HOW TO MEASURE A HOUSE
AND CALCULATE SQUARE FOOTAGE

I. INTRODUCTION

The purpose of this presentation is to teach a method of house measuring
and square footage calculation that is typically used by real estate professionals-
salesmen and appraisers. While there may be other acceptable techniques, the one
illustrated here is the most commonly used by practitioners and most often taught in
textbooks and classrooms. This method is considered to be the standard accepted
by the Appraisal Committee of the Northwest Louisiana Association of
REALTORS®. Members are expected to follow this procedure in reporting the
square footage of houses listed in the Multiple Listing Service.

Why do we need a standard?

A. Professionalism
   1) The public deserves professionalism.
   2) The public expects professionalism.
   3) Our profession deserves professionalism.

B. Liabilities

II. TOOLS NEEDED

1) A 100 foot tape measurer, (calibrated to 1/10 of a foot or inches), with a
   hook is recommended. A metal tape or fiberglass tape is acceptable.
   However, a fiberglass tape may be preferable over a metal tape because
   it does not cut your hands. Fiberglass tapes may stretch over time and
   should be replaced if it is found to be inaccurate.
2) Legal-size clip board.
3) Graph paper, calibrated 10 squares per inch, is helpful in drawing the
   sketch of the house as it is measured. Legal-size is preferable, but letter-
   size is adequate for moderate to small homes.
4) Pencil with an eraser.
5) Electronic room measurer.
6) Other(Wasp spray, towel, etc.).
7) Screwdriver
8) Right clothes.
III. BASIC PROCEDURE—DETACHED SINGLE FAMILY RESIDENCE

A. Measuring the House

Before measuring the first wall, walk around the exterior perimeter of the house to get familiar with the shape of the house. Choose a corner of the house as your starting point and begin your drawing in the corresponding corner of your graph paper.

Hook the end of the tape at this corner and measure the wall. Write the dimension near the starting point. Measure to the nearest tenth or quarter of a foot. On the graph paper, 1 square equals 1 foot. Count the squares on your paper and draw a solid line equal to the length of the wall. Continue around the exterior of the house in this manner until you reach the original starting point. Walls of the house are drawn with solid lines, while covered areas (porches, carports, etc.) are drawn with dotted or dashed lines. Your drawing should resemble the actual shape of the house, as it sits on the lot. The house will be drawn to scale, and any errors in measuring or labeling will become obvious. Your sketch should look something like Figure 1.

POINTS TO CONSIDER

1) Have I measured and indicated all areas that are not in the house’s heated living area?

2) Does the total across the front of the house equal the total across the rear of the house and does the total on the left side of the house equal the total on the right side of the house?

IV. CALCULATE THE SQUARE FOOTAGE

A. The calculation of square footage of both living area and other area under the roof of the house involves separating the figure represented by your field sketch of the house into geometric figures. The area of each geometric figure is calculated by using basic formulas, and added together to arrive at a total area. Some of these areas may be negative numbers (for example: a front porch or stoop at the front door). Most of the houses will be comprised of simple rectangles. However, some will also contain triangles, such as bay windows. An example of a bay window with triangles will be presented later. An easy way to visualize the rectangles within the house is to photocopy the field sketch and outline the different rectangles within the house with colored pencils. The area of a rectangle is found by multiplying one side times the other side. These numbers are either actual
dimensions measured in the field, or can be found by adding or subtracting field dimensions.

Figure 2 shows the calculation of the living area and other area under the roof of the house sketched in Figure 1. The first area usually calculated is the living area, which is defined as:

The finished, heated and cooled, and habitable above-grade area of the house, measured from the exterior walls. In order for an area to qualify as “living area” it must be accessible from the interior of the house.

Next, other areas under the roof of the house are calculated and usually include: porches, carport or garage, storage room, boatport, game room, cabana, etc. Only that area which is covered by the main roof of the house is to be included in the Total Area Under Roof category. Therefore, patios covered with wood, metal, fiberglass, or any other material other than the roof are to be excluded from the Total Area calculation. These areas should be measured and calculated; however, they should be reported separately.

