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This chapter provides the guidelines for establishing the true tax value of residential yard and agricultural yard structures. This chapter includes guidelines for collecting and recording the physical characteristics of each type of yard structure, the procedures necessary to calculate the replacement cost of each yard structure, and the procedures necessary to calculate the true tax value of each yard structure.

Step-by-step instructions indicate how to enter information about residential and agricultural yard structures in the “Summary of Non-Residential Improvements” section of the property record card. The necessary depreciation tables and cost schedules are provided in Appendix B and Appendix C.

Residential yard structures include:

- utility sheds
- greenhouses
- tennis courts
- stables
- boat houses
- gazebos
- car sheds
- bath houses
- detached garages
- exterior features valued as yard items
- geothermal heating and cooling systems
- solar heating and cooling systems
- in-ground swimming pools
- above-ground swimming pools
- swimming pool enclosures
- **Bath houses**

Agricultural yard structures include:

- dairy barns
- feed lots
- silos
- steel grain bins
- granaries
- milk houses
- milking parlors
- tobacco barns
- quonset buildings
- wire corn cribs
- slurry tanks
- lean-tos
- veal confinement facilities
- trench and bunker silos
- bank and flat barns
- chicken, duck, and turkey barns
- hog confinement facilities
- poultry confinement facilities
- poultry houses, non-confinement
- frame corn cribs, free-standing type
- frame corn cribs, drive-through type
- potato storage buildings
- butler low-moisture silage silos
- general purpose pole-framed barns and machine sheds

### Completing a Property Record Card

The valuation of residential and agricultural yard structures is recorded in the “Summary of Non-Residential Improvements” section of the property record card, shown in Figure 5-1. Space is provided in the table to itemize each structure. Each row corresponds to one particular structure. The improvement value of all of the structures is totaled at the bottom of the table.

**Note:** If the property has more structures than there are rows in this section of the property record card, use an additional card (or cards) to describe those structures.

The steps for completing the property record card for residential and agricultural yard structures are grouped into the following tasks, described in the sections below:

- Task 1—Record information about the structure.
- Task 2—Determine the base rate for the structure.
- Task 3—Determine the adjusted base rate and replacement cost for the structure.
- Task 4—Calculate the remainder value of the structure.
- Task 5—Calculate the improvement value of the structure.
- Task 6—After performing Task 1 through Task 5 for each structure on the property, calculate the total non-residential improvement value for the property.

IMPROVEMENT DATA AND COMPUTATIONS																			
Major Items					Improvement Features														
Residential					Agricultural														
C Concrete Floor D Dirt Floor E Electric Lights F Grade G Insulation H Loft I Plumbing J Stairs K Type of Construction L Boat House M T/G/D/Q N Open Side O T/G/D P Open/Enclosed Q Back-to-back R DETACHED GARAGE S T/G/D/L/Q T GREENHOUSE U Free Standing V Attached at End W Lean-to X ST/D/G/L Y SWIMMING POOL Z Underwater Lighting AA Tile, Ceramic/Plastic AB Filter AC Heater/Enclosure, Shape AD Concrete Apron AE Enclosure Type AF TENNIS COURT AG Utility Shed AH T/G					BARNS S/S/P/E/I/D/Q D/S/S CONFINEMENT T/P/E/C/I Slatted Floors CORN CRIB T Frame/Wire No Roof Drive-thru Floor GRANARIES Storage Bins Pole Type GRAIN BINS - STEEL Built-in Built-in Capacity QUONSET BUILDINGS E/I/H CONCRETE SLURRY TANKS In-ground/above ground Round/rectangle Silo Cover/No Cover Concrete Conc. Slave/Reinfd Tile/Conc. Blk./Brick Steel Unlined/Glass Lined TRENCH & BUNKER SILOS Depth Width														
O T E N																			
SUMMARY OF RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Const. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Total Depr.	Remainder Value	% Comp	Nbbd Factor	Improvement Value	
01	Dwelling																		
02																			
03																			
04																			
05																			
06																			
07																			
SUB-TOTAL										Supplemental Card Residential Improvement Total									
Grade and Design Factor										Total Residential Improvement Value									
SUMMARY OF NON-RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Const. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Total Depr.	Remainder Value	% Abnorm.	Nbbd Factor	Improvement Value	
01																			
02																			
03																			
04																			
05																			
06																			
SUB-TOTAL										Supplemental Card Non-Residential Improvement Total									
Grade and Design Factor										Total Non-Residential Improvement Value									

Figure 5-1. Summary of Non-Residential Improvements Section

**Task 1—Recording Information**

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In this task, you provide descriptive information about the characteristics of the structure. The shading in Figure 5-2 indicates the columns of the “Summary of Non-Residential Improvements” table that you complete in this task.

