of unfinished area _____

Total Square feet of finished living area *divide into the categories below)*

Basement _____ Ground floor _____

Upper Floor _____

Garage: Attached Detached Size: _____

Residential Remodel (please circle)

Square feet of living area to be added: _____ Basement Ground Floor
Upper Floor

Rooms to be added: Living Room Bedroom Bathroom
 Kitchen Dining Room Basement
 Other _____

Signature of owner

Date

COUNTY OF COMANCHE

NEIGHBORHOOD REVITALIZATION PLAN

Part 2: Agricultural or Commercial

Any and all financial information reported on this form will be considered confidential and will not be subject to public disclosure as provided in K.S.A. 45-221(b)

General

Estimated date of completion

List of buildings proposed to be demolished

Estimated cost of improvements: (please attach copies of cost documentation)

Materials \$ _____ Labor \$ _____
Total Cost \$ _____
(Must be over \$5,000 to qualify for rebate)

Property Construction (please circle one of the following that best describes the construction of your property)

All Contractor-built Pre-built building moved in site

All owner-built Modular building

Contractor-built with owner participation other

Owner Participation (please rate amount of owner participation, in one category)

Hours _____ % of Project _____
Value \$ _____

New Agricultural

Type of building _____
Use of building _____
Building Dimensions _____
Exterior Wall Material _____
Location of building _____

New Commercial

Type of building _____

Use of building _____

Building dimensions _____

Wall Height _____

Exterior Wall Material _____

Agricultural or Commercial Remodel

Areas to be remodeled _____

Type and use of building _____

Describe improvements

Signature of Owner

Date

COUNTY OF COMANCHE NEIGHBORHOOD REVITALIZATION PLAN

Part 3: Commencement of Construction

Owner's Name _____

Please Print

Daytime Phone _____

Owner's Mailing Address

Address of Property

Parcel Identification Number _____ Ref # _____

Date of Original Application _____

Building permit # _____

If applicable

Date Construction estimated to begin _____

Date of estimated completion of construction _____

Signature of Owner

Date

Date NRP Part 3 Received _____

Signature of Comanche County Appraiser

COUNTY OF COMANCHE

NEIGHBORHOOD REVITALIZATION PLAN

Part 4: Status of Construction Completion

Owner's Name _____
Please Print

Daytime Phone _____

Owner's Mailing Address

Address of Property

Parcel Identification Number _____ Ref # _____

Date of Original Application _____

Building permit # _____

If applicable

Date Construction estimated to begin _____

(Please Complete the Applicable statement below)

As of January 1 following commencement, the construction project applied for
was _____ % complete.

The construction project applied for was considered complete on

Date

Signature of Owner

Date

Date NRP Part 3 Received _____

Signature of Comanche County Appraiser

Appendix 3

Marshall Valuation Depreciation Schedules

DEPRECIATION

Effective Age in Years	TYPICAL LIFE EXPECTANCY IN YEARS										
	70	65	60	55	50	45	40	35	30	25	20
	DEPRECIATION - PERCENTAGE										
1	0%	0%	0%	1%	1%	1%	1%	2%	2%	3%	3%
2	1	1	1	2	2	2	3	4	4	6	7
3	1	2	2	2	3	3	4	5	6	9	11
4	2	2	3	3	4	4	5	7	9	12	15
5	2	3	4	4	5	6	7	9	12	15	20
6	3	4	4	5	6	7	9	11	14	18	24
7	4	5	5	6	7	8	10	13	17	22	28
8	4	5	6	7	8	10	12	15	18	25	33
9	5	6	7	8	10	11	14	17	22	29	38
10	5	7	8	9	11	13	15	20	25	32	43
11	6	8	9	10	12	14	18	22	28	36	48
12	7	9	10	11	13	15	20	24	31	40	53
13	8	10	11	12	15	17	22	26	34	44	57
14	8	10	12	13	16	19	24	29	37	48	61
15	9	11	12	15	17	21	26	32	40	52	66
16	10	12	13	16	19	23	28	34	43	55	70
17	10	13	15	17	20	25	30	37	46	59	73
18	11	14	16	19	22	27	32	40	50	63	76
19	12	15	17	20	24	28	34	43	53	67	78
20	13	16	18	21	25	30	37	45	56	71	79
21	13	17	19	22	26	32	39	48	59	74	79
22	14	17	20	23	28	34	42	51	62	76	80
23	15	19	21	24	29	36	44	54	65	77	
24	16	20	23	26	31	38	47	57	68	79	
25	17	21	24	27	33	40	50	60	71	80	
26	18	22	25	29	35	43	52	62	74	80	
27	19	23	26	31	37	45	55	65	75		
28	20	24	28	33	39	47	57	68	77		
29	21	26	29	34	41	49	59	70	78		
30	22	27	31	36	44	52	62	71	79		
31	23	28	32	38	46	54	64	72	79		
32	24	29	34	40	47	56	67	74	80		
33	25	31	35	42	49	58	69	75			
34	27	32	37	44	51	60	71	77			
35	28	34	38	45	53	62	72	78			
36	29	35	40	47	55	65	74	79			
37	30	37	41	49	57	67	75	79			
38	32	38	43	51	59	69	77	80			
39	33	40	45	53	61	70	78				
40	35	41	47	55	63	72	79				
41	36	43	49	57	64	73	79				
42	38	45	51	59	66	75	80				
43	39	47	52	60	67	76					
44	41	48	54	62	69	77					
45	42	50	55	63	70	78					
46	44	51	57	65	72	78					
47	45	53	59	66	73	78					
48	46	54	61	68	75	79					
49	47	56	62	69	76	79					
50	49	57	64	71	77	80					
51	51	58	65	72	78						
52	52	60	66	73	78						
53	54	61	68	75	79						
54	55	63	69	76	79						
55	57	64	70	77	80						
56	58	65	71	78							
57	60	66	72	78							
58	61	67	72	79							
59	63	68	73	79							
60	64	69	74	80							
61	65	70	75								
62	67	71	76								
63	68	72	76								
64	70	73	77								
65	71	74	78								
70	76	78	80								
75	80	80									

