

# **CHAPTER III**

## **RESIDENTIAL APPRAISAL**

Updated December 2020



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## **Appraisal Tools for Field Work**

1. Identification Card
2. Map of the Area
3. A cloth or nonmetallic engineer's tape (graduated in tenths), 100 or more feet in length (usually 100 feet for residential buildings and 100 to 200 feet for commercial structures).
4. A light clipboard, slightly larger than the cards to be used. Rubber bands to supplement the clip and hold down loose ends of cards to prevent them from flapping and becoming ragged.
5. An approved mechanical pencil and supply of lead of "H" hardness. The pencil should be of a type that holds the lead firmly.
6. A 6-inch straight edge or scale. The scale should be transparent and have graduations for all scales permitted on the drawing 10, 20, 30, 40, 50, and 60 feet to the inch. A small triangle is sometimes used but is not as desirable as the scale.
7. A small piece of lumber crayon with which to mark points of measurement when distance exceeds length of tape, or when measuring along sidewalks or pavement to locate property lines.



Building No. \_\_\_\_\_  
 Type of Structure \_\_\_\_\_  
 Year Built \_\_\_\_\_  
 Year Remodeled \_\_\_\_\_  
 Effective Age \_\_\_\_\_

Field Work by: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Class by: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Review by: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Dwelling No. 1 2  
 No. of Rms. \_\_\_\_\_  
 No. Bed Rms. \_\_\_\_\_  
 Family Room \_\_\_\_\_  
 Stories \_\_\_\_\_

Info By: Property Owner;  
 Other: \_\_\_\_\_

Bldg Improvement	Class	Scale	Class	Units	Const.	Units	Total	Units	Base Rate	Adj. Rate
1										
2										
3										
4										

Property Address: \_\_\_\_\_

Shape Factor

1	2	Location & Egress	1	Static	IMP. Vs. NEI/BD
1		Good	2	Improving	1 Under
2		Avg.	3	Declining	2 Over
3		Poor	4	Transition	
4		Unusual	5	Neighborhood Rating Code	

Index	Sq. Ft. Cost	Base Area	Adjusted Area	Base Cost	Extra Features	Replacement Cost	Cond.	Value
1								
2								
3								
4								

NEIGHBORHOOD FACTORS

1	2	Location & Egress	1	Static	IMP. Vs. NEI/BD
1		Good	2	Improving	1 Under
2		Avg.	3	Declining	2 Over
3		Poor	4	Transition	
4		Unusual	5	Neighborhood Rating Code	

FOUNDAION

1	2	Location & Egress	1	Static	IMP. Vs. NEI/BD
1		Good	2	Improving	1 Under
2		Avg.	3	Declining	2 Over
3		Poor	4	Transition	
4		Unusual	5	Neighborhood Rating Code	

Code	Description	Units	1	2
1	Slab			
2	Piers			
3	Continuous Wall			
4	Concrete Block			
5	Brick			
6	Concrete			
7	Stone			
8	Wood			

BASEMENT

1	2	Location & Egress	1	Static	IMP. Vs. NEI/BD
1		Good	2	Improving	1 Under
2		Avg.	3	Declining	2 Over
3		Poor	4	Transition	
4		Unusual	5	Neighborhood Rating Code	

ROOF TYPE

1	2	Location & Egress	1	Static	IMP. Vs. NEI/BD
1		Good	2	Improving	1 Under
2		Avg.	3	Declining	2 Over
3		Poor	4	Transition	
4		Unusual	5	Neighborhood Rating Code	

Code	Description	Units	1	2
1	Flat / Shed			
2	Hip			
3	Gable			
4	Gambrel			
5	Mansard			

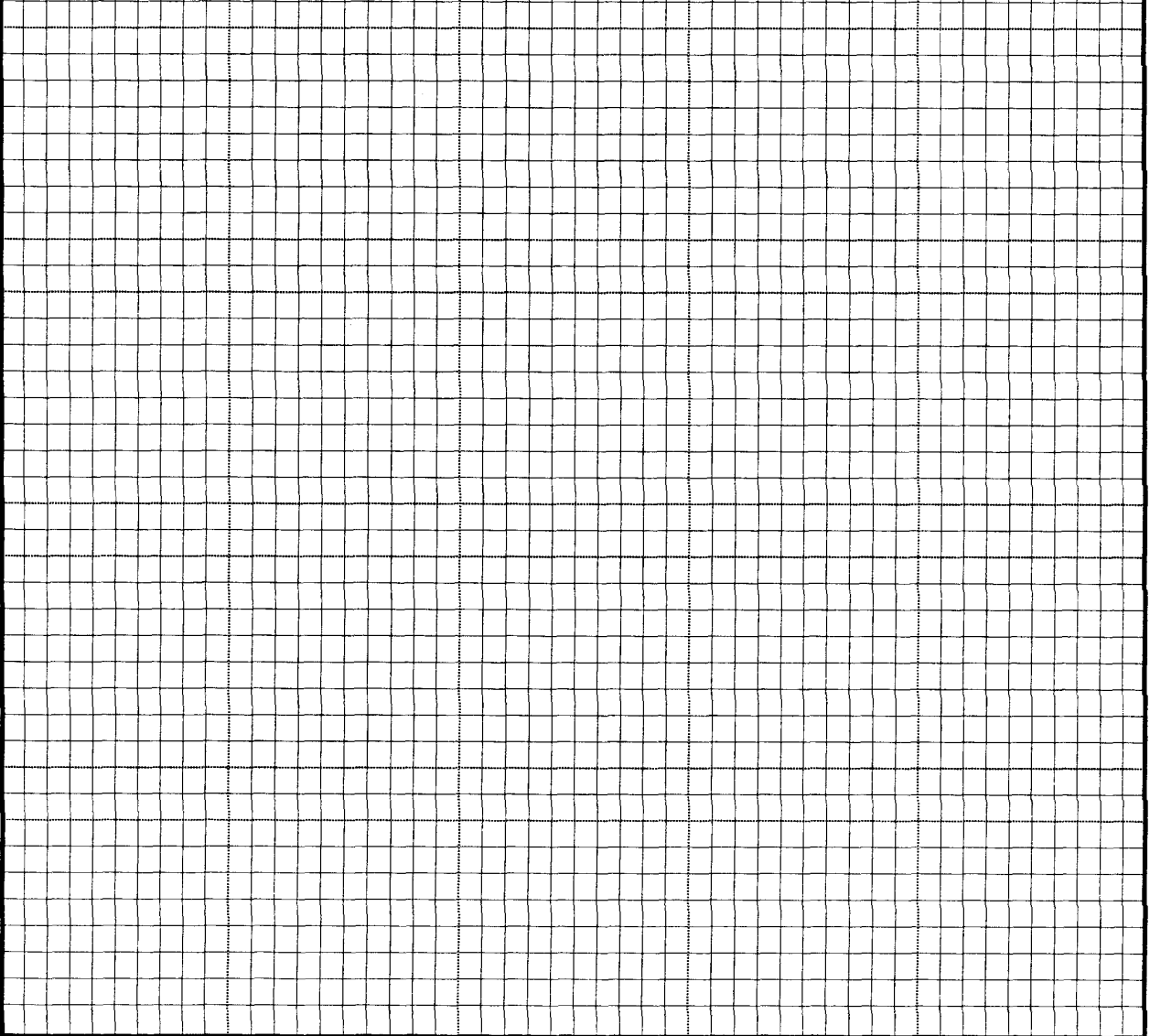
EXTERIOR WALLS

1	2	Location & Egress	1	Static	IMP. Vs. NEI/BD
1		Good	2	Improving	1 Under
2		Avg.	3	Declining	2 Over
3		Poor	4	Transition	
4		Unusual	5	Neighborhood Rating Code	

FLOORS

1	2	Location & Egress	1	Static	IMP. Vs. NEI/BD
1		Good	2	Improving	1 Under
2		Avg.	3	Declining	2 Over
3		Poor	4	Transition	
4		Unusual	5	Neighborhood Rating Code	

Code	Description	Units	1	2
1	Earth			
2	Plywood			
3	Single Pine			
4	Conc. on Grade			
5	Concrete & Tile			
6	Vinyl			
7	Terrazo			
8	Double Pine			
9	Hardwood			
10	Carpet & Underlay			

C	MAP	SEC	SUB	BLOCK	PARCEL NO.	TOWNSHIP	RANGE
							



## **The Residential Property Record Card**

A Residential Property Record Card is an appraisal form designed to provide space for a legal description, a drawing of one or more structures, checking off various construction features, calculations for value of structures, depreciation of structures, listing miscellaneous items of separate appraisal, and calculating land values.

A record card has two sides. The front side provides the legal description, tax roll information, sales, and ownership transfer data. Land calculation space is provided on the front also. The construction information on buildings and other improvements together with building and drawing space is on the back. This makes a very compact and usable card.

### **Location of Property and Maps**

The first logical step that any appraiser must take in his/her work is to accurately locate the property that he/she is about to appraise. This is done with maps and legal descriptions of properties. The address of a property is not always reliable for appraisal use.

Accurate tax maps with building symbols can be of great assistance to an appraiser and should always be available.

### **Address of Property**

The property address should be noted on the record card.

### **Lettering**

Neatness in lettering and numbering on the field card is quite important. Good lettering leaves no questions, and the information can be read for years.

It is best to use a hard pencil with a lead type of "H," "HB," or "F". Softer lead will smudge, and harder lead will leave marks on the cards.

### **Front of the Property Record Card**

The field person must have a map of the parcel to be appraised. Correctly prepared maps will have all the information needed to fill out the heading. After arriving at the property to be appraised, complete the heading of the field card.

#### **Heading**

Map	Block	Parcel	Section	Township	Range	Lot Size	Acreage	
							Deeded	Calculated

Brief	Legal	Description

From the map, write in the following:

Map No. \_\_\_\_\_ Section (SEC) \_\_\_\_\_ Township (TWP)

Range (RNG) \_\_\_\_\_ Parcel No. \_\_\_\_\_ Subdivision

Block

### **Heading Properly Completed**

#### **Important:**

This is the “key” to the location and identification of this property. Take time to assure that it is accurately completed in ALL CASES.

Map	Block	Parcel	Section	Township	Range	Lot Size	Acreage	
							Deeded	Calculated
129	1	1	6	12	6	100 x 160		

Brief	Legal	Description
		Lot 6 Block 1, Eagle Subdivision

After establishing that you are at the correct parcel, you are ready to get the information needed for your appraisal. Proceed to the dwelling. Have your identification card handy and identify yourself fully.

Owner's Name & Mailing Address	Date	D.B. & Pg.	Consid.\$	Notes

You may have already been furnished with this information so that this section of the card has been completed. IF SO, verify this information. Make any corrections as needed.

If NOT, obtain this information and record it on the field card.

Property Owner and Address Properly Completed

Owner's Name & Mailing Address	Date	D.B. & Pg.	Consid.\$
<i>Mr. &amp; Mrs. Bob Green</i> <i>712 Eagle Drive</i> <i>Hattiesburg, MS 39401</i>	12/22/19	381-309	\$298,000

Land Data

CD	Site Data	CD	Roads
	Street Grade		U.S./Hwy
	Above Street		State Hwy.
	Below Street		Paved
	Rural		Unpaved
	Waste Land		Private
	Flat		Curb & Gutr
	Rolling		
	Floor one/Swamp	Zoning	
Utilities			
	Elect.	Fire Hyd.	
	Gas	Storm Sewer	
	Sewer	City Water	
	Septic	Well	

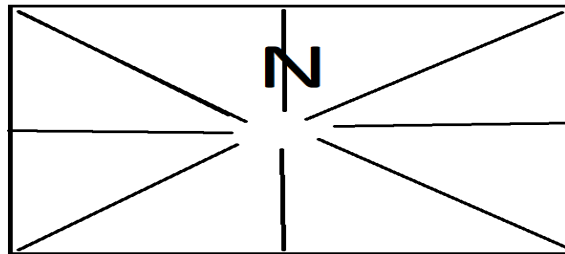
This completes the information needed on the front of the card at this time. Turn the card over and request permission to obtain certain facts about the dwelling, and to measure the exterior dimensions. It is not necessary for you to enter the home, but you should ask for general information, such as type of floors, walls, heating and also ask about the number of baths and the number of fixtures in each.

## Back of the Property Record Card

### Building Data

The first thing that you will check is the property address. Often you can check this before you go to the door and record the information in the block provided. Check this address against the owner's address on the front of the card. The property address and the owner's address will differ in some cases; therefore, this information needs to be on the card to help locate the property and identify the owner. You must make sure that you have the correct card for the property to be appraised.

The second thing that you need to check is the North arrow box. Facing the property, indicate the North direction by drawing an arrowhead on the appropriate line leading from the letter "N."



This may seem unimportant, but it will be a great help in locating improvements on the property on a recheck.

The next thing that you do is knock on the door and ask to speak to the owner. Fill out the identification block.