B. Special Features in a Single Family Home:

1) Bay Windows
A bay window is usually a small area that protrudes from the main house. It is typically found in the kitchen or breakfast area, but is also common in dining rooms and bedrooms. A bay window differs from a window seat or window box in that it has a foundation. That area with a foundation will be included in the living area of the house; window seats or window boxes are not to be included in the living area. A bay window is normally comprised of a simple rectangle. Sometimes, however, it is made up of a triangle at each end with a rectangle in the center. Figure 3 illustrates how to measure and calculate the area within this type of bay window. The same principle applies when measuring other sections of a house that contain triangles instead of rectangles.

The important thing to remember when measuring the house is to measure the dimensions that will enable you to calculate the square footage. Draw the triangle on your sketch so that it is clear to you which dimensions are necessary. These dimensions will often be “in space” rather than along the wall of the house.
2) Two-story house

A perfect two-story house is easy to measure because the walls of the second floor can be seen and measured from the exterior of the house. These dimensions are found while measuring the first floor, noting on the piece of graph paper directly under your sketch of the first floor, where the second floor begins and ends. A survey of the house from the exterior, before you begin measuring, is particularly helpful in determining the overall shape of the second floor. Draw the perimeter sketch of the second floor in exactly the same manner in which you do the first floor.

3) One and One-half (1/2) Story

This style of house is very popular in our area, and you will likely encounter this problem early in your real estate career. The major difficulty in measuring a 1 & ½ story house is that the walls of the second floor are not apparent from the exterior of the house. In this case, the only way to measure the second floor is from the interior of the house. Once again, discover the overall shape of the upstairs by walking around it (from the inside), opening all closet doors and bathrooms. Most of the time, the second floor is a relatively simple figure, either a simple rectangle, an “L” shape, or a series of rectangles. Once the overall shape is understood, measure only the outermost walls of the figure, and draw your sketch in the same manner as you drew the first floor. The important thing to remember in this case is for the thickness of the walls. The best place to measure this thickness is at the door jam (on the first floor), or at a window opening. Measure from the outside of the exterior wall to the inside of the sheetrock. This distance added to your dimensions at each corner of the house.

4) Dormers

A dormer is a window that protrudes out of the roof line from the second floor of the house. A “false” dormer is one that is situated in the attic, and is not living area. There is no reason to measure a false dormer. However, if the dormer is situated within the living area of the house, it should be measured and included in the living area calculation. Measure the dormer as you do the second floor, adding for thickness of the outside walls.
5) Fireplace

In this market, a fireplace that is situated in the interior of the house is included in the living area, as the exterior of the house was measured. A fireplace that protrudes from the exterior of the house is also included in the living area.

6) Stairways and Open Foyers

A “normal” size staircase (generally 3 to 4 feet in width) is typically included in both the first and second floor living area calculations. However, if the foyer or den ceiling is vaulted, resulting in less area on the second floor, this area must be measured (using interior dimensions) and excluded from the living area calculation of the second floor. A general rule of thumb is “if you can’t walk on it or use it, it’s not living area.” In other words, the area must have a floor beneath it and be accessible from the interior of the house to be considered living area.

7) Bonus Rooms

Probably one of the most discussed areas regarding the measuring of a property is the inclusion/exclusion of bonus rooms (garden room, enclosed patios, enclosed garages) in the heated living area. This concern is justified because these rooms are typically of size that is significant. The problem is that each case is a little different and there are no hard and fast rules regarding the inclusion of these areas.

The biggest factor in making a decision regarding a bonus room is the overall construction quality of the area. Ideally, this area should be under the original roof or under a roof similar in quality to the original roof. It should have interior finish that is similar in quality/desirability as the rest of the house. It should have a source of heating and cooling that is commensurate in quality to the original house. After these facts are considered, the main question is: Is it reasonable to include this area in the subject’s heated living area?

Finally, our decision regarding the inclusion/exclusion of the bonus room should be disclosed in the comments regarding the property.
8) Basements

Basements are typically completely below grade level. They are not included in the heated living area. They are reported separately.

V. OTHER TYPE OF SINGLE FAMILY RESIDENCE

In addition to the typical detached single family residences we have in the local market, we also have condominiums, townhouses and patio homes. The key to measuring these types of properties lies in determining exactly what the ownership of the unit includes. The recorded subdivision restrictions or condominium regime outlines the nature of ownership of each development.