IMPROVEMENT DATA AND COMPUTATIONS																			
Major Items					Improvement Features														
Residential					Agricultural														
C Concrete Floor D Dirt Floor E Electric Lights F Grade G Insulation H Loft I Plumbing J Stairs K Type of Construction L Boat House M T/G/D/Q N Open Side O T/G/D P Open/Enclosed Q Back-to-back R Detached Garage S T/G/D/L/Q T GREENHOUSE U Free Standing V Attached at End W Lean-to X T/D/G/L Y SWIMMING POOL Z Underwater Lighting AA Tile, Ceramic/Plastic AB Filter AC Heater/Enclosure AD Concrete Apron AE Tennis Court AF Utility Shed T/G					BARNS S/S/P/E/I/D/Q D/S/S CONFINEMENT T/P/E/C/I Slatted Floors SILENT FLOORS CORN CRIB T Frame/Wire No Roof Drive-thru Floor GRANARIES Storage Bins Pole Type GRAIN BINS - STEEL Built-in Built-in Capacity QUONSET BUILDINGS E/I/H SLURRY TANKS In-ground/above ground Round/rectangle Round/cover SILO Conc. Slave/Ret/d Tile/Conc. Blk/Brick Steel Unlined/Glass Lined TRENCH & BUNKER SILOS Depth Width														
SUMMARY OF RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Const. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Total Depr.	Remainder Value	% Comp	Nbbd Factor	Improvement Value	
01	Dwelling																		
02																			
03																			
04																			
05																			
06																			
07																			
Supplemental Card Residential Improvement Value										Total Residential Improvement Value									
SUMMARY OF NON-RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Const. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Normal Depr.	Remainder Value	Abnorm. Obs.	Nbbd Factor	Improvement Value	
01																			
02																			
03																			
04																			
05																			
06																			
Supplemental Card Non-Residential Improvement Value										Total Non-Residential Improvement Value									

Figure 5-2. Columns Completed in Task 1

To record information about the structure, perform these steps:

- Step 1 In the “ID” column, select an identification number for the structure. Record the information about the structure in the row corresponding to this identification number. Also, use this number to identify the location of the individual structure relative to the dwelling or other structures in the sketch area.
- Note:** It is *not* necessary to sketch the structure to scale or to show the dimensions of the structure in the sketch area.
- Step 2 In the “Use” column, enter the predominant use of the structure. ~~[Can we provide a table that indicates the common use options?] A list of common use options is provided~~ earlier in [this chapter](#).
- Step 3 In the “Story Height” column, enter the height of the structure in feet, measured from the [top of the floor ground](#) ~~[confirm]~~ to the eaves.
- Step 4 In the “Const. Type” column, enter the type of exterior wall construction used for the structure. ~~[Are the options here similar to the ones for a dwelling? Would it be useful to provide a list in a table format?] The exterior wall construction options are~~
- [Frame or aluminum \(Fr\)](#)
  - [Stucco \(Stco\)](#)
  - [Tile \(Tile\)](#)
  - [Concrete block \(CB\)](#)
  - [Metal \(Mtl\)](#)
  - [Concrete \(Conc\)](#)
  - [Brick \(Br\)](#)
  - [Stone \(Stn\)](#).
- Step 5 In the “Grade” column, enter the grade for the structure. Information about determining the grade for a structure is provided in Appendix A.
- Step 6 In the “Year Const.” column, indicate when the structure was originally constructed. Follow these guidelines:
- If you are sure of the date, enter just the date, for example “1990”.
  - If you (the assessor) must estimate the date, enter the date followed by a question mark, for example “1985?”.
  - If the owner estimates the date, enter the date followed by “+/-”, for example “1985+/-”.
  - Enter “Old” to indicate construction prior to:
    - 1938 if the structure is depreciated from the 40 year life expectancy table
    - ~~49~~1953 if the structure is depreciated from the 30 year life expectancy table
    - ~~5~~1969 if the structure is depreciated from the 20 year life expectancy table
    - ~~0~~1974 if the structure is depreciated from the in-ground swimming pool depreciation table

- 1989 if the structure is depreciated from the above-ground swimming pool depreciation table.