Info By: Property Owner <input checked="checked" type="checkbox"/>	Field Work by: <u>A.R.</u> Date: <u>3 / 14 / 19</u> Class by: <u>D.M.</u> Date: <u>7 / 10 / 19</u> Review by: <u>D.M.</u> Date: <u>8 / 11 / 19</u>	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="padding: 2px 5px;">Dwelling No.</td><td style="width: 10%; text-align: center; padding: 2px 5px;">1</td><td style="width: 10%; text-align: center; padding: 2px 5px;">2</td></tr><tr><td style="padding: 2px 5px;">No. of Rms.</td><td colspan="2" style="height: 20px;"></td></tr><tr><td style="padding: 2px 5px;">No of Bed Rms.</td><td style="text-align: center; padding: 2px 5px;">3</td><td style="height: 20px;"></td></tr><tr><td style="padding: 2px 5px;">Family Rm.</td><td style="text-align: center; padding: 2px 5px;">-</td><td style="height: 20px;"></td></tr><tr><td style="padding: 2px 5px;">Stories</td><td style="text-align: center; padding: 2px 5px;">1</td><td style="height: 20px;"></td></tr></table>	Dwelling No.	1	2	No. of Rms.			No of Bed Rms.	3		Family Rm.	-		Stories	1	
Dwelling No.	1	2															
No. of Rms.																	
No of Bed Rms.	3																
Family Rm.	-																
Stories	1																
Other: _____																	

The identification space is to be used to show the person interviewed and if not the owner, the relationship to the owner. If no one is home, put N.O.H. on the card. If information and measurements are refused put I.R.M.E. (Information Refused — Measurement Estimated) and make a note in the section that information was refused by \_\_\_\_\_ and the reason if one is given.

### Building Identification

The next thing that you need to do is ask the person the age of the house. If you cannot get the exact year built, then you need to estimate the year built and the effective age. Complete the following section for each building on the property.

Building No.	1	2	3	4	5
Type of Structure	Res				
Year Built					
Year Remodeled					
Effective Age					

This section covers the type of structure(s) on this parcel, the year the structure was built, and whether there has been any major remodeling. If so, determine and write in the year that this was completed. The year built and the remodeling completion date will be used to figure the effective age.

### Definition of Terms

Type of Structure applies to the name of a building such as residence, garage, shed, utility, apartment, B-74, B-42, etc.

Year Built is a factor in determining the depreciation, so it is quite important.

Year Remodeled refers to the year that the house was remodeled and will help to figure the effective age.

Effective Age is the number of years indicated by the condition of the building and it could be more or less than actual age, depending on maintenance.

### ABBREVIATIONS OF STRUCTURES

Residence	RES	Concrete Dock or Deck	CDK
Garage	GAR	Shed B — 20 — 30 Series	SHED
Garage Apt.	GAPT	Shed B — 40 — 50 Series	BARN
Utility	UTIL	Poultry House	PHSE
Carport	PC	Silo	SILO
Patio	PAT	Grain Storage Bin	BIN
Mobile Home	MH	Alterations	ALTR
Additions	ADDN	Greenhouse	GHSE
Cabana	CAB	Wood Dock or Deck	WDK
Swimming Pool	POOL	Screened Enclosure	SCEN

**EXAMPLE:**

Building No.	1	2	3	4	5
Type of Structure	<i>Res.</i>	<i>Gar.</i>	<i>Util.</i>		
Year Built	<i>1986</i>	<i>2000</i>	<i>2004</i>		
Year Remodeled	<i>2010</i>				
Effective Age	<i>24</i>				

(This indicates three structures on this parcel —a residence built in 1986 and remodeled in 2010, a detached garage built in 2000, and a detached utility building built in 2004.)

**Quality of Interior**

In this column the appraiser should note the quality of materials and workmanship, and determine if it is better than, the same as, or inferior to other homes of its class.

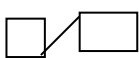


The symbols P (Poor), A (Average), and G (Good) should be used along with comments on unusual quality and features, either good or bad, as compared with the exterior.

The “Condition of Interior” column can be used the same way as the quality column, comparing the interior to the exterior, along with comments on unusual conditions, either good or bad.

Quality of Interior			
	Condition of Interior		

Note: Any unusual materials or excellent workmanship should be noted. Also, any unusually good or bad conditions should be noted.

**Shape Factors**

Shape Factor				NEIGHBORHOOD FACTORS					
		1	2	LOCATION & EGRESS		1	Static	IMP. VS NEIBHD	
1				1	Good	2	Improving	1	Under
2				2	Avg.	3	Declining	2	Over
3				3	Poor	4	Transition		
4	Unusual					5	Neighborhood Rating		
							Code		

The Shape Factor is checked to aid in determining the number of offsets built into the residence. More offsets usually represent more cost, which is taken into consideration in the building classification.

Under Neighborhood Factors, location and egress is to be checked to help value the land and to show conditions in subdivisions.

IMP. VS. NEIGH'D - This block should be checked only when a residence does not conform or is not comparable to other residences in the neighborhood.

### Measuring Improvements

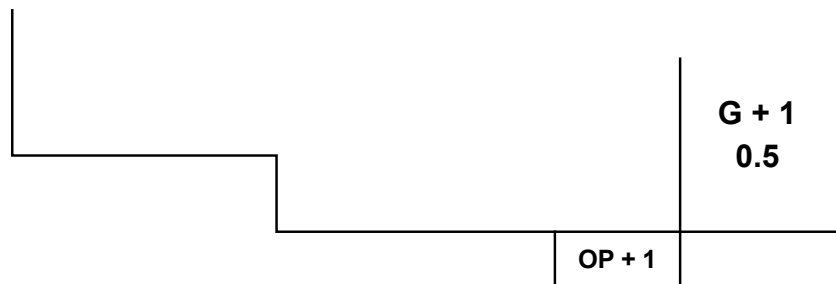
Remember that any appraisal is only as good as the information gathered; therefore, an accurate measurement and a neat diagram must be made of the improvement in order to place the correct value on the property.

Measure (do not estimate) the ground floor perimeter dimensions of the structure and draw a diagram.

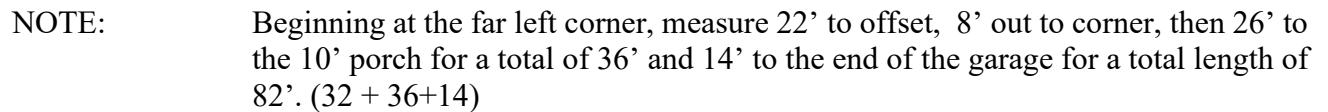
Measure each dimension to the nearest foot. Example: 15'6" would become 16' and 15'4" would become 15'. Be careful of the rounding and try to balance each side of the house. All rounding, up or down, could throw the total length or width off 2' or 3' if there are a lot of offsets. When measurements are complete, be sure that the house is squared. Squaring means that the total dimensions of the opposite sides must balance.

### Helpful Tips on Sketches and Measurements

After the first few dwellings, you will be able to draw a rough sketch of the front of the building before you start to measure it. Sketch the porches, offsets, garages, etc., in the approximate position on the front of the house.

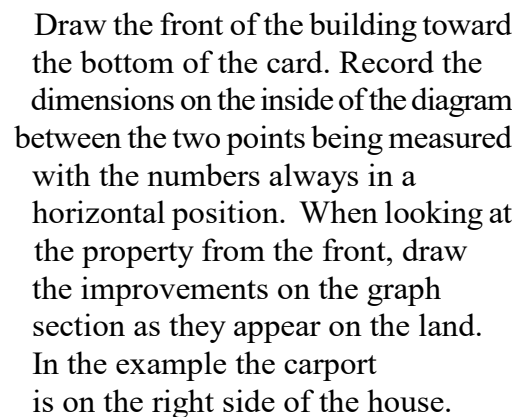


Start at the left front corner of the building, attaching the tape to the building, if possible. If shrubs prevent this, pin the end of tape to ground with a stick, screwdriver, etc. Note width of any porches, garages, offsets, etc., while tape is stretched.



Stories will require information about the finish of the upper floor areas. Make a note in the note column.

Draw the diagram to scale. The graph is based on  $1" = 30'$ , so each block represents 5'.



III-12



Before leaving the property make sure that the building sketch squares. All the dimensions on the front must equal all the dimensions on the back of the building and both sides must equal. Check your measurements again to be sure that you are correct.

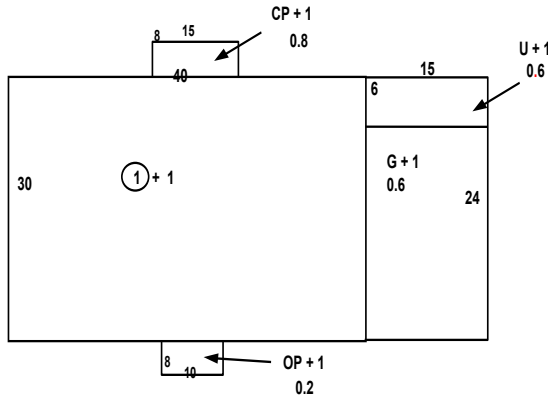
Measure and diagram any additional structural features, such as porches, carports, garages, etc. Label each with the appropriate symbol and proper decimal equivalent. The decimal or percentage areas are used to give fractional values of the appendage areas of the house as compared to the main part. See the table on page 14 for percentage areas.

## Labeling Decimal (Percentage) Areas

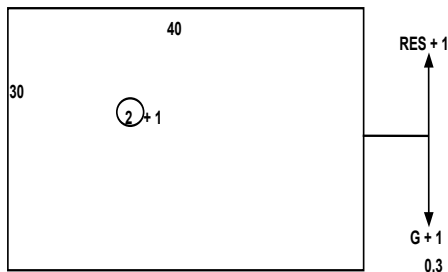
Items Attached to Building	Symbol	Decimal
<b>Open Porches</b>		
One Story — stoops, floor only	O. P.	0.1
floor, roof with unfinished ceiling	O. P.	0.2
floor, roof with finished ceiling	O. P.	0.3
Two Story — without 2 <sup>nd</sup> floor	O. P.	0.4
with 2 <sup>nd</sup> floor	O. P.	0.5
<b>Screened Porches</b>		
Roof, floor, posts, walls screened to floor	S. P.	0.4
Roof, floor, posts, walls screen to rail	S. P.	0.5
Same with tile floor	S. P.	0.6
<b>Closed Porches</b>		
Roof, floor, walls, unfinished interior	C. P.	0.6
Roof, floor, walls, low-cost interior fin	C. P.	0.7
Roof, floor, walls, normal interior fin	C. P.	0.8
<b>Carports</b>		
Roof, posts, dirt floor	P.C.	0.1
Roof, concrete floor, posts	P.C.	0.2
Roof, concrete floor, posts and ceiling	P.C.	0.3
Prefab with concrete floor (depending on quality of construction)	P.C.	0.1 to 0.3
<b>Utility Room</b>		
Unfinished interior	U.	0.4
Finished interior	U.	0.6
<b>Attached Garages</b>		
Unfinished interior, floor, no door	G.	0.3
Unfinished interior, floor, door	G.	0.4
Finished interior, floor, no door	G.	0.5
Finished interior, floor, door	G.	0.6
<b>Basements</b>		
Dirt floor, primitive walls	B.	0.1
Concrete floor, no finish	B.	0.2
Garage under living area, no finish	B.	0.3
Concrete floor, partially finished walls and ceiling	B.	0.3
Concrete floor, full finish, no partitions	B.	0.5
Concrete floor, full finish, few partitions	B.	0.6
Living quarters, equal in finish to upper floors	B.	0.7
<b>Upper floors</b>		
One and a half story	+1 1/2	Upper Decimal 0.2 to 0.7
Two story	+2	0.8
Two and a half story	+2 1/2	1.2
Three story	+3	1.6

Use symbols to identify building number and story height. The symbol for the first building on the card is ①. The ② indicates the second building on the card, the ③ indicates the third building, etc. Use + symbols to indicate the number of stories; +1 indicates a one-story building, +2 indicates a two-story building, etc. A second-floor area over a garage would be listed as residential +1 over garage with appropriate arrows drawn. When calculating a split level, both +1 areas are calculated as base area.

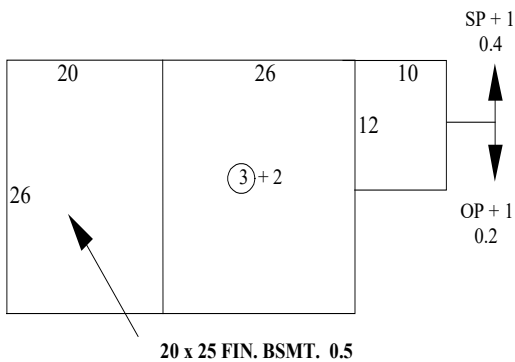
Note: ① should always denote the main structure. On homestead parcels, when there is more than one residence on the parcel, the ① must be the residence getting homestead exemption.



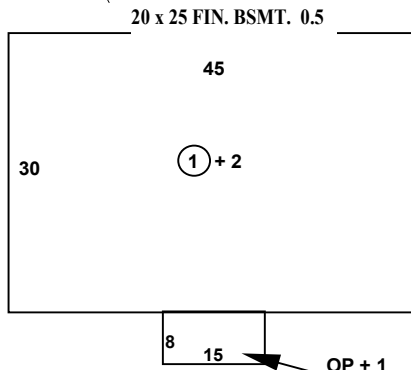
One-story residence with attached garage, utility, closed porch, and open porch.