A. Condominiums

Most condominiums, built in apartment style, provide for a fee simple ownership of the interior of the unit only – from paint to paint, and ceiling to carpet. This type of unit will be measured using interior dimensions, without adding for the thickness of the exterior walls.

B. Townhouses

Most townhouses provide for a fee simple ownership in the land below the unit, the roof above the unit, and the ownership of half the common wall or party wall. These units are measured from the middle of the common wall side of the unit, to the middle of the common wall on the other side of the unit, and from the exterior of the front, to the exterior of the read of the unit (inside unit). An exterior or corner unit will be measured from the exterior wall on one side of the unit to the middle of common wall on the other side of the unit.

C. Patio Homes

In this market, patio homes are those detached single family residences located on smaller lots. They are measured as you would a typical single family residence.
LIVING AREA:
A: 21.3' x 61.5' = 1309.95 SF
B: (4' x 18.3') = (73.20 SF)
C: 13.6' x 14.1' = 191.76 SF
D: 7.4' x 21.0' = 155.40 SF
E: 2.0' x 6.0' = 10.00 SF
\[
\text{Total Living Area} = 1593.91 \text{ SF}
\]
Rounded 1594 SF

CARPORT: 20.0' x 21.0' = 420 SF

STORAGE: 8.0' x 21.0' = 168 SF

PORCHES:
- E: 7.4' x 5.0' = 37.00 SF
- F: 7.4' x 9.0' = 66.60 SF
\[
\text{Total Porches Area} = 103.60 \text{ SF}
\]
Rounded 104 SF

TOTAL AREA UNDER ROOF = 2451 SF
AREA OF BAY WINDOW:

AREA OF TRIANGLE
- \( \frac{1}{2} \) base \times \text{height}
- \( \frac{1}{2}(3 \times 2) \)
- \( \frac{1}{2}(6) \)
- 3 sf in one triangle
- 2 triangles \times 3 sf = 6 sf in both triangles

AREA OF RECTANGLE
- 3' \times 5' = 15 sf

TOTAL AREA IN BAY WINDOW
- 6 sf + 15 sf = 21 sf

ALTERNATIVE METHOD (TRAPEZOID)

\[
\left( \frac{5 + 9}{2} \right) 3 = \left( \frac{14}{2} \right) 3 = 21 \text{ SF}
\]
LIVING AREA CALCULATIONS:

1st FLOOR: 15.4' x 25.1' = 386.54 SF
2.1' x 4.3' = 9.03 SF
15.6' x 31.1' = 485.26 SF
6.5' x 11.8' = 76.70 SF
957.43 SF
Rounded 957 SF

2nd FLOOR: 17.0' x 31.1' = 528.70 SF
(3.5' x 6.7') = (23.45 SF)
dormers 2 x 3.6' x 4.9' = 35.28 SF
5.4' x 6.5' = 35.10 SF
575.63 SF
Rounded 576 SF

Total Living Area = 1533 SF

2nd Floor
FIGURE 5
SECOND FLOOR WITH DORMER WINDOWS

SQUARE FOOTAGE CALCULATION

\[ \frac{17.3' \times 10.5'}{700.65 \text{ SF}} \]

\[ (4' \times 5') \times 2 = \frac{40.00 \text{ SF}}{740.65 \text{ SF}} \]

ROUNDED 741 SF
FIGURE 6
TWO STORY HOUSE
WITH OPEN FOYER

SECOND FLOOR

FIRST FLOOR

LIVING AREA CALCULATION

30.2' x 40.1' x 2 floors = 2422.04 SF

LESS FOYER AREA
ON 2nd FLOOR

(10' x 12') = (120.00 SF)

2302.04 SF

ROUNDED 2302 SF
FIGURE 7

CONDOMINIUM - FEE SIMPLE OWNERSHIP OF INTERIOR OF UNIT ONLY

UNIT 1

UNIT 2

UNIT 3

LIVING AREA OF UNIT 2

30' x 30' = 900 SF
(use interior dimensions)

19
"ALL MEASUREMENTS ARE APPROXIMATE AND ARE ROUNDED OFF TO THE NEAREST HALF FOOT"

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**AREA CALCULATIONS SUMMARY**

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**LIVING AREA BREAKDOWN**

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Net LIVABLE Area (Rounded) 1871

3 Items (Rounded) 1871