Step 7 *Swimming pools only. If the pool shows excessive physical deterioration for its age and you have subtracted six (6) years from its construction year, you must enter the new year in the “Eff. Age” column. This is explained in the section **Using the Swimming Pools Depreciation Tables** in Appendix B. ~~in the “Year Remod.” column, enter the most recent year when significant remodeling took place~~*

*If the effective age of the pool is the same as the actual age if the structure was not significantly remodeled, leave this column blank.*

Step 8 In the “Cond.” column, enter the code indicating the assigned condition of the structure. Table 5-1 describes the codes for this column.

**Table 5-1. Condition Ratings for Yard Improvements**

<b>Classification</b>	<b>Indicated Depreciation</b>
Excellent	The structure is in like-new physical condition and has been well maintained. It has been modernized and updated and suffers from no inutilities.
Good	The structure has been maintained in better physical condition than the majority of structures of its age and suffers from no deferred maintenance. It offers more amenities and has better utility than the majority of the structures of its design.
Average	The structure has been maintained like and is in the typical physical condition of the majority of structures of its age. It offers the same utility as the majority of the structures of its design.
Fair	The structure suffers from minor deferred maintenance and demonstrates less physical maintenance than the majority of structures of its age. It suffers from minor inutilities in that it lacks an amenity that the majority of structures of its design offer.
Poor	Many repairs needed; the structure suffers from extensive deferred maintenance. It suffers from major inutilities in that it lacks several amenities that the majority of structures of its design offer. However, it is still being put to some use in the farming operation.
Very Poor	Extensive repairs needed; the structure suffers from extensive deferred maintenance and is near the end of its physical life. It suffers from extensive inutilities in that it lacks most amenities that the majority of structures of its age and design offer. Poor location for the type of structure.

**Note:** Instructions for determining the condition rating for a structure are provided in Appendix B.

Step 9 In the “Features” column, enter the abbreviations for any features that alter the base rate for the structure. For a list of features for each type of structure, refer to the section “Improvement Features” on the property record card, shown in Figure 5-3.

Step 10 In the “L/M” column, enter the location multiplier for your county, which can be found in Table C-1 in Appendix C. ~~[Would it be useful to provide a table that describes these features more clearly?]~~

Step 11 In the “Size or Area” column, enter the size or area of the structure. “Size” refers to the dimensions of the structure, such as length and width, or diameter and height. “Area” refers to the square foot ground area of the structure.

To determine whether to enter the size (and if size is used, exactly which dimensions) or the area of the structure, refer to the cost schedule for the structure type. Measure the dimensions and use the same units of measurement as the appropriate cost schedule uses. ~~[Would it be useful to provide a table that describes which measurements to record for each type of structure? Are these units stable?]~~

Step 12~~2~~ In the “Normal Depr.” column, enter the total depreciation from the appropriate depreciation table. Information about evaluating depreciation is provided in Appendix B.