Garage Apartment

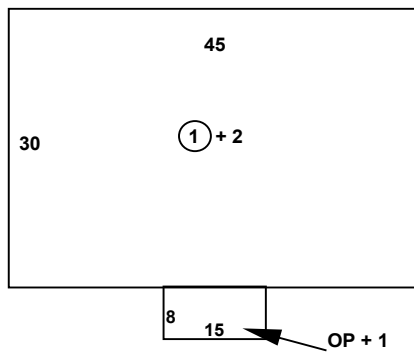


One and two-story residence with attached screened porch, open porch, and partial basement.

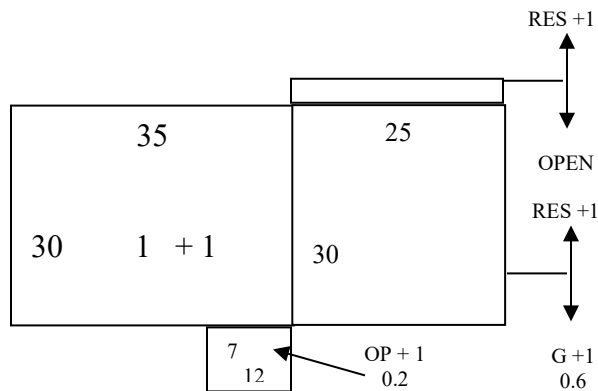


Two-story residence with one-story open porch.

## Labeling Upper Floor Areas



Two-story residence with one-story open porch.



Split-Level with overhang and attached open porch

NOTE: The scale is 1" = 30'. If you need to reduce your drawing by using a larger scale, write the scale beneath the north arrow block.

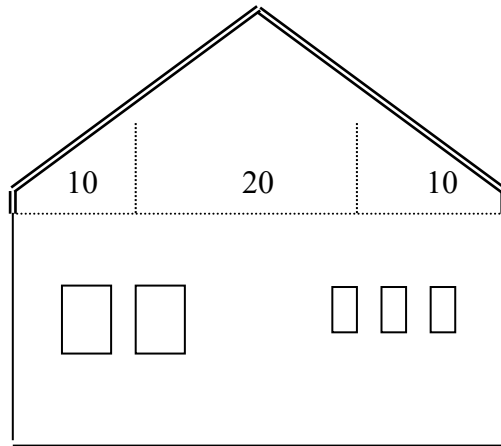
A brief description of the different story heights of a residential structure is given below.

+1	Ground (or 1 <sup>st</sup> ) floor living area
+1 1/2	0.2 — 0.7—Depending on floor area and degree of finish
+2	0.8—Two full stories

Estimate or determine where you have at least 7' of headroom on 2<sup>nd</sup> floor of a one and a half story residence.

Note: The classifier should approve percent before calculations.

The following example shows how to estimate decimal equivalent to be used for half stories.



20' width of  $\frac{1}{2}$  story  
40' total width

$$20' \text{ (width of half story)} \div 40 \text{ (total width)} = .50$$

$$.50 \times .80 = 0.4$$

The above sketch represents 0.4 decimal area for the upper floor.

## Construction Data

Record the following information in the space provided. This will include the type of structure (residence, apartment, etc.), date building was constructed, date of extensive remodeling, if applicable, name or employee number of person performing field work, number of rooms in structure (excluding bathrooms), type of foundation (check appropriate column).

### Foundation

Foundation is defined as the substructure of any building. Check both the type of foundation (slab, pier, continuous wall, etc.) and the material used (concrete block, concrete, stone, wood, etc.).

Slab—masonry on ground or very near ground level.

Piers—either masonry or wood posts.

Continuous Wall—meaning that the foundation, whether it is masonry or wood, continues around the perimeter of the building.

Code	Description	Unit	1	2
FOUNDATION				
1	Slab	<b>X</b>		
2	Piers			
3	Continuous Wall			
4	Concrete Block			
5	Brick			
6	Concrete	<b>X</b>		
7	Stone			
8	Wood			

## Basements

Basements can have a substantial effect on the cost of a structure. It is important that they be shown correctly on the diagram to indicate size, location, and decimal equivalent. Check the basement for size and finish. Questions should be asked about the basement when you talk to the owner to determine the size and finish. Sometimes structural features will help determine the basement dimensions.

BASEMENT			
1	None		
2	Partial	<b>X</b>	
3	Full		
Basement Finish			
1	Unfinished		
2	Garage		
3	Recreational	<b>X</b>	
4	Living Area		

If the basement extends under the entire living area, it will be sufficient merely to indicate “full basement” with proper decimal equivalent. Otherwise, exact dimensions must be provided. This information must be obtained from the property owner. The finish and use will indicate the proper decimal equivalent to be used.

## EXTERIOR WALL UNITS

Exterior Walls are defined as the materials on the exterior walls or external vertical perimeter of a structure.

Check appropriate block. If you detect a wall type not listed, describe it in the blank area provided. When more than one type is found, report only the predominant type UNLESS variance is at least one-fourth.

EXTERIOR WALLS				
1	Wall Board	15		
2	Composition	15		
3	Wood Fr. Stucco	28		
4	Wood Fr. No. Sheathing	30		
5	Wood Fr. Asbestos	30		
6	C. B. Plain	31		
7	C. B. Stucco	32		
8	Tile Stucco	33		
9	Wood & Sheathing	33		
10	Ext. Plywood	33		
11	Hardboard Lap	33		
12	Log Veneer	33		
13	Corr. Metal Wood Frame	34		
14	Redwood Siding	35		
15	Alum/Vinyl	35		
16	Cement Siding	36		
17	Synthetic Stucco	36		
18	Cement Block Face	36	X	
19	Brick Veneer	38		
20	Log	41		
21	Cedar B & B	43		
22	Wood Shakes	43		
23	Stone Veneer	44		
24	Solid Stone	70		



## **EXTERIOR WALL MATERIALS:**

Wallboard can be any of the various man-made materials on wood or metal framing, such as “Celotex,” or other trade name products. These must be treated or painted to withstand weather.

Composition refers to composition siding which comes in varied thickness and in rolls. It is fastened over wood framing by nailing.

Wood Frame Stucco is a type of wall which is formed by applying cement stucco to a framework of wood with wire or wood lath.

Wood Frame No Sheathing refers to wood siding that does not have sheathing under the siding. You need to look very closely at the construction to be able to determine this feature.

Wood Frame Asbestos refers to asbestos siding laid over wood frame with sheathing.

Wood frame corrugated metal- refers to corrugated metal fastened to a wood frame.

Concrete Block Plain, unless otherwise noted, is a wall of 8 inch concrete block. If other thickness is found, then the thickness is to be noted.

Concrete Block Stucco, unless otherwise noted, is a wall of 8 inch concrete block with cement stucco applied to the exterior. If other thickness is found, the thickness is to be noted.

Concrete Face- Concrete block with a decorative design on face of block.

Tile Stucco refers to terra cotta tile (8 inch) with cement stucco applied to the exterior. If other thickness is found, then this is to be noted. Terra cotta tile, being a baked clay product, is sometimes called hollow tile.

Corrugated Metal wood frame- Corrugated metal exterior wall with wood framing as used in residential construction.

Wood and Sheathing refers to wood frame and wood siding with an under sheathing of wood or other material.

Aluminum and Vinyl Siding refer to a factory-made siding that is pre-painted and is usually put over a wood siding on a frame house.

Exterior Plywood refers to a 4 x 8 or 4 x 10 sheet of plywood that is made to withstand the weather. This is an assembled product made of three or more layers of wood—a veneer.

Hardboard Lap refers to a factory-made board that is pressed out of particles of wood resembling Masonite brand products. This board is applied like wood siding.

Cement Siding (Hardy Board or plank) refers to fiber reinforced cement exterior siding.

## **EXTERIOR WALL MATERIALS continued:**

Redwood Siding refers to a wood siding made from redwood that is usually applied horizontally.

Brick Veneer is an exterior finish of bricks over wood framing.

Log Veneer refers to split logs attached to a frame.

Log refers to a solid log that serves as the interior and exterior wall.

Cedar B & B means board and batten that is nailed to a wood frame vertically with a board that is usually more than 8 inches wide and the cracks being covered with a batten that is usually about 2 inches wide.

Wood Shakes is a thin wood shingle that is applied to the exterior of the house.

Stone Veneer is a layer of stone on the outside over a wood frame.

Solid Stone refers to a solid wall of stone without another material.

Synthetic Stucco which goes under several brand names (Placo, Dryvit, Rwall) is a plaster with mesh on rigid insulation board.

Enamel Metal (same as roof enamel metal or corrugated material with 16 units).

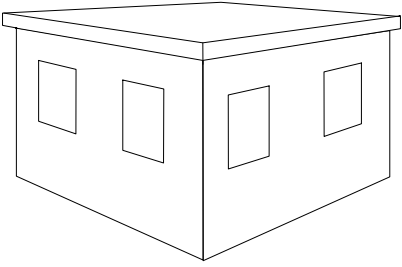
Corrugated Metal wood frame- refers to corrugated fastened to a wood stud wall.

## **ROOF TYPES AND UNITS**

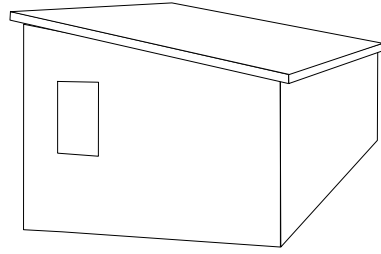
Roof type refers to the “shape” and angle of the roof line. Most common roof types are listed on the property record card.

ROOF TYPE				
1	Flat/Shed	7		
2	Hip	9		
3	Gable	8	<b>X</b>	
4	Gambrel	9		
5	Mansard	9		

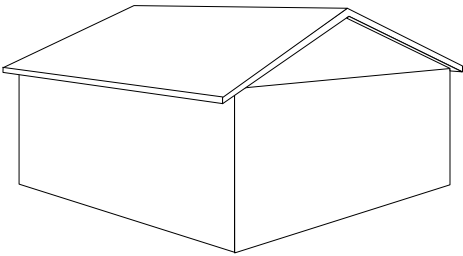
## RESIDENTIAL ROOF TYPES



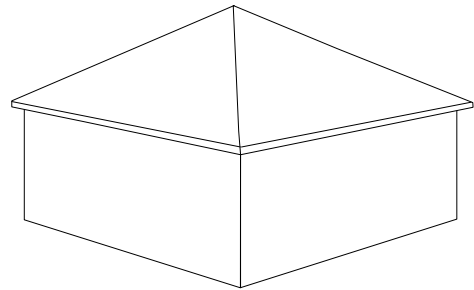
Flat



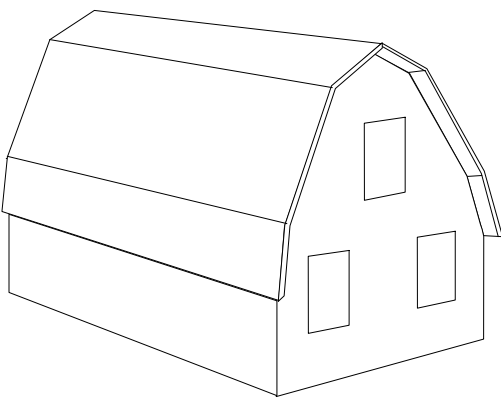
Shed



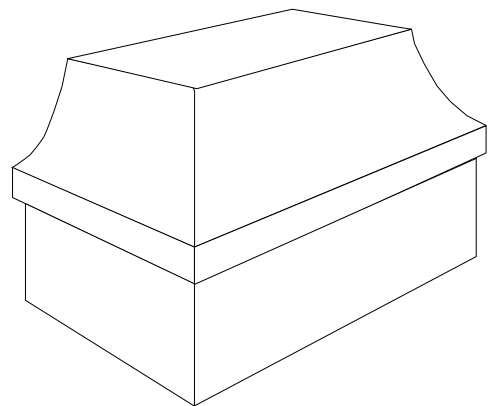
Gable



Hip



Gambrel



Mansard

## ROOF MATERIAL

Roof Material may be referred to as “roofing,” since it is the finish or wearing surface of a roof. Common types are listed; any other type of roofing should be written in the space provided. It is not uncommon to find more than one roofing material, when found write in the fraction beside the type listed.

Code	Description	Units	1	2
1	Sheet Metal	2		
2	Roll Composition	2		
3	Built Up T&G	3		
4	Shingle (asphalt)	4	X	
5	Shingle (heavy asphalt)	5		
6	Shingle (asbestos)	5		
7	Cement Tile	6		
8	Clay Tile	7		
9	Sheet Metal (standing seam)	9		
10	Gypsum	8		
11	Corrugated Asbestos	8		
12	Enamel Metal (painted and baked)	8		
13	Wood Shingles	8		
14	Wood Shakes (cypress, etc.)	9		
15	Copper	12		
16	Heavy Sheet Metal	4		
17	Slate	11		

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

Roll Composition is a roofing type which comes in varied thicknesses and in rolls. It is fastened down with tar products, by nailing, or both.

Built Up (T. & G.) is a wearing surface of gravel embedded in tar, which, in turn, is hot-mopped over types of composition roofing. Also, tar and gravel may be placed over concrete, metal, or gypsum. This product requires a very low pitched or flat roof shape. Built-up refers to types of composition roofing in layers with mopped tar between.

Shingles Asphalt refers to composition shingles which come in strips or metal shingles. This type is fastened down by nailing to some type of sheathing.