Appendix 4

Marshall Valuation

Percentage Cost Breakdown

PERCENTAGE BREAKDOWN OF BASE COSTS

The following percentages indicate the approximate portion of the total cost of average-quality wood frame houses attributable to each component listed, as derived from an analysis of several groups of residences. Costs of plans and other components are based on several developments containing between five and fifty houses each.

AVERAGE-QUALITY HOUSE

Plans. . . . .	.6%
Plan check and permit	2.1%
Survey. . . . .	.4%
Water meter and temporary facilities . . . . .	.6%
Excavation, forms, concrete and backfill	5.7%
Lumber, rough	8.0%
Carpenter labor, rough	9.6%
Roofing.	4.0%
Insulation and weather-strip	1.3%
Exterior finish: siding, stucco, masonry veneer	5.5%
Interior finish: plaster and drywall	6.3%
Sash, doors and shutters	4.1%
Lumber, finish	2.4%
Carpenter labor, finish	3.0%
Hardware, rough . . . . .	.4%
Hardware, finish . . . . .	.5%
Cabinets	4.0%
Countertops/tile	2.2%
Floor covering: hardwood or carpeting	2.8%
resilient.	1.0%
Plumbing	6.4%
Shower doors/mirrors/tub enclosure . . . . .	.5%
Electrical	4.8%
Light fixtures	1.2%
Built-in appliances	1.9%
Heating.	3.9%
Sheet metal . . . . .	.4%
Ornamental iron . . . . .	.4%
Painting.	2.6%
Sewer connection . . . . .	.6%
Miscellaneous . . . . .	.9%
Cleanup. . . . .	.8%
General contractors' overhead and profit	11.1%
TOTAL.	100.0%

The 11.1% listed for general contractors' overhead and profit is the percentage of the total cost. This is the equivalent of 14.8% of the labor, material and subcontract cost, excluding costs of plans, survey, plan check and permit, with a range from 10.2% to 20.8%.

Appendix 5

Site Improvements Questionnaires

Date

RE: Cost of Septic Systems

Our office is attempting to determine what the typical costs for a residential septic system are. Your assistance and any necessary explanations would be greatly appreciated. Information can be provided in ranges such as typical lateral is 1,000' to 1,500' square foot but the most typical is 1,400'.

We ask that you return the information back to our office within the next 10 business days. I have enclosed a self-addressed stamped envelope for your convenience.

We would like to thank you in advance for your assistance. If you should have any questions, please feel free to contact our office at (620) 582-2544. We are available Monday through Friday 9:00 am to noon and 1:00 to 5:00 pm.

What is the typical square foot of lateral?

What is the typical size of a septic tank?

What is the typical overall cost?

Comments or suggestions on additional questions or how the questions should be asked?