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Major Items					Improvement Features													
Residential					Agricultural													
C Concrete Floor D Dirt Floor E Electric Lights F Grade G Insulation H Loft I Plumbing J Siding K Stairs L Type of Construction M BOAT HOUSE N T/G/D/Q O Open Side P Open/Enclosed Q Back-to-back R DETACHED GARAGE S T/G/D/L/Q T GREENHOUSE U Free Standing V Attached at End W Lean-to X ST/D/G/L Y SWIMMING POOL Z Underwater Lighting AA Tile/Ceramic/Plastic AB Filter AC Heater/Boiler/Shape AD Concrete Apron AE Enclosure Type AF TENNIS COURT AG Utility Shed AH T/G					BARNS D/S/P/E/I/D/Q D/S/P/E/I/D/Q CONFINEMENT T/P/E/C/I Slatted Floors CORN CRIB T Frame/Wire No Roof Drive-thru Floor GRANARIES Storage Bins Pole Type GRAIN BINS - STEEL Open/Enclosed Bushel Capacity QUONSET BUILDINGS E/I/H CONCRETE SLURRY TANKS Inground/above ground Round/Rectangle Round/Cover/No Cover SILOS Concrete Conc. Stave/Rent/d Tile/Ceramic/Plastic Steel Unlined/Glass Lined TRENCH & BUNKER SILOS Depth Width													
O T E N																		
SUMMARY OF RESIDENTIAL IMPROVEMENTS																		
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Const. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Total Depr.	Remainder Value	% Comp	Nbhd Factor	Improvement Value
01	Dwelling																	
02																		
03																		
04																		
05																		
06																		
07																		
													Supplemental Card Residential Improvement Value		Total Residential Improvement Value			
SUMMARY OF NON-RESIDENTIAL IMPROVEMENTS																		
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Const. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Normal Depr.	Remainder Value	Abnorm. Obs.	Nbhd Factor	Improvement Value
01																		
02																		
03																		
04																		
05																		
06																		
07																		
													Supplemental Card Non-Residential Improvement Value		Total Non-Residential Improvement Value			

Figure 5-3. Improvement Features

**Task 2—Determining the Base Rate**

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You determine the base rate of the structure using the cost schedule for the appropriate type of structure. The cost schedules for residential and agricultural yard structures are provided in Appendix C.

The cost schedules provide either whole dollar or square foot unit values. The schedules are based on a “C” grade unless otherwise specified. Each schedule includes base rates for the typical range of size or configuration for the type of structure.

The rates given, unless otherwise specified, apply to detached, free standing structures. **For attached structures, not identified as such in the pricing schedules, apply the following multipliers to the price derived from the pricing schedules:**

- (1) If one (1) end or the shortest length is attached, multiply by ninety-hundredths (.90).
- (2) If one (1) side or the longest length is attached, multiply by eighty-hundredths (.80).

The shading in Figure 5-4 indicates the columns of the “Summary of Non-Residential Improvements” table that you complete when determining the base rate for a structure.

IMPROVEMENT DATA AND COMPUTATIONS																			
Major Items					Improvement Features														
Residential					Agricultural														
C Concrete Floor D Dirt Floor E Electric Lights F Grade G Insulation H Loft I Plumbing J Stairs K Type of Construction L Boat House M T/G/D/Q N Open Side O T/G/D P Open/Enclosed Q Back-to-back R DETACHED GARAGE S T/G/D/L/Q T GREENHOUSE U Free Standing V Attached at End W Lean-to X ST/D/G/L Y SWIMMING POOL Z Underwater Lighting AA Tile, Ceramic/Plastic AB Filter AC Heater/Enclosure, Shape AD Concrete Apron AE Enclosure Type AF TENNIS COURT AG Utility Shed AH T/G					BARNS B/S/P/E/I/D/Q D/S/S CONFINEMENT T/P/E/C/I Slatted Floors SILENT FLOORS CORN CRIB T Frame/Wire No Roof Drive-thru Floor GRANARIES Storage Bins Pole Type GRAIN BINS - STEEL Capacity Bushel Capacity QUONSET BUILDINGS E/I/H SLURRY TANKS Inground/above ground Round/rectangle Silo Cover/NO cover Silo Concrete Conc. Slab/Reinfd Tile Tile/Conc. Blk./Brick Steel Unlined/Glass Lined TRENCH & BUNKER SILOS Depth Width														
SUMMARY OF RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Const. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Total Depr.	Remainder Value	% Comp	Nbbd Factor	Improvement Value	
01	Dwelling																		
02																			
03																			
04																			
05																			
06																			
07																			
Supplemental Card Residential Improvement Value										Total Residential Improvement Value									
SUMMARY OF NON-RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Const. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Normal Depr.	Remainder Value	Abnorm. Obs.	Nbbd Factor	Improvement Value	
01																			
02																			
03																			
04																			
05																			
06																			
07																			
Supplemental Card Non-Residential Improvement Value										Total Non-Residential Improvement Value									

Figure 5-4. Columns Completed in Task 2

### Using Area (Square Footage)

To determine the base rate for a structure that uses a schedule based on **area (square footage)**, perform these steps:

- Step 1 Based on the type of structure, locate the appropriate cost schedule.
- Step 2 In the “Area” column of the cost schedule, locate the row corresponding to the square footage of the structure (entered in the “Size and Area” column in the “Summary of Non-Residential Improvements” section).