Shingles Asphalt H/D is more expensive and much thicker and heavier than conventional shingles. More units need to be added for this type of roofing, as shown on the property record card.

Shingles Asbestos refers to thin rigid shingles made of asbestos usually hexagonal in shape and light gray in color.

## **ROOF MATERIALS continued:**

Cement Tile is a cement product in either flat or half-round form. This is laid over a built-up surface and painted to give a long-lasting and quite durable wearing surface. This type of roofing material requires heavier framing due to its weight.

Clay Tile is a half-round clay product which has been kiln baked to a hardness which gives a wearing surface that needs no paint. This is usually a red color, and a heavier framing is required.

Sheet Metal (standing seam, stdg. sm.) is an expensive roofing of treated metal sheets. The standing seam is a bend in the edges of the sheets.

Gypsum is not a finished roofing or wearing surface due to its softness. It does not form a sheathing being in either poured or plank form. Gypsum is fire resistant.

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

Enamel Metal refers to metal roofing with an enamel coating. It is usually pre-drilled and fastened down by nailing to some type of sheathing on strips.

Wood Shingles are a thin wood, which is thick at one end, (called the butt) and thinner at the other. They are about a foot long and in various widths. These are laid in layers to overlap.

Wood Shakes are the same as wood shingles except for the thickness of the butt end of the shake. The butt will be much thicker.

Copper is a relatively expensive type of sheet metal material. Copper roofing normally comes from the factory in 3' x 10' flat sheets and is "broken" at the edges to form a standing seam sheet metal design. The normal weight-rating of copper roofing is 16 oz. (one pound per square foot).

Slate, which has become virtually obsolete due to many factors, cost being one, forms a fine wearing surface. This is a fireproof surface, and slate is in shingle form, nailed down. When you find a slate roof, write this in the open space at the bottom.

Heavy Sheet Metal – Heavy Metal Roofing that is not painted and is fastened down with screws to wood or metal.

## FLOOR TYPES AND UNITS

Floors include both the sub-floor (if any) and the finished floor or wearing surface.

1	Earth	0		
2	Plywood	3		
3	Single Pine	5		
4	Concrete on Grade	6		
5	Concrete & Tile	7		
6	Vinyl	8		
7	Terrazzo	9		
8	Double Pine	10		
9	Laminate	10		
10	Hardwood	12		
11	Carpet & Underlay	12		
12	Scored & Stained Conc.	12		
13	Parquet	15		
14	Ceramic Tile	17		
15	Quarry Tile	17		
16	Brick Pavers	18		
17	Marble	24		

Earth—the building does not have a floor.

Plywood refers to plywood laid over floor joist.

S. Pine is single pine wood (no sub-floor). Pine refers to softwoods.

Concrete on Grade—the concrete is at ground elevation (no covering), concrete means either plain or reinforced, poured on tamped fill, or on the ground.

Concrete and Tile refers to a concrete slab floor with asphalt tile.

Vinyl refers to a concrete slab with vinyl tile.

Terrazzo is a floor material made of small fragments of colored stone or marble, embedded in cement, and polished to a high gloss.

D. Pine is double pine wood floor, pine board over a sub-floor, and again pine refers to softwoods.

Hardwood is cut from broad-leaf trees, in strips, such as oak, walnut, and birch.

Carpet and Underlay refers to all types of carpet with a mat or pad underneath.

Parquet floors refer to a wearing surface made up of rather small pieces of hardwood set in patterns or designs over sub-flooring. At times, this comes in made-up blocks and is laid in mastic over concrete.

## FLOORS: continued

Quarry Tile is a natural stone that is cut and set in grout over concrete.

Marble refers to various expensive stones set in grout on concrete.

Scored & Stained Concrete - Concrete slab that has been stained and has a scored design.

Brick Pavers – Brick laid as a permanent interior floor.

Ceramic Tile refers to ceramic or baked clay tile set in grout or concrete. Use same units on Quarry Tile.

## INTERIOR FINISH

This information is best obtained through an interview with the owner or resident. When no one is home, however, you will need to base the INTERIOR FEATURES on similar homes in the immediate area where you have been successful in contacting the owner or resident.

Interior Finish refers to whatever products are used to finish the inside of exterior walls, and to form inner partitions. Again, UNLESS variance is at least one-fourth, check only the predominant type.

Interior Finish				
1	Unfinished	0		
2	Painted	5		
3	Wood or Ceiling Board	15		
4	Wall Board	18		
5	Plaster, no Furring	24		
6	Plywood Panel *	24/30		
7	Plaster & Furring	30		
8	Drywall	30	X	
9	Acoustical Ceiling Tile	30		
10	Wood Panel	35		
11	Log	41		

\* Use 24 units for D- and under  
Use 30 units for D and above

Unfinished means that no product is used.

Painted means only the inside of the exterior walls is painted.

Wood or Ceiling Boards are either plain wood boards or narrow “beaded ceiling” boards.

## **INTERIOR FINISH continued:**

Wall Board comes in many makes or trade names, but all are made up of a composition of materials to form boards which are mostly 4' x 8' in size, such as "Celotex," plaster boards, or paper products pressed together.

Plaster, No Furring refers to plaster on lath in wood frame structures or plaster applied directly to the interior of masonry walls.

Plywood Panel is a 4' x 8' sheet of inexpensive paneling. These panels come finished or unfinished and some are made of Masonite and others are a veneer.

Plaster, Furred means the application of plaster to various types of lath, which in turn, is fastened to "furring strips"; these are usually of treated lumber which are fastened to masonry walls. This forms a moisture barrier to prevent dampness in masonry structures.

Drywall is a product of plaster with paper surfaces. It is fastened to studding or furring strips, and requires a seal where joints occur, and a painted finish. It has become popular due to ease of installation and the fact that no plastering is necessary.

Acoustical Ceiling Tile is tile having sound-absorbing qualities. Celotex or similar material.

Wood Panel comes in many grades and types of wood panel boards. However, when you check wood panel, you are checking an expensive paneling. Usually this will be a hardwood or solid pine wood paneling.

Log refers to lengths of log used for construction of interior walls.



## ELECTRICITY UNITS

Code	Description	Units	1	2
<b>ELECTRICITY</b>				
1	None	0		
2	Minimum	1		
3	Average	3	X	
4	Maximum	5		

Electricity refers to the type of service, wiring, outlets, etc. Most homes will have “Average” facilities. Very low-cost, shell-type homes, etc. would have “Minimum Service.” High cost and luxury type dwellings would have “Maximum” facilities. Class B- and up shall carry 5 units.

Electricity considers the quality of wiring system from inexpensive to good, including all parts from the meter base to all parts of the residence.

None means that no usable wiring, outlets, or fixtures exist.

Minimum means little wiring, probably an open type, with few outlets, small switch or fuse box, and very inexpensive fixtures.

Average refers to wiring in Romex, B-X, or equal, from an approved switch and fuse box to, and including, ample outlets and good fixtures.

Maximum signifies a good electrical system with wiring in conduit, an approved switch and fuse box or boxes, ample outlets, and good fixtures.

## PLUMBING UNITS

This section covers the first 3-fixture bath only. If the dwelling has no indoor plumbing, check "NONE." If the dwelling has running water but no indoor toilet or very limited toilet facilities, check "POOR." Most homes will have "AVERAGE." Dwellings classed C- and up should have GOOD checked.

Code	Description	Units	1	2
<b>PLUMBING</b>				
1	None	0		
2	Minimum	5		
3	Average	8	X	
4	Good	11		

Poor plumbing means few and inexpensive fixtures such as those found in low-class residences.

Average refers to normal plumbing fixtures of average grade. This has no bearing on number of fixtures, but quality of fixtures and the system.

Good refers to better than normal plumbing fixtures and is most often found in more expensive residences.

## SPECIAL (EXTRA) FEATURES

These are features in a structure which are not readily adaptable to construction units, but which represent significant additional cost. It is the responsibility of persons performing the fieldwork to ascertain and record the number and nature of such features.

PLUMBING: EXTRA FEATURES					
			1		2
		No.	Amt.	No.	Amt.
1	5 Fxt. Bath				
2	4 Fxt. Bath				
3	3 Fxt. Bath				
4	2 Fxt. Bath				
5	Hot Tub				
6	Jacuzzi Tub				
Heating - Air Conditioning					
			1		2
		No.	Amt.	No.	Amt.
1	None				
2	Coal				
3	Gas				
4	Oil				
5	Elec.				
6	Steam				
7	Hot water				
8	Stoker				
9	Heat Pump				
10	Air. Cond.				
11	Prefab. FP				
12	Fireplace				
13	Brick Flue				
14	Box Frame Wd or Stucco PF				
Total	Extra Features				
x	Index =				

## SPECIAL (EXTRA) FEATURES continued:

All baths in excess of one three-fixture bath must be listed and will be added as an extra feature. For example, if a residence has a total of one and one-half baths, the half-bath will be listed under "PLUMBING EXTRA FEATURES." Other extra features commonly found in residences are fireplace(s), heating, cooling, and flues.

In the case of heating and/or cooling, the method of firing and the type of system must be recorded. Dollar amounts to be added for the above are found by referring to the appropriate tables. To compute the replacement cost, certain facts must be known about these features. In the case of an extra bath, it must be known how many fixtures. Figures contained in all tables are 100 index figures and must be adjusted by use of a location index. It should be noted that plumbing extra features show dollar amounts that vary with the class of the structure, whereas heating and/or cooling dollar amounts vary with the base area involved.

Plumbing, Extra Features--This section takes care of extra baths. When you find extra fixtures that are above normal, these need to be noted. Example: 4 fixtures, mop sinks, extra sinks in kitchen, wet bars, etc.

PLUMBING: EXTRA FEATURES					
			1		2
		No.	Amt.	No.	Amt.
1	<u>5</u> Fxt. Bath				
2	<u>4</u> Fxt. Bath				
3	<u>3</u> Fxt. Bath				
4	<u>2</u> Fxt. Bath				
5	Hot Tub				
6	Jacuzzi Tub				

Separate shower stall adds one fixture. HOWEVER a shower over the tub does not count. Indicate the number of each type bath in each building on the parcel.

## HEATING AND AIR CONDITIONING

Heating and Air Conditioning refers to the method by which the dwelling is heated and cooled. Space heat is listed as "none." Window cooling units are considered to be personal property and should not be listed.

For other systems list how fired and a description of the system. Example: gas, forced hot air, or steam radiators. If the building has central heating and cooling through a single duct system indicate by FHA/AC.

HEATING – AIR CONDITIONING					
			1		2
		No.	Amt.	No.	Amt.
1	None				
2	Coal				
3	Gas				
4	Oil				
5	Elec.				
6	Steam				
7	Hot water				
8	Stoker				
9	Heat Pump				
10	Air. Cond.				
11	Prefab. FP / Metal Flue				
12	Fireplace				
13	Brick Flue				
14	Box Frame Wd or Stucco PF				
Total Extra Features X Index =					

**HEATING AND AIR CONDITIONING continued:**

Air Conditioning—there are basically two types of air distribution—one using the same duct work as the heated air and the other using separate ducts for the cooled air.

If the same duct work is used, show it on the same line with the type of fuel used. Use a slash (/) after the air distribution abbreviation and show the letters “AC”. This will indicate a combination system.

Heating applies to both heat and air conditioning in residential structures.

None means no heat of any kind.

Unit Heat applies to hot air, wall types of gas or oil, floor furnace of gas or oil, electric unit heaters, or any other non-forced air permanent type of system.

Central Heat refers to central heating systems with duct work, thermostats and forced hot air. (FHA)

Central Cooling refers to a system, not window units, of air conditioning that has duct work.

Central Cool and Heat refers to either the reverse cycle systems, heat pumps or heating and cooling units using the same duct work, but again, not window unit.

**FIREPLACES**

Where a fireplace(s) is present, it must be known if it is a one-story, one and a half story, or two-story and how many interior openings are on each chimney. In labeling fireplaces, as in the above example, +1 indicates story height, the second 1 indicates the number of openings, and the third 1 indicates the number of fireplaces in the residence. (SOC — stories, openings, and number of chimneys—example +1/1/1)

The example below represents a "D" class residence with 1300 square ft. of base area. The "Total Extra Features" represents the total "100 index" value of the plumbing and the Heating-Air Conditioning Sections. This total is then multiplied by the Local Index factor to obtain the total amount of the extra features to be added into the replacement cost of the structure.

Heating - Air Conditioning					
			1		2
		N	Amt.	No.	Amt.
1	None				
2	Coal				
3	Gas				
4	Oil				
5	Elec. <i>fha/ac</i>	<i>1</i>	<i>\$7,267</i>		
6	Steam				
7	Hot water				
8	Stoker				
9	Heat Pump				
10	Air. Cond.				
11	Prefab. F.P.Metal Flue				
12	Fireplace +1/1	<i>1</i>	<i>\$5,360</i>		
13	Brick Flue				
14	Box Frame Wd or Stucco PF				
Total	Extra Features		<i>\$12,627</i>		
x	<u>1.00</u> Index =		<i>\$12,627</i>		

### Extra Features Calculations

When figuring the heating and air conditioning for the upper floor area of a two story residence, use the upper floor area BEFORE adjustment.

When figuring the heating and air conditioning for the upper floor area of a one and a half story residence use the upper floor area AFTER the adjustment has been made.