Sincerely,

Anywhere County Appraiser

Date

RE: Utility Costs

Our office is attempting to determine typical costs for a connection of electrical and plumbing utilities for residential properties. Your assistance and any necessary explanations would be greatly appreciated. Information can be provided in ranges such as typical line length is 300' to 800' but the most typical is 600'.

We ask that you return the information back to our office within the next 10 business days. I have enclosed a self-addressed stamped envelope for your convenience.

We would like to thank you in advance for your assistance. If you should have any questions, please feel free to contact our office at (620) 582-2544. We are available Monday through Friday 9:00 am to noon and 1:00 to 5:00 pm.

What is the typical length of pipe run?

What is the typical size of the connector pipe?

What is the typical electrical service cost?

What is the typical overall cost?

Comments or suggestions on additional questions or how the questions should be asked?

Sincerely,

Anywhere County Appraiser

Date

Our office is attempting to determine what typical water meter costs to the property owner are. Your assistance and any necessary explanations would be greatly appreciated.

We ask that you return the information back to our office within the next 10 business days. I have enclosed a self-addressed stamped envelope for your convenience.

We would like to thank you in advance for your assistance. If you should have any questions, please feel free to contact our office at (620) 582-2544. We are available Monday through Friday 9:00 am to noon and 1:00 to 5:00 pm.

What are the typical meter costs to the property owner for new service?

If the water district installs the lines and meter, what is the typical size and length of the lines and the total costs?

Comments or suggestions on additional questions or how the questions should be asked?

Sincerely,

Anywhere County Appraiser

Date

Our office is attempting to determine what is typical for drilling and all associated costs for a residential water well. Your assistance and any necessary explanations would be greatly appreciated. Information can be provided in ranges such as typical pipe is 5" to 8" but the most typical is 6".

We ask that you return the information back to our office within the next 10 business days. I have enclosed a self-addressed stamped envelope for your convenience.

We would like to thank you in advance for your assistance. If you should have any questions, please feel free to contact our office at (620) 582-2544. We are available Monday through Friday 9:00 am to noon and 1:00 to 5:00 pm.

What, if any, is the standard pipe size used?

What is the most typical depth of the wells?

Is there a necessary amount of rock or filler around the piping?

What is the typical horsepower for the pump?

What are the typical gallons per minute that will be pumped?

Including any holding tank, pump, etc., what is the total equipment cost?

What is the typical total cost for a well?

Comments or suggestions on additional questions or how the questions should be asked?

Sincerely,

Anywhere County Appraiser

Appendix 6

Answers to Problems

Problem 3-1

$$1.35 \div 1.18 = 1.144$$

$$\$60,000 \times 1.144 = \$68,640$$

Problem 3-2

Sale #1

$$\$26,500 - \$18,000 = \$8,500$$

$$1.85 \text{ acres} - 1.00 \text{ base} = 0.85 \text{ extra acres}$$

$$\$8,500 \div 0.85 = \$10,000 \text{ for the extra acreage}$$

Percentage adjustment

$$\$18,000 \times 1.85 \text{ acres} = \$33,300$$

$$\$26,500 \div \$33,300 = 0.80 \text{ adjustment factor}$$

Sale #2

$$\$35,000 - \$18,000 = \$17,000$$

$$3.10 \text{ acres} - 1.00 \text{ base} = 2.10 \text{ extra acres}$$

$$\$17,000 \div 2.10 = \$8,095 = \$8,000$$

Percentage adjustment

$$\$18,000 \times 3.10 \text{ acres} = \$55,800$$

$$\$35,000 \div \$55,800 = 0.63 = 0.65 \text{ adjustment factor}$$

Problem 4-1

Sale #1

$$(\$106,400 - \$95,000) \div \$95,000 = 0.1200$$

$$0.1200 \div 26 = 0.0046$$

Sale #2

$$(\$116,600 - \$110,000) \div \$110,000 = 0.0600$$

$$0.0600 \div 14 = 0.0043$$

Sale #3

$$(\$89,400 - \$82,000) \div \$82,000 = 0.0902$$

$$0.0902 \div 19 = 0.0047$$

Median = 0.0046

Mean = 0.0045

Problem 4-2

Sale #1

$\$82,000 \times 0.06 = \$4,920$ market adjustment

$\$82,000 + \$4,920 = \$86,920$ market adjusted sale price

Sale #2

$0.06 \div 2 = 0.03$ market adjustment factor

$\$87,000 \times 0.03 = \$2,610$ market adjustment

$\$87,000 + \$2,610 = \$89,610$ market adjusted sale price

$\$89,610 - \$86,920 = \$2,690$ or $\$2,700$ contributory value of the fireplace