*If the structure is any type other than a general purpose pole barn, use the area in the cost schedule that is closest to the actual square footage of the structure. There is no need to interpolate between these rates.*

*If the structure is a general purpose pole barn, perform the interpolation procedure described in the cost schedule and shown in Example 2, below. ~~[Should we describe the procedure here or might it change?]~~ The interpolation procedure calculates a value for a pole barn that has measurements different than those listed in the schedule. The first number in the size column represents the width of the structure and the second number represents the length. A size deviation in a building should be compared against the width column of the schedule first.*

The procedure below applies when selecting the next smallest and next largest structure from the cost schedule:

- If the width of the subject building exactly matches the width in the size column, the interpolation of the rates is between the lengths only. For example, a subject building measuring 50' x 150' uses the 50' x 140' building and the 50' x 160' building in the interpolation process.
- If the width of the subject does not exactly match the width in the size column and the lengths do match, the interpolation of the rates is between the widths only. For example, a subject building measuring 48' x 100' uses the 40' x 100' building and the 50' x 100' building in the interpolation process.
- If the width and length of the subject building does not exactly match the sizes listed in the cost schedule, the interpolation of the rates begins with the width first, then the length. A subject building measuring 75' x 150' uses the 60' x 140' building and the 80' x 160' building in the interpolation process. The first comparison in this example is the width since 75' is above 60' and below 80'. The second qualifier is the 140' length and the 160' length which is the range when analyzing the 150' length.

**Note:** *If the area of the structure is larger than the largest area or smaller than the smallest area provided in the cost schedule, extrapolate to calculate the amount to add to, or subtract from, the base rate. When extrapolating, perform the following calculations:*

- a. For an area larger than the square footage listed on the schedule, calculate the difference between the rate of the largest square*

footage and the rate of the next highest square footage. Subtract this difference from the rate of the largest square footage to arrive at the appropriate rate for the subject building, using the difference between the base rates for any two entries in the table, as illustrated in Example 2 below. [Confirm: Are these tables always presented in fixed intervals with a linear increase in prices?]

a-b. For an area smaller than the square footage listed on the schedule, calculate the difference between the rate of the smallest square footage and the rate of the next smallest square footage. Add this difference to the rate of the smallest square footage to arrive at the appropriate rate for the subject building.

- Step 3 Find the intersection of the selected row (area in square feet) and the appropriate column. In the “Base Rate” column in the “Summary of Non-Residential Improvements” section, enter the number that you find (or interpolate or extrapolate).

**Note:** The column headings vary in the cost schedules. Often there are separate columns for different types of construction.

**Example 1:** The following example illustrates the procedure of determining the base square foot rate for a detached frame garage which measures 20' x 24'.

- Calculate the area to be 480 square feet (20 x 24 = 480 square feet)
- In the detached garage schedule, find the area closest to 480 square feet.
- In the row for 500 square feet, follow across to the right to the column labeled frame.
- Record the base rate of \$21.05 in the base rate column of the “Summary of Non-Residential Improvements” section.

**Example 2:**

The following detailed example illustrates the interpolation procedure using a 14' high general purpose pole building with the dimensions of 75' by 150'.

- Select the model width(s) and length(s) closest to the subject building (60' x 140' and 80' x 160').
- Select (or calculate) the square foot rate applicable for each of the two areas immediately smaller and larger than the subject building.

$$60' \times 140' \equiv 8,400 \equiv 6.10$$

$$80' \times 160' \equiv 12,800 \equiv 5.80$$

Any height adjustment to the subject building above 14' or below 14' must be attributed to the smallest size and largest size when calculating the rate in Step b.

c. Calculate the difference in the whole dollar value applicable to each of the areas selected in Step b.

$$60' \times 140' \equiv 8,400 \times 6.10 \equiv 51,240$$

$$80' \times 160' \equiv 12,800 \times 5.80 \equiv 74,240$$

$$74,240 - 51,240 \equiv 23,000$$

d. Divide the result from Step c by the difference in the areas used in Step b.