Example using FHA & AC with duct for a two story residence

Base Area	1,000 sq. ft. x \$6.51 = \$6,510.00
Second Story area	1,000 sq. ft. x \$4.88 = <u>\$4,880.00</u>
Total	\$11,390.00

Example using FHA & AC with duct for 1-1/2 story residence

Base Area	1,000 sq. ft. x \$6.51 = \$6,510.00
One and a half story area	
1000 sq. ft. x 0.4 (upper story %)	
400 sq. ft. x \$4.88 =	<u>\$1,952.00</u>
Total	\$8,462.00

Note: When figuring the heat and air conditioning for the upper floor area, stay on the same line as the base area and select the upper floor square foot value.

**HEATING AND COOLING**  
(per square foot of heated and cooled area)

Upper	FHA/AC OR Heat Pump		FHA only		Cooling only	
	1st floor	Upper	1st floor	Upper	1st Floor	
Less than 900 sq. ft.	\$6.78	\$5.09	\$3.89	\$2.92	\$4.32	\$3.24
900 through 999 sq. ft.	\$6.65	\$4.98	\$3.82	\$2.86	\$4.23	\$3.18
1,000 through 1,099 sq. ft.	\$6.51	\$4.88	\$3.74	\$2.81	\$4.15	\$3.11
1,100 through 1,199 sq. ft.	\$6.38	\$4.79	\$3.67	\$2.75	\$4.07	\$3.05
1,200 through 1,199 sq. ft.	\$5.59	\$4.19	\$3.15	\$2.36	\$3.63	\$2.72
1,400 through 1,599 sq. ft.	\$5.08	\$3.81	\$3.09	\$2.32	\$3.56	\$2.67
1,600 through 1,799 sq. ft.	\$4.97	\$3.73	\$3.03	\$2.27	\$3.49	\$2.62
1,800 through 2000 sq.ft.	\$4.88	\$3.66	\$2.96	\$2.22	\$3.42	\$2.56
2,000 through 2399 sq ft	\$4.78	\$3.58	\$2.91	\$2.18	\$3.35	\$2.51
2,400 and over	\$4.60	\$3.45	\$2.57	\$1.93	\$3.06	\$2.29

The last thing you must do to complete the card is to make a survey of the card(s) used to see that all areas are complete.

On the front of the Property Record Card on the upper right hand corner is the card number block. Identifying the total number of property cards used on this parcel involves completing the "card" area by writing in the proper numbers.

When only one (1) card is used, show: Card 1 of 1

When two (2) cards are used show:

First Card Card 1 of 2  
Second Card Card 2 of 2

In the certification section you personally certify that the information of the card is correct and from whom the information was obtained. The date of completion is also shown.

Field Work by: <u>JHB</u> Date: <u>4/12/20</u>
Class by: <u>JD</u> Date: <u>5/17/20</u>
Reviewed by: <u>RG</u> Date: <u>7/09/20</u>

Note: Before you initial this section, you will want to double check to be sure that all information is correct.

The replacement cost of the building will be computed from the information you provide. Accurate recording of all measurements and construction data is a **MUST**.

## **IMPROVEMENT SYMBOLS (MAPPING)**

1. The residential symbol is a triangle that is colored blue. If there is more than one residence on the parcel put the correct number beside each symbol on the map. The point of the triangle should face the street that the front of the residence faces. For a completed or occupied house, the triangle is colored solid. For a house under construction, the triangle is left open (not colored solid).

NOTE: The house under construction should have an open blue triangle to show that it is not completed and a date that it was field inspected marked near the symbol.

2. If more than one improvement occurs on a parcel, use a triangle to represent the main residence. Use a square to represent the secondary buildings. The figures should be indicated on the map in their approximate locations with respect to each other, thus making a small plot plan on the field map.
3. When more than two (2) improvements are found on any one parcel, they are to be numbered to correspond with the building numbers on the property record card.
4. When more than one card is used for a parcel, the buildings should be numbered consecutively.

Card 1—The buildings should be numbered 1, 2, 3, 4, and 5, beginning with the residence(s).

Card 2—The buildings should be numbered 6, 7, 8, 9, and 10 so that the field personnel can locate the correct building. The number on the field map should indicate on which card the improvements is to be found by placing 1/1, 2/1, 3/1, 4/1, 5/1, 6/2, 7/2, 8/2, 9/2, and 10/2 by the symbol.

The first number is the building number; the second number after the slash is the card number.

## **RESIDENTIAL SCHEDULES AND TABLES**





## BASE RATE, LOCATION INDEX, ADJUSTED RATE

**Base Rate**—Square foot rates are influenced by the size of the structure. It is an accepted fact that a large building will cost less per square foot than a smaller one with the same specifications. As the result of in-depth research, a table of rates has been developed which reflects the influence that area has on square foot costs.

**Adjusted Rate**—In view of the fact that the rate tables are based on the influence that area has on “average” structures, adjustments must be made for those above or below “average.” These adjustments are made by use of construction and/or class units. Construction units have been carefully assigned to each component part of a building. These units reflect cost of construction of the various component parts of a building. These units reflect cost of construction of the various component parts, in that they represent a degree of weight expressed by a number of points. Quality is recognized by the application of class units. Predetermined units are being added for those classes above the “average” and deducted for those below the “average.” The sum of the two types of units is known as “total units”. It is this figure, when converted to a factor by pointing off two decimal places, that is used to adjust the base rate to an adjusted rate on the “100” index. The resultant figure is known as the adjusted rate. For example, assume total units of 110 and a base rate of \$48.84. Then  $1.10 \times \$48.19 = \$53.72$  adjusted rate.

**Location Index**—Since cost of construction is not uniform throughout the state, the replacement cost figure must be adjusted to reflect local building costs. A location factor, or index, based on a survey of local material and labor costs and by investigation of new buildings of known costs, must be developed by each county. The adjusted rate is multiplied by the location index to adjust to local square-foot cost. Example: adjusted rate, \$53.72 and location index 1.05 = \$56.41 cost per square foot.

**Note:** When pulling base rates from table, round to the nearest 100 feet. Up to 50 square feet would round down. 51 to 99 square feet would round up.

**Example:** A Base area of 1347 would round down to 1300 base area, a base area of 1351 would round up to a base area of 1400.

## RESIDENTIAL BASE RATE TABLE

Residential Base Area	
Base Area	Sq. Ft. Cost
500	\$56.04
600	\$54.05
700	\$52.20
800	\$51.14
900	\$50.08
1000	\$48.84
1100	\$48.07
1200	\$47.78
1300	\$47.47
1400	\$47.32
1500	\$47.16
1600	\$47.02
1700	\$46.86
1800	\$46.70
1900	\$46.55
2000	\$46.55
2100	\$46.39
2200	\$46.25
2300	\$46.09
2400	\$46.09
2500	\$45.94
2600	\$45.78
2700	\$45.62
2800	\$45.62
2900	\$45.48
3000	\$45.32

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## EXTRA FEATURES COST SCHEDULE

### PLUMBING

#### Residential Plumbing Rates

Class	2 FIX	3 FIX	4 FIX	5 FIX
S	\$9,790	\$14,840	\$19,010	\$22,840
A	\$3,740	\$8,800	\$13,600	\$17,160
B	\$2,520	\$5,820	\$7,860	\$9,310
C & D	\$1,720	\$4,050	\$4,770	\$5,920
E & F	\$1,200	\$2,510	\$2,950	\$3,310

#### \* Jetted Tubs

Class	Cost Each
S & A	\$7,785
B	\$5,600
C & D	\$3,428

#### Hot Tub

Type	Cost Each
LC	\$4,600
Avg.	\$7,100
Good	\$9,600

\*To be added to a  
3 FIX, 4 FIX, or 5 FIX bath when present

### HEATING AND COOLING

#### Residential Heating & Cooling

	FHA/AC or Heat Pump		FHA Only		Cooling Only	
Base Area	1 <sup>st</sup>	Upper	1 <sup>st</sup>	Upper	1 <sup>st</sup>	Upper
	Floor	Floor	Floor	Floor	Floor	Floor
< 900 sf	\$6.78	\$5.09	\$3.89	\$2.92	\$4.32	\$3.24
900 thru 999 sf	6.65	4.98	3.82	2.86	4.23	3.18
1000 thru 1099 sf	6.51	4.88	3.74	2.81	4.15	3.11
1100 thru 1199 sf	6.38	4.79	3.67	2.75	4.07	3.05
1200 thru 1399 sf	5.59	4.19	3.15	2.36	3.63	2.72
1400 thru 1599 sf	5.08	3.81	3.09	2.32	3.56	2.67
1600 thru 1799 sf	4.97	3.73	3.03	2.27	3.49	2.62
1800 thru 2000 sf	4.88	3.66	2.96	2.22	3.42	2.56
2001 thru 2399 sf	4.78	3.58	2.91	2.18	3.35	2.51
2400 sf and over	4.60	3.45	2.57	1.93	3.06	2.29

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**EXTRA FEATURES continued:**

**Other Types of Heating**  
**“Hardy” Type Heating System**

(Stainless Steel Wood Burning Heat Exchanger System with ducted forced hot air)

Less than 900 sq. ft.	900-999	1,000-1,099	1,100-1,199	1,200-1,399	1,400-1,599	1,600-1,799	1,800 & over
\$8.24	\$7.42	\$6.75	\$6.19	\$5.30	\$4.64	\$4.12	\$3.71

<b>Type of Heat</b>	Less than 900 sq. ft.	900-999	1,000-1,099	1,100-1,199	1,200-1,399	1,400-1,599	1,600-1,799	1,800 & over
Steam Radiant	\$4.92	\$4.68	\$4.44	\$4.22	\$4.01	\$3.81	\$3.62	\$3.44
Gravity(w/ducts)	\$3.21	\$2.76	\$2.60	\$2.38	\$2.20	\$1.99	\$1.86	\$1.67
Gravity (no ducts)	\$1.29	\$1.24	\$1.22	\$1.17	\$1.03	\$0.98	\$0.93	\$0.89

Electric Baseboard \$3.42 per square foot

For Upper floor, use 70% of 1<sup>st</sup> floor cost

Floor Furnace \$1.79 per sq. ft.

Electric Wall \$1.43 per sq. ft.

SOLAR HEATING			
Liquid System	Low	Average	Good
Complete System based on Sq. Ft. of collector area	\$57.57	\$92.45	\$146.53
Air System			
Complete System based on Sq. Ft. of collector area	\$50.21	\$80.64	\$127.80

**Solar Heating:**

Cost includes all ducting and ancillary equipment for space heating either by use of liquid transfer or direct air type collector systems. Any conventional backup system must be priced separately.

## FIREPLACES

Type	1	1 ½	2	2 Story	1 Story	1 Story
	Story	Story	Story	2 Openings	2 Openings	w/Bsmt.
Pre Fab Fireplace	\$2,560	\$3,210	\$3,560	\$4,990	\$3,590	
Standard Brick Fireplace	\$5,360	\$6,530	\$7,980	\$10,380	\$7,690	\$7,500
Special, Elaborate (Masonry, Stone)	\$15,520	\$17,800	\$19,710	\$25,600	\$20,180	
Brick Flue	\$2,290					
Box Framed Wood or Stucco PF	\$3,080	\$3,700	\$5,180			

Gas Direct Vented	LC	Average	Good	Excellent
No Chimney	\$1960	\$2370	\$3400	\$5100

## BARBECUES / OUTDOOR KITCHENS

\*Cost should be applied to outdoor patio brick or block barbecues.

	LC	AVG	GOOD
Simple, minimal metal work	\$484.00	\$ 676.00	\$ 916.00
Average elec. Split, good grille	\$868.00	\$ 1,230.00	\$ 1,675.00
Good HD split, good grille	\$1,491.00	\$ 3,075.00	\$ 4,884.00
Custom design	\$5,669.00	\$19,450.00	\$ 34,714.00
Custom fireplace	\$7,632.00	\$10,380.00	\$ 13,868.00

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## RESIDENTIAL ELEVATORS

Type	Capacity	Cost Each
Small, 2 stop (2-3 person Cap)	Up to 700 lbs.	\$26,340
Small, 3 stop (2-3 person cap)	Up to 700 lbs.	29,437
Small, 4 stop (2-3 person cap)	Up to 700 lbs.	32,489
Medium, 2 stop	700 – 1200 lbs.	44,439
Medium, 3 stop	700 – 1200 lbs.	54,949
Medium, 4 stop	700 – 1200 lbs.	65,306

### Utility Elevators:

Expanded Metal 2 story \$6,600.

Expanded Metal with Glass Enclosure \$7,250.

Covered Boat Houses			
Sq. Ft	LC	Average	Good
< 400	\$7.65	\$12.23	\$21.75
400-499	6.87	10.99	19.54
500-599	6.51	10.41	18.52
600-699	6.35	10.16	18.06
700-799	6.09	9.74	17.32
800-949	6.07	9.70	17.24
950-1099	5.93	9.49	16.87
1100-1299	5.88	9.41	16.73
1300-1499	5.79	9.26	16.46
> 1500	5.72	9.15	16.26

LC- wood post, low-cost siding

Average- metal on pole framing

Good- Pole framing, good siding

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## CLASSIFICATION UNITS

CLASS	MINUS	EVEN	PLUS
S	+135	+161	+174
A	+88	+102	+117
B	+49	+ 65	+ 78
C	+13	+ 24	+ 33
D	-5	0	+5
E	-16	-12	-8
F	-32	-24	-20



### Residential Depreciation Schedules (Physical deterioration only, net percent good)

Age in Years	Class A	Class B	Class C	Class D	Class E	Class F
1	0.98	0.98	0.98	0.98	0.98	0.98
2	0.97	0.97	0.97	0.97	0.97	0.96
3	0.96	0.96	0.96	0.95	0.95	0.94
4	0.95	0.95	0.95	0.94	0.94	0.92
5	0.94	0.94	0.94	0.93	0.92	0.90
6	0.94	0.93	0.93	0.92	0.91	0.88
7	0.93	0.92	0.92	0.91	0.89	0.86
8	0.92	0.91	0.91	0.90	0.88	0.84
9	0.91	0.90	0.90	0.89	0.86	0.82
10	0.90	0.89	0.89	0.88	0.85	0.80
11	0.89	0.88	0.88	0.86	0.83	0.78
12	0.89	0.88	0.87	0.85	0.82	0.75
13	0.88	0.87	0.86	0.84	0.80	0.73
14	0.87	0.86	0.85	0.83	0.79	0.71
15	0.86	0.85	0.84	0.82	0.77	0.69
16	0.86	0.84	0.83	0.81	0.76	0.67
17	0.85	0.83	0.82	0.80	0.74	0.65
18	0.84	0.82	0.81	0.79	0.73	0.63
19	0.83	0.81	0.80	0.78	0.71	0.61
20	0.82	0.80	0.79	0.77	0.69	0.59
21	0.82	0.79	0.78	0.76	0.68	0.57
22	0.81	0.78	0.77	0.75	0.66	0.55
23	0.80	0.77	0.76	0.74	0.65	0.53
24	0.79	0.76	0.75	0.73	0.63	0.51
25	0.79	0.75	0.74	0.72	0.62	0.49
26	0.78	0.74	0.73	0.71	0.60	0.47
27	0.77	0.73	0.72	0.70	0.59	0.44
28	0.77	0.73	0.71	0.69	0.57	0.42
29	0.76	0.72	0.70	0.68	0.56	0.40
30	0.75	0.71	0.69	0.67	0.54	0.38
31	0.75	0.71	0.68	0.66	0.53	
32	0.74	0.70	0.67	0.66	0.51	
33	0.73	0.69	0.66	0.65	0.50	
34	0.73	0.68	0.65	0.64	0.48	
35	0.72	0.68	0.64	0.63	0.47	
36	0.71	0.67	0.64	0.62	0.45	
37	0.71	0.66	0.63	0.61	0.44	
38	0.70	0.65	0.62	0.60	0.42	
39	0.69	0.65	0.61	0.60	0.41	
40	0.69	0.64	0.60	0.59	0.39	
41	0.68	0.63	0.60	0.58		
42	0.67	0.62	0.59	0.57		
43	0.67	0.62	0.58	0.56		
44	0.66	0.61	0.57	0.55		
45	0.66	0.60	0.57	0.55		
46	0.65	0.60	0.56	0.54		
47	0.65	0.59	0.55	0.53		
48	0.64	0.58	0.54	0.52		
49	0.64	0.58	0.54	0.52		
50	0.63	0.57	0.53	0.51		
51	0.63	0.56	0.52	0.50		
52	0.62	0.56	0.52	0.49		
53	0.62	0.55	0.51	0.49		
54	0.61	0.54	0.50	0.48		
55	0.61	0.54	0.50	0.47		
56	0.60	0.53				
57	0.60	0.53				
58	0.59	0.51				
59	0.59	0.51				
60	0.58	0.50				

**Note: The above tables are guidelines only. If observed condition or other supporting data indicate a different effective age is appropriate, the appraiser may substitute that effective age for the depreciation listed in these schedules.**

## DETACHED BUILDINGS

Many residential parcels have detached structures such as carports, garages, and utility buildings that add value to the parcel. These buildings should be measured, numbered, and sketched on the card in relation to the main structure. Next to the drawing should be a brief description of the building that will give the person that is going to calculate the card all the information that is needed. The observed physical condition is to be used; a % of condition must be put on the card. If the building is of no value, then an "X" should locate the building and N.V. should be written beside the "X."

Do not list small prefab metal buildings or homemade buildings that are not on a foundation. These usually add little or no value to the property. This determination is left to the judgment of the qualified appraiser. Also, remember that buildings on skids are generally considered personal property and should not be listed.

The table below gives you the type of information needed to price out these structures per square foot.

<b>Utility</b>	<b>LC</b>	<b>Average</b>	<b>Good</b>
Wood homemade no floor	\$6.30		
Wood homemade with floor		\$9.85	
Wood w/ floor		\$12.76	\$20.74
Steel/Alum metal prefab	\$5.40	\$7.52	\$10.47
Wood Pre-Fab	\$9.59	\$12.00	\$15.04
Brick, floor & door	\$25.95	\$33.75	\$44.47

<b>Garage</b>	<b>LC</b>	<b>Average</b>	<b>Good</b>
Wd. Fr. Sh. Mtl. No floor, No Door	\$11.70		
Wd. Fr. Sh. Mtl. Floor, No Door	\$14.03		
Wd or CB no floor	\$13.39	\$19.42	\$30.18
Wood or CB floor	\$15.64	\$22.05	\$33.17
Tile or Brick, Floor & Doors	\$16.86	\$26.01	\$40.97
Pre-Fab 26' or wider no floor		\$12.23	
Pre-Fab 26' or wider w/conc. floor		\$16.87	
Pre-Fab 24' or less width no floor		\$12.35	
Pre-Fab 24' or less width w/conc. floor		\$16.99	

<b>Carports</b>		<b>LC</b>	<b>Average</b>	<b>Good</b>
Wood no floor		\$ 5.82	\$7.77	\$10.36
Wood w/ floor		\$10.03	\$11.98	\$14.57
<b>Pre-Fab Carports</b>	<b>W/Floor</b>	<b>No Floor</b>		
Metal PF 12'-18' wide	\$ 6.48	\$1.93		
Metal PF 26' or wider	\$ 8.25	\$3.70		
Metal PF 19'-24'	\$ 7.10	\$2.55		
Metal PF RV 12'-24' wide	\$ 7.74	\$3.19		
Metal PF w att utility	\$ 9.86	\$5.31		
Metal PF Good carport	\$13.51	\$8.96		

## RESIDENTIAL SWIMMING POOLS

The following cost is for residential in-ground swimming pools per square foot of pool surface area. The costs include walls and floor of gunite or vinyl pools, pump, filter, plumbing, and water purification system.

Vinyl Swimming Pool			
Sq. Ft	LC	Avg	Good
400	\$38.77	\$42.20	\$45.64
500	\$36.27	\$39.32	\$42.37
600	\$33.17	\$35.77	\$38.36
700	\$31.22	\$33.97	\$36.72
800	\$29.46	\$32.28	\$35.11
900	\$28.08	\$30.53	\$32.97
1000	\$27.84	\$30.40	\$32.97
1100	\$27.14	\$29.64	\$32.14
1200	\$26.33	\$28.76	\$31.18
1300	\$25.59	\$27.95	\$30.31
1400	\$24.93	\$27.22	\$29.52
1500	\$24.34	\$26.58	\$28.82
1600	\$23.81	\$26.00	\$28.19
1700	\$23.32	\$25.46	\$27.61
1800	\$22.90	\$25.01	\$27.12
1900	\$22.49	\$24.56	\$26.63
2000	\$22.15	\$24.19	\$26.23
2100	\$21.85	\$23.76	\$25.87
2200	\$21.57	\$23.56	\$25.54
2300	\$21.31	\$23.27	\$25.23
2400	\$21.06	\$23.00	\$24.94
2500	\$20.86	\$22.78	\$24.70
2600	\$20.67	\$22.58	\$24.48
2700	\$20.54	\$22.43	\$24.32
2800	\$20.41	\$22.29	\$24.17
2900	\$20.28	\$22.15	\$24.01
3000	\$20.17	\$22.02	\$23.88
3100	\$20.07	\$21.92	\$23.77
3200	\$19.96	\$21.80	\$23.64
3300	\$19.89	\$21.72	\$23.55
3400	\$19.33	\$21.11	\$22.89
3500	\$19.31	\$21.09	\$22.87
3600	\$19.28	\$21.05	\$22.83
3700	\$19.24	\$21.01	\$22.79
3800	\$19.22	\$20.99	\$22.76
3900	\$19.20	\$20.97	\$22.74
4000	\$19.19	\$20.95	\$22.72

Gunite Swimming Pool			
Sq. Ft.	LC	AVG	GOOD
400	\$55.38	\$60.29	\$65.20
500	\$51.81	\$56.17	\$60.53
600	\$47.39	\$51.10	\$54.80
700	\$44.61	\$48.53	\$52.46
800	\$42.08	\$46.12	\$50.15
900	\$40.12	\$43.61	\$47.10
1000	\$39.77	\$43.44	\$47.10
1100	\$38.78	\$42.35	\$45.92
1200	\$37.61	\$41.08	\$44.54
1300	\$36.56	\$39.93	\$43.30
1400	\$35.61	\$38.89	\$42.17
1500	\$34.77	\$37.97	\$41.18
1600	\$34.01	\$37.15	\$40.28
1700	\$33.31	\$36.38	\$39.45
1800	\$32.72	\$35.73	\$38.74
1900	\$32.13	\$35.08	\$38.04
2000	\$31.64	\$34.56	\$37.47
2100	\$31.21	\$34.09	\$36.96
2200	\$30.81	\$33.65	\$36.49
2300	\$30.44	\$33.24	\$36.04
2400	\$30.09	\$32.86	\$35.63
2500	\$29.80	\$32.54	\$35.29
2600	\$29.53	\$32.25	\$34.97
2700	\$29.34	\$32.05	\$34.75
2800	\$29.16	\$31.84	\$34.53
2900	\$28.97	\$31.64	\$34.31
3000	\$28.81	\$31.46	\$34.12
3100	\$28.68	\$31.32	\$33.96
3200	\$28.52	\$31.14	\$33.77
3300	\$28.41	\$31.03	\$33.65
3400	\$27.62	\$30.16	\$32.70
3500	\$27.59	\$30.13	\$32.67
3600	\$27.54	\$30.07	\$32.61
3700	\$27.49	\$30.02	\$32.55
3800	\$27.46	\$29.99	\$32.52
3900	\$27.44	\$29.96	\$32.49
4000	\$27.41	\$29.93	\$32.46

Swimming Pool Enclosures		Cost SF
Screen enclosure light frame		\$13.10
Translucent plastic or screen, structural frame		\$35.76
Good curtain walls, plastic, glass, motorized roof		\$64.11

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FIBERGLASS POOL			
Sq. Ft	LC	Avg	Good
400	\$44.31	\$48.23	\$52.16
500	\$41.45	\$44.94	\$48.42
600	\$37.91	\$40.88	\$43.84
700	\$35.69	\$38.83	\$41.97
800	\$33.67	\$36.89	\$40.12
900	\$32.10	\$34.89	\$37.68
1000	\$31.82	\$34.75	\$37.68
1100	\$31.02	\$33.88	\$36.74
1200	\$30.09	\$32.86	\$35.63
1300	\$29.25	\$31.94	\$34.64
1400	\$28.49	\$31.11	\$33.74
1500	\$27.82	\$30.38	\$32.94
1600	\$27.21	\$29.72	\$32.22
1700	\$26.65	\$29.10	\$31.56
1800	\$26.17	\$28.59	\$31.00
1900	\$25.70	\$28.07	\$30.43
2000	\$25.31	\$27.65	\$29.98
2100	\$24.97	\$27.27	\$29.57
2200	\$24.65	\$26.92	\$29.19
2300	\$24.35	\$26.59	\$28.84
2400	\$24.07	\$26.29	\$28.51
2500	\$23.84	\$26.03	\$28.23
2600	\$23.62	\$25.80	\$27.98
2700	\$23.47	\$25.64	\$27.80
2800	\$23.33	\$25.47	\$27.62
2900	\$23.18	\$25.31	\$27.45
3000	\$23.05	\$25.17	\$27.29
3100	\$22.94	\$25.06	\$27.17
3200	\$22.81	\$24.92	\$27.02
3300	\$22.73	\$24.82	\$26.92
3400	\$22.09	\$24.13	\$26.16
3500	\$22.07	\$24.10	\$26.14
3600	\$22.03	\$24.06	\$26.09
3700	\$21.99	\$24.01	\$26.04
3800	\$21.97	\$23.99	\$26.02
3900	\$21.95	\$23.97	\$25.99
4000	\$21.93	\$23.95	\$25.97

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TENNIS COURTS	Cost Per SF		
	LC	Avg	Good
Concrete court	\$4.49	\$5.72	\$6.94
Asphalt court	\$3.70	\$4.92	\$6.14
Clay Court	\$3.64	\$4.50	\$5.36
For resilient cushioned layer add	\$1.29	\$2.94	\$4.59

TENNIS COURT FENCING per LF		
Fence	#9 wire	#11 wire
8'	\$20.31	\$17.31
10'	\$25.01	\$21.36
12'	\$29.58	\$25.45