$$12,800 \div 8,400 \equiv 4,400 \text{ sq. ft.}$$

$$23,000 \div 4,400 \equiv 5.23$$

e. Apply the rate from Step d to the difference in the area of the subject building and the smaller area of the two used in Step b.

$$\text{Subject building } 75' \times 150' \equiv 11,250 \text{ sq. ft.}$$

$$\text{Smaller building } 60' \times 140' \equiv 8,400 \text{ sq. ft.}$$

$$11,250 - 8,400 \equiv 2,850 \text{ sq. ft.}$$

$$2,850 \times 5.23 \equiv 14,905$$

f. Add the result from Step e to the whole dollar value calculated for the smaller area in Step c and round to the nearest \$10 to arrive at the value of the 75' x 150' building.

$$60' \times 140' \times 6.10 \equiv 51,240$$

$$51,240 \pm 14,905 \equiv 66,150$$

## Using Whole Dollar Amounts

To determine the base rate for a structure that uses a schedule based on **whole dollar amounts**, perform these steps:

Step 1 Based on the type of structure, locate the appropriate cost schedule.

Step 2 In the “Size” column of the cost schedule, locate the row corresponding to the size of the structure, which you entered in the “Size and Area” column in the “Summary of Non-Residential Improvements” section. Use the area in the cost schedule that is closest to the actual **size square footage** of the structure.

**Note:** *If the size of the structure is larger than the largest size or smaller than the smallest size provided in the cost schedule, extrapolate to calculate the amount to add to, or subtract from, the base rate. When extrapolating, go to the column that best represents the size of the subject building and perform the following calculations:*

a. For sizes smaller than those listed in the cost schedule, calculate the difference between the two smallest sizes listed in the schedule and subtract the difference from the smallest size in the schedule.

~~a-b.~~ For sizes larger than those listed in the cost schedules, calculate the difference between the two largest sizes listed in the schedule and add the difference to the largest size in the schedule, using the difference between the base rates for any two entries in the table, as illustrated in Example 2 below. **[Confirm.]**

- Step 3 Find the intersection of the selected row (~~area in square feet~~) and the appropriate column. In the “Base Rate” column in the “Summary of Non-Residential Improvements” section, enter the number that you find (or extrapolate).

**Example 1:** The following example illustrates the procedure of determining the whole dollar base rate for a 18’ diameter above ground pool:

- In the diameter column, find the diameter closest to 18’.
- In the 18’ diameter row, locate the base rate.
- Record the rate of \$2300 in the base rate column of the “Summary of Non-Residential Improvements” section.

**Example 2:** The following example illustrates the extrapolation procedure for finding the base rate for a steel grain bin that measures 30’ x 55’ 0”.

- Find the size and base rate for the closest 30’ steel bin. This is 30’ x 47’8” which has a base rate of 30,400.
  - Find the size and base rate for the next closest 30’ steel bin. This is 30’ x 40’4” which has a base rate of 24,100.
  - Find the difference between the rates found in Step a and Step b ( $30,400 - 24,100 = 6,300$ ).
  - Add the difference calculated in Step c to the largest 30’ bin rate in Step a ( $6,300 + 30,400 = 36,700$ ).
- ~~c-d.~~ The base rate for a 30’ x 55’0” steel bin is 36,700. Record this base rate in the base rate cell in the “Summary of Non-Residential Improvements” section.

**Note:** ~~The column headings vary in the cost schedules. Often there are separate columns for different types of construction. [An example would help here.]~~

### Task 3—Determining the Adjusted Base Rate and Replacement Cost

The adjusted base rate for the structure is the base rate, adjusted to take into account any relevant features identified for the structure, an adjustment for location (by applying the location cost multiplier), and the grade factor percentage, ~~if one applies~~. If the structure uses a cost schedule based on area (square footage), the replacement cost for the structure is the structure’s area

multiplied by the adjusted base rate (per square foot). If the structure uses a cost schedule based on whole dollar amounts, the replacement cost is the same as the adjusted base rate.

The shading in Figure 5-5 indicates the columns of the “Summary of Non-Residential Improvements” section that you complete when determining the adjusted base rate and replacement cost of the structure.