PATIOS & PAVING	Cost Per SF		
Type	LC	Avg.	Good
Concrete Patio	\$4.55	\$ 5.88	\$ 7.21
Brick Patio	\$10.53	\$13.77	\$17.01
Asphalt Paving 2"	\$1.87	\$2.31	\$2.76
Asphalt Paving 3"	\$2.31	\$2.81	\$3.31
Concrete Paving 4"	\$4.17	\$5.20	\$6.23
Screened Enclosure	\$13.64	\$16.02	\$20.50

WOOD DECKS NO RAIL	Cost Per SF		
	LC	Avg	Good
Softwood, pine fir, treated	10.42	11.87	13.32
Wood polymer composite	13.54	15.43	17.32
Vinyl	15.16	17.01	18.86
Cedar, redwood, metal	13.18	14.79	16.40

WOOD DECK WITH RAIL	Cost Per SF		
	LC	Avg	Good
Softwood, pine fir, treated	11.92	13.59	15.26
Wood polymer composite	15.50	17.67	19.84
Vinyl	17.94	20.07	22.19
Cedar, redwood, metal	15.60	17.45	19.30

GAZEBOS Cost per SF		
LC	Avg.	Good
\$9.68	\$12.13	\$17.46

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**RESIDENTIAL CALCULATIONS  
AND  
EXAMPLES**





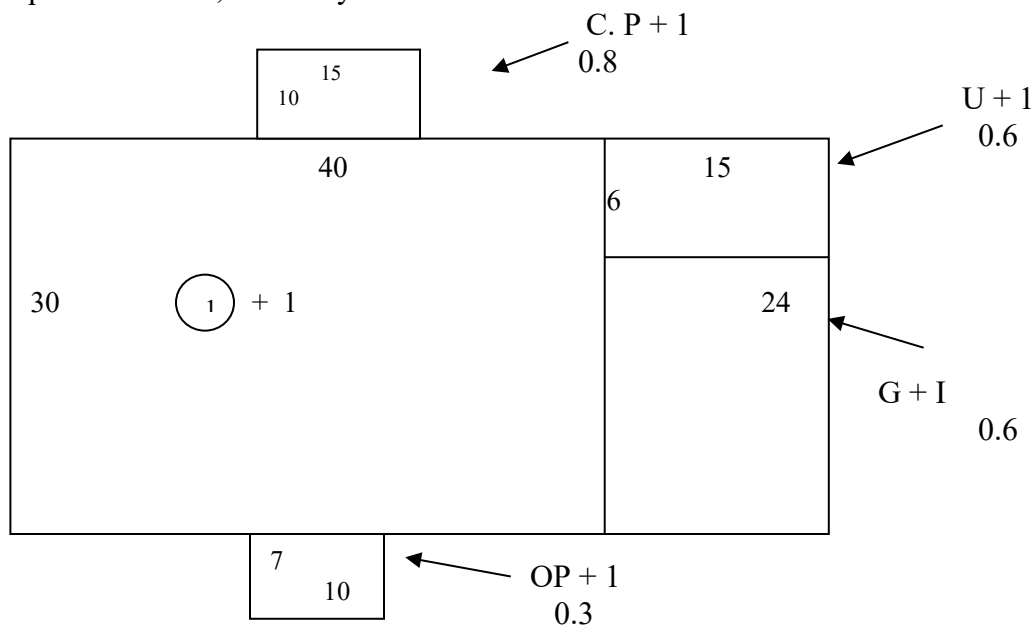
## Calculation

The key factors used to calculate a building include:

- Class
- Class Construction Units
- Base Area
- Adjusted Area
- Base Rate
- Location Index
- Extra Features
- Condition

Base Area--The base area of a structure is that area upon which the cost per square foot is based. It is the first floor living area in a residential structure, leaving off upper floors, attached garages, porches, or other lesser-costing areas. Examples below indicate base areas and how they are calculated.

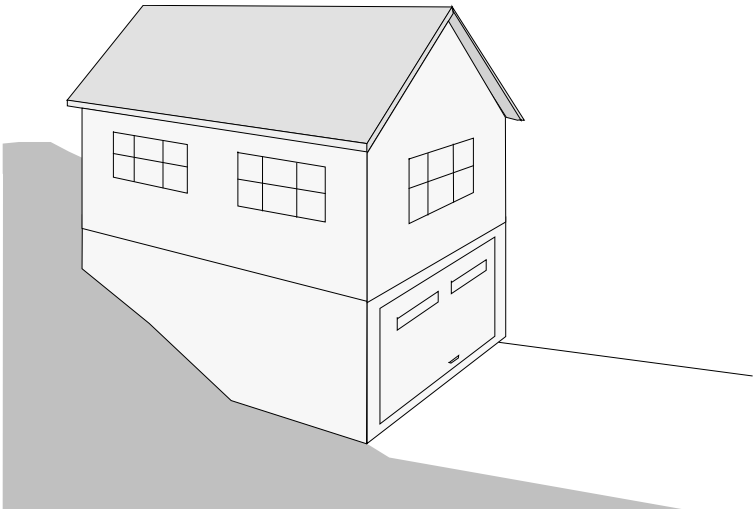
Example: Base area, one-story residence.



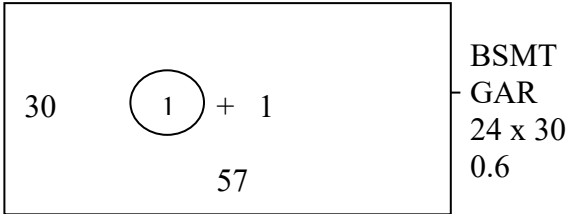
Base Area =  $30 \times 40 = 1,200$  S.F.

Base Rate using 1,200 S.F. = \$47.78

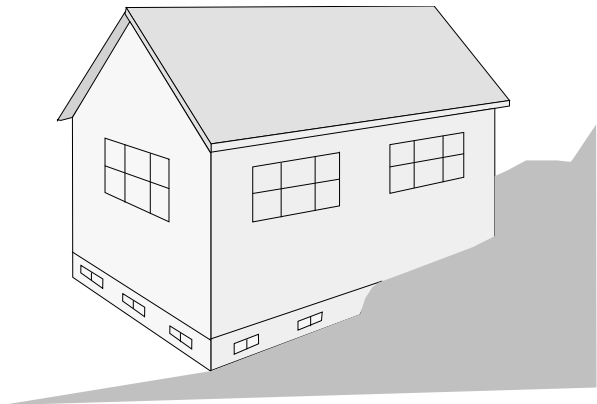
Examples of Houses with Diagrams and Labeling of Decimal Areas



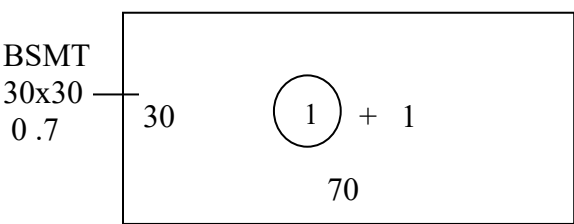
House with Garage under



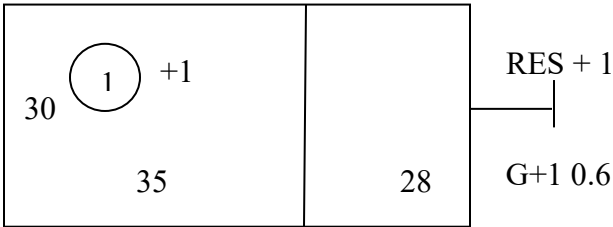
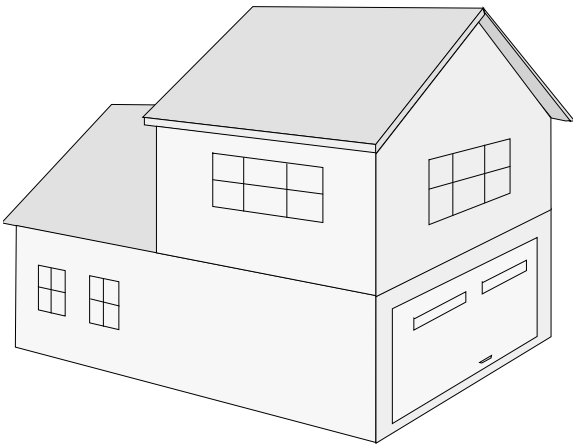
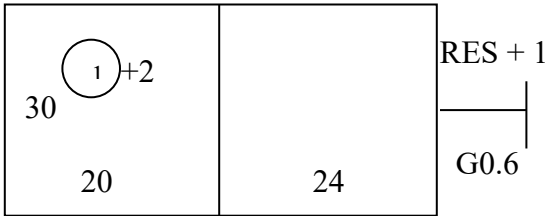
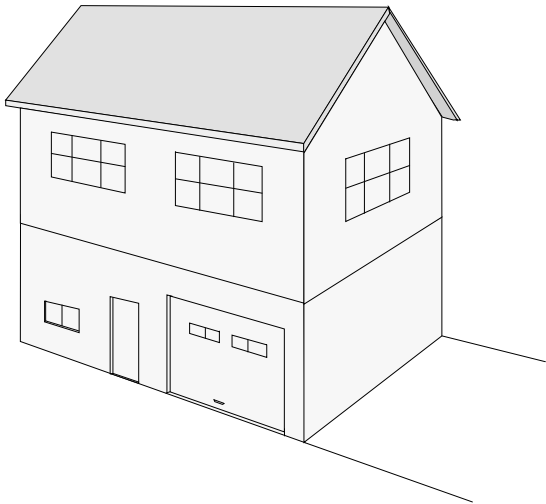
Garage Apartment



House with Partial Basement



House with Res. Over Garage



## Sample Residential Calculations

### Example 1

Assume a one story, Class "E" residence, a base area of 1,120 square feet, adjusted area of 1,344 square feet, base rate of \$48.07 (from rate table), 76 construction units, -12 class units (from "classification units" table), 64 total units, adjusted rate of \$30.76 (.64 x \$48.07), location index of 1.0, space heaters (no charge) and no extra features. Condition of residence is 85%.

Base area	1,120 sq. ft.
Base rate	\$48.07
Class units	-12 units
Construction units	+ 76 units
Total units	= 64 units
Base rate	x \$48.07
Adjusted rate	= \$30.76
Location Index	x 1.0
Square Foot Cost	= \$30.76
Adjusted Area	x 1,344 sq. ft.
Base Construction Cost	= \$41,341.
Extra Features	+ 00
Replacement Cost	= \$41,341.
Condition	x .85
Value	= \$35,140.

## Example 2

Assume a one-story class "D" residence, base area of 1,200 square feet, adjusted area of 1,400 square feet, base rate of \$47.32 (from the rate table -- use base area), 103 total units, adjusted rate \$48.74 (\$47.32 x 1.03), location index of 1.04, square foot cost \$50.69 (\$48.74 x 1.04), extra features of electric central heat and air, half bath, one standard brick fireplace with one opening. Condition of residence is 85%.

Base area	1,200 sq. ft.
Adjusted Area	1,400 sq. ft.
Base rate	\$47.32
Class units	0 units
Construction units	+ 103 units
Total units	= 103 units
Base rate	x \$47.32
Adjusted rate	= \$49.21
Location Index	x 1.04
Square Foot Cost	= \$51.18
Adjusted Area	x 1,400 sq. ft.
Base Construction Cost	= \$71,652.
Extra Features	+ 14,340.
Replacement Cost	= \$85,992.
Condition	x .85
Value	= \$73,093.

### \*Extra Features Calculation -

Plumbing 1 - 2 Fix. Bath	\$1,720
FHA/AC 1,200 x \$5.59	6,708
Fireplace	<u>5,360</u>
Total	= \$13,788
 \$13,788 x 1.04 (Index)	 = \$14,340.

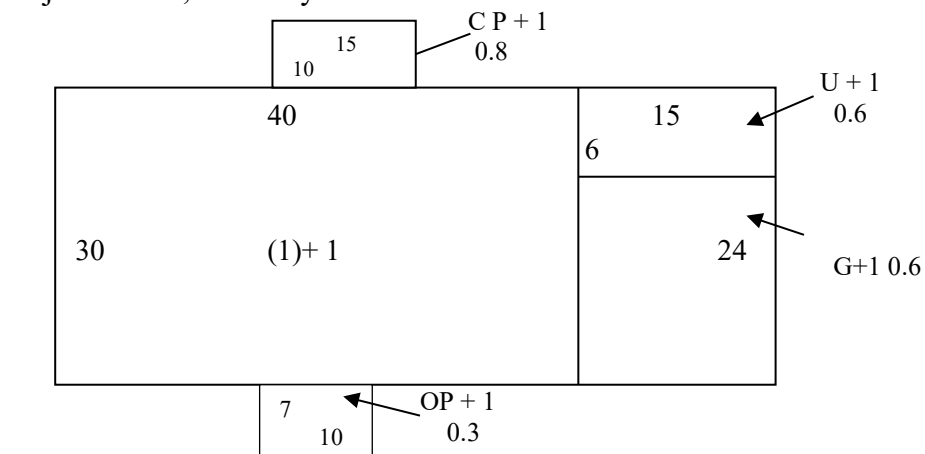
### Example 3

Assume a one story Class "C" residence, a base area of 1,600 sq. ft., adjusted area of 2,482 sq. ft., base rate of \$47.02 (from rate table), 106 construction units, 24 class units (from "classification units" table), 130 total units, adjusted rate of \$61.13, location index of 1.05, extra features (FHA/AC and one extra 3-fixture bath, \$7,952 + \$4,050 = \$12,002 x 1.05 = \$12,602), and condition 90%.