IMPROVEMENT DATA AND COMPUTATIONS																			
Major Items					Improvement Features														
Residential					Agricultural														
C Concrete Floor D Dirt Floor E Electric Lights F Grade G Insulation H Loft I Plumbing J Stairs K Type of Construction L Boat House M T/G/D/Q N Open Side O T/G/D P Open/Enclosed Q Back-to-back R DETACHED GARAGE S T/G/D/L/Q T GREENHOUSE U Free Standing V Attached at End W Lean-to X ST/D/G/L Y SWIMMING POOL Z Underwater Lighting AA Tile, Ceramic/Plastic AB Filter AC Heater/enclosure Shape AD Concrete Apron AE Enclosure Type AF TENNIS COURT AG Utility Shed AH T/G					BARNS D/S/P/E/I/D/Q D/S/P/E/I/D/Q CONFINEMENT T/P/E/C/I Slatted Floors SILENT FLOORS CORN CRIB T Frame/Wire No Roof Drive-thru Floor GRANARIES Storage Bins Pole Type GRAIN BINS - STEEL Capacity Bushel Capacity QUONSET BUILDINGS E/I/H SLURRY TANKS Inground/above ground Round/rectangle Round/Cover/NO cover SILO Concrete Conc. Slab/Reinfd Tile/Conc. Blk/Brick Steel Unlined/Glass Lined TRENCH & BUNKER SILOS Depth Width														
O T E N																			
SUMMARY OF RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Const. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Total Depr.	Remainder Value	% Comp	Nbbd Factor	Improvement Value	
01	Dwelling																		
02																			
03																			
04																			
05																			
06																			
07																			
SUB-TOTAL													Supplemental Card Residential Improvement Value						
ADJUSTED SUB-TOTAL													Total Residential Improvement Value						
SUMMARY OF NON-RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Const. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Normal Depr.	Remainder Value	Abnorm. Obs.	Nbbd Factor	Improvement Value	
01																			
02																			
03																			
04																			
05																			
06																			
07																			
SUB-TOTAL													Supplemental Card Non-Residential Improvement Value						
ADJUSTED SUB-TOTAL													Total Non-Residential Improvement Value						

Figure 5-5. Columns Completed in Task 3

To determine the adjusted base rate and replacement cost for the structure, perform these steps:

- Step 1 Compare the features that you entered in the “Features” column in the “Summary of Non-Residential Improvements” section with the features in the cost schedule for the structure. If the cost schedule indicates that the base rate should be adjusted because of one or more of the features, adjust the base rate accordingly.
- Step 2 Determine and enter the location cost multiplier established for your county in the “L/M” cell. The table containing the location cost multipliers can be found in Appendix C.
- Step 3 Divide the grade factor percentage corresponding to the grade entered in the “Grade” column in the “Summary of Non-Residential Improvements” section by 100 to arrive at a multiplier. Instructions for determining the grade factor percentage for a structure are provided in the section **Assigning Grades to Residential and Agricultural Yard Structures** in Appendix A.
- Step 4 Calculate the adjusted base rate by multiplying the base rate (adjusted for any features) by the multiplier obtained in Step 2 and then by the multiplier in step 3:

$$\begin{array}{r} \text{Adjusted} \\ \text{base rate} \end{array} = \begin{array}{r} \text{Base rate} \\ \text{adjusted} \\ \text{for features} \end{array} \times \begin{array}{r} \text{Multiplier} \\ \text{obtained} \\ \text{in Step 2} \end{array} \times \begin{array}{r} \text{Multiplier} \\ \text{obtained in} \\ \text{Step 3} \end{array}$$

Enter the adjusted base rate in the “Adj. Rate” column.

- Step 5 *If the structure uses a schedule based on area (square footage),* calculate the replacement cost by multiplying the adjusted base rate (entered in the “Adj. Rate” column) by the structure’s square footage (entered in the “Size or Area” column):

$$\begin{array}{r} \text{Replacement} \\ \text{cost} \end{array} = \begin{array}{r} \text{Adjusted} \\ \text{base rate} \end{array} \times \begin{array}{r} \text{Area} \\ \text{(square footage)} \end{array}$$

Round the replacement cost to the nearest \$10 and enter it in the “Replacement Cost” column.

*If the structure uses a schedule based on whole dollar amounts,* round the adjusted base rate (entered in the “Adj. Rate” column) to the nearest \$10 and enter it in the “Replacement Cost” column.