Base Area	1,600 sq. ft.
Base Rate	\$ 47.02
Class unit's	24 units
Construction units	+ 106 units
Total units	= 130 units (%)
Base rate	x 47.02
Adjusted rate	= \$61.13
Location Index	x 1.05
Square Foot Cost	= \$64.19
Adjusted Area	x 2,482 sq. ft.
Base Construction Cost	= \$159320.
Extra Features	+ 12,602
Replacement Cost	= \$171,922.
Condition	x .90
Value	\$154,730.

Examples below demonstrate calculations of adjusted area square feet.

Example 1 Adjusted area, one story residence

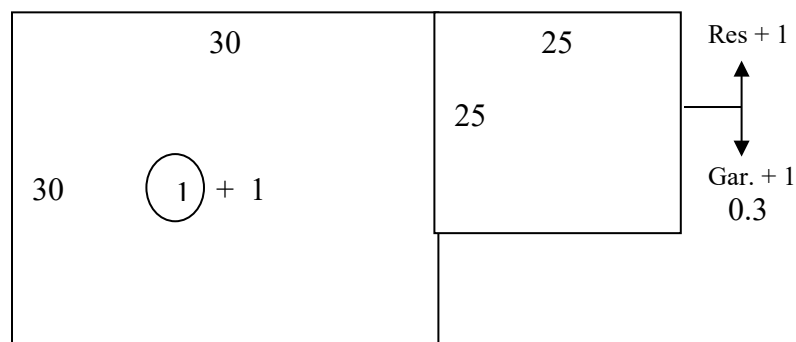


Base area  $30 \times 40 = 1,200$  sq. ft.

C. P.	$10 \times 15 \times 0.8 =$	120
U.	$6 \times 15 \times 0.6 =$	54
G.	$15 \times 24 \times 0.6 =$	216
O. P.	$7 \times 10 \times 0.3 =$	<u>21</u>
Total Decimal Area		411sq. ft.

Total Adjusted Area 1,611 sq. ft.

Example 2 - Adjusted area, split level residence

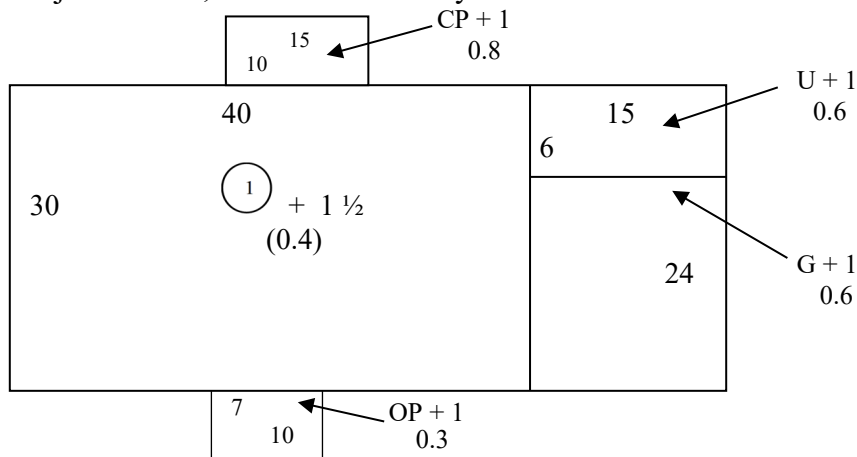


Base Area	$30 \times 30 =$	900
	$25 \times 25 =$	<u>625</u>
Total Base Area		1,525 sq. ft.

Garage  $25 \times 25 \times 0.3 = 188$  sq. ft.

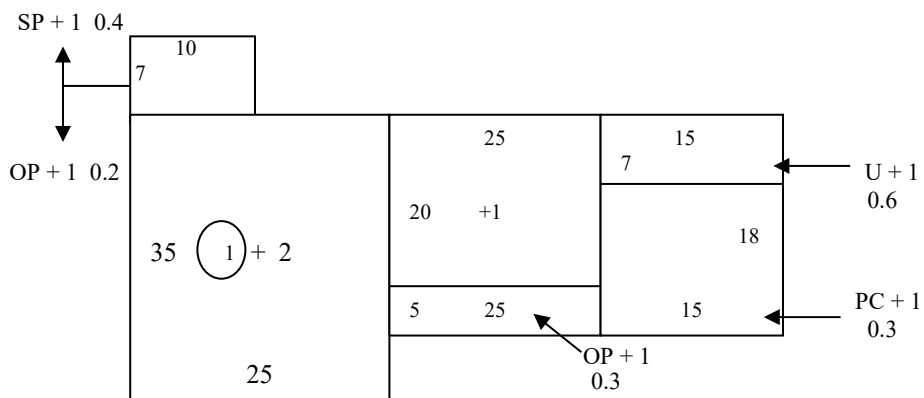
Total Adjusted Area 1,713 sq. ft.

Example 3 - Adjusted Area, one and a half story residence.



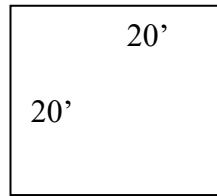
Base area	30 x 40 =	1,200 sq. ft.
Upper Floor	30 x 40 x 0.4 =	480
C.P.	10 x 15 x 0.8 =	120
U.	6 x 15 x 0.6 =	54
G.	15 x 24 x 0.6 =	216
O.P.	7 x 10 x 0.3 =	<u>21</u>
Total Decimal Area		<u>891 sq. ft.</u>
Total Adjusted Area		2,091 sq. ft.

Example 4 - Adjusted area, one and two story residence



Base Area	35 x 25 =	875
	20 x 25 =	<u>500</u>
Total Base Area		1,375 sq. ft.
Upper Floor	35 x 25 x 0.8 =	700
S.P.	7 x 10 x 0.4 =	28
O.P.	7 x 10 x 0.2 =	14
O.P.	5 x 25 x 0.3 =	38
U.	7 x 15 x 0.6 =	63
P.C.	18 x 15 x 0.3 =	<u>81</u>
Total Decimal Area		<u>924 sq. ft.</u>
Total Adjusted Area		2,299 sq. ft.

1. SQUARE

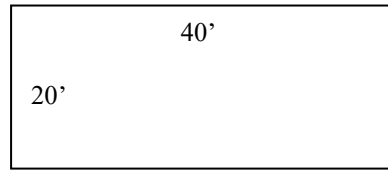


AREA = BASE X HEIGHT

Example:

$$\text{AREA} = 20' \times 20' = 400 \text{ SQ. FT}$$

2. RECTANGLE

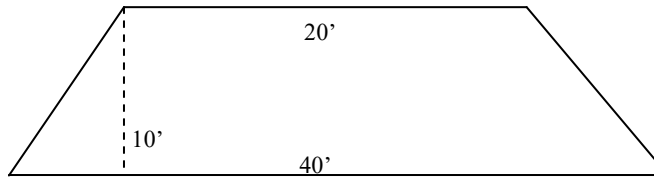


AREA = BASE X HEIGHT

Example:

$$\text{Area} = 20' \times 40' = 800 \text{ SQ. FT.}$$

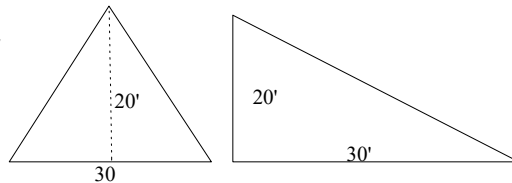
3. TRAPEZOID



AREA = HEIGHT X SUM OF 2 BASES

$$\begin{aligned} \text{Example:} \quad \text{Area} &= \frac{10(20 + 40)}{2} \\ &= 10 \times 60 \\ &= \frac{600}{2} \\ &= 300 \end{aligned}$$

4. TRIANGLE

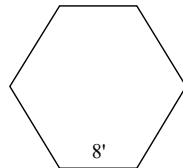


AREA = HEIGHT X BASE

Example:

$$\text{AREA} = \frac{20' \times 30'}{2} = 300 \text{ sq. ft.}$$

5. REGULAR POLYGON

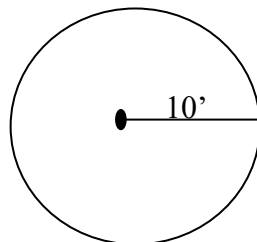


AREA = CONSTANT X SIDE SQUARED

Example:

Area (6 sides) = 2.5881 x (8'x8') = 166 sq. ft.  
 Area (5 sides) = 1.75205 x side squared  
 Area (7 sides) = 3.6339 x side squared  
 Area (8 sides) = 4.8284 x side squared  
 Area (9 sides) = 6.181 x side squared  
 Area (10 sides) = 7.6942 x side squared  
 Area (11 sides) = 9.3656 x side squared  
 Area(12 sides) = 11.1962 x side squared

6. CIRCLE



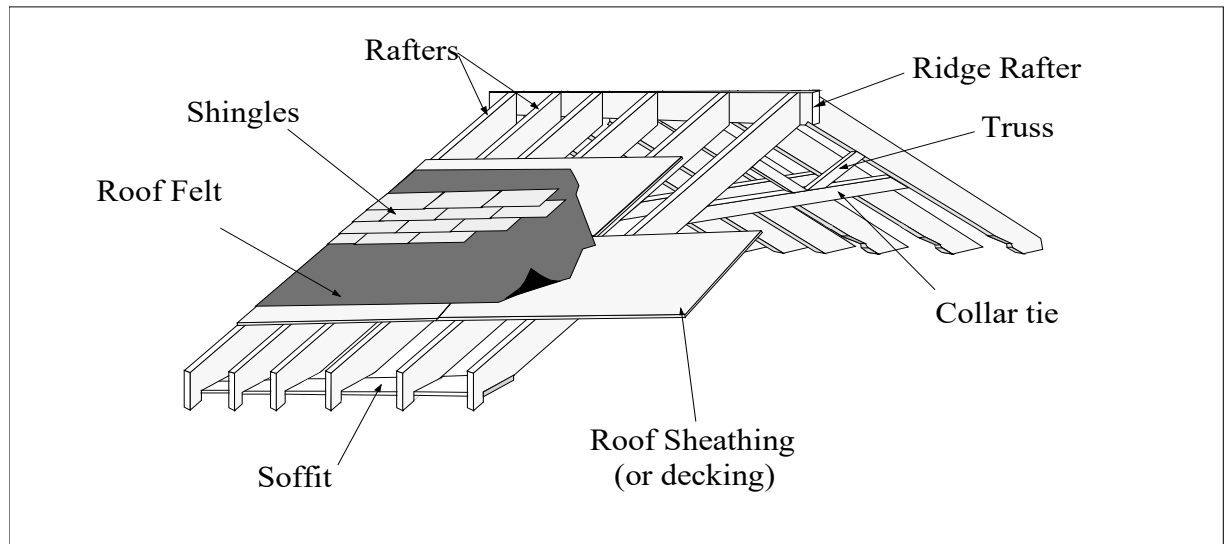
AREA = PI X RADIUS SQUARED

Example:

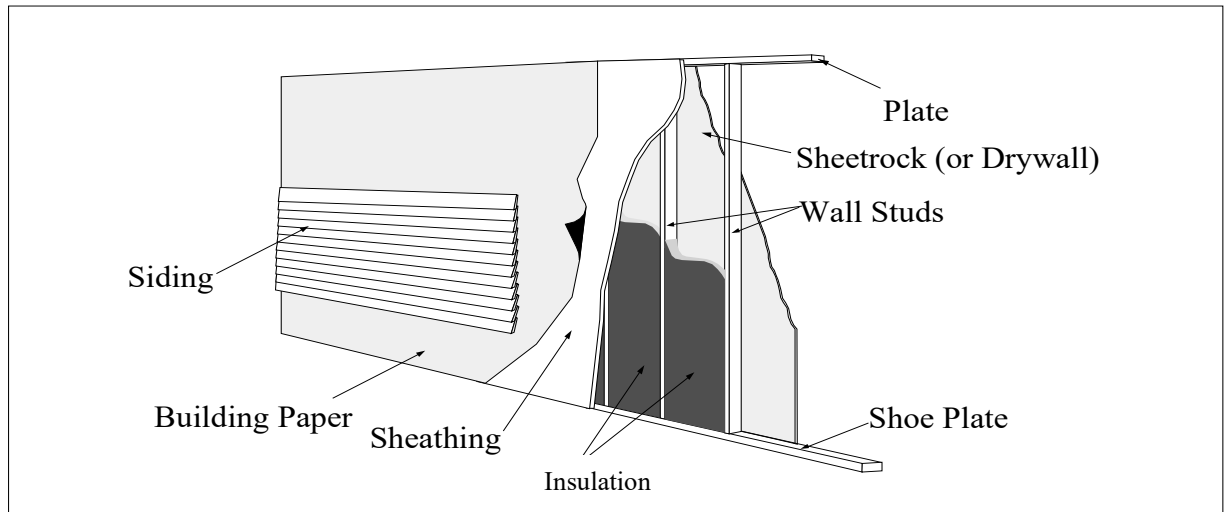
$$\text{Area} = 3.14 \times (10' \times 10') = 314 \text{ sq. ft.}$$



### Roof Construction



### Wall Construction



### Floor and Foundation Construction