**Example:** The procedures for calculating the adjusted base rate and the replacement cost of a 20’ x 24’ detached frame garage with a quality rating of D is as follows:

- The base rate for a 480 square foot detached frame garage of average quality is \$21.05.
- The adjusted rate for the garage is the product of the base rate times the location cost multiplier (i.e. 1.00), times the D grade multiplier of .80. The adjusted base rate is 16.84 (21.05 x 1.00 x .80 = 16.84).

- c. Record the rate in the adjusted base rate cell in the “Summary of Non-Residential Improvements” section.
- d. The replacement cost is the product of the adjusted base rate times the area of the detached garage. The replacement cost is \$8,080 when rounded to the nearest \$10.
- e. Record the replacement cost in the “Summary of Non-Residential Improvements” section.

**Task 4—Calculating the Remainder Value**

The structure’s remainder value is its replacement cost adjusted for normal depreciation. The shading in Figure 5-6 indicates the columns of the “Summary of Non-Residential Improvements” table that you complete when calculating the remainder value of the structure.

IMPROVEMENT DATA AND COMPUTATIONS																			
Major Items					Improvement Features														
Residential					Agricultural														
C Concrete Floor D Dirt Floor E Electric Lights F Grade G Insulation H Loft I Plumbing J Siding K Stairs L Type of Construction M BOAT HOUSE N T/G/D/Q O Open Side P Open/D Q T/G/D R Open/Enclosed S Back-to-back T DETACHED GARAGE U T/G/D/L/Q V GREENHOUSE W Free Standing X Attached at End Y Lean-to Z ST/D/G/L AA SWIMMING POOL AB Underwater Lighting AC Tile, Ceramic/Plastic AD Filter AE Heater AF Irregular Shape AG Concrete Apron AH Enclosure Type AI TENNIS COURT AJ Utility Shed AK T/G					BARNS D/S/P/E/I/D/Q D/S/P/E/I/D/Q CONFINEMENT T/P/E/C/I Shaded Floors CORN CRIB T Frame/Wire No Roof Drive-thru Floor GRANARIES Storage Bins Pole Type GRAIN BINS - STEEL Capacity Bushel Capacity QUONSET BUILDINGS E/I/H SLURRY TANKS In-ground/above ground Round/rectangle SILO Cover/NO Cover Concrete Conc. Stave/Reinfd Tile/Conc. Blk/Brick Steel Unlined/Glass Lined TRENCH & BUNKER SILOS Depth Width														
SUMMARY OF RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Total Degr.	Remainder Value	% Comp	Nhbd Factor	Improvement Value	
01	Dwelling																		
02																			
03																			
04																			
05																			
06																			
07																			
O T E N																			
SUMMARY OF NON-RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Total Degr.	Remainder Value	% Comp	Nhbd Factor	Improvement Value	
01																			
02																			
03																			
04																			
05																			
06																			
07																			
Data Collector / Date										Appraiser / Date									
TOTAL BASE										SUB-TOTAL									
Asphalt Shingles										Unfinished Interior [-]									
Slate or Tile										Extra Living Units [+]									
Metal										Rec. Room [+]									
Floors										Loft [+]									
Earth										Fireplace [+]									
Sub & Joists										No Heating [-]									
Wood										Air Conditioning [+]									
Parquet										No Electrical Service [-]									
Tile										Plumbing									
Carpet										Plumbing									
Unfinished										Plumbing									
Plaster or Dry Wall										Plumbing									
Paneling										Plumbing									
Fiberboard										Plumbing									
Unfinished										Plumbing									
No Electrical Service										Plumbing									
Accommodations										Plumbing									
Total Number of Rooms										Plumbing									
Bedrooms										Plumbing									
Family Room										Plumbing									
Formal Dining Room										Plumbing									
Loft Area										Plumbing									
Rec. Room										Plumbing									
Fireplace										Plumbing									
Masonry										Plumbing									
Metal										Plumbing									

Figure 5-6. Columns Completed in Task 4

To calculate the remainder value, perform these steps:

- Step 1 Subtract the percentage determined for total depreciation (entered in the “Normal Depr.” column) from 100%.
- Step 2 Divide the result obtained in Step 1 by 100 to arrive at a multiplier.
- Step 3 Calculate the remainder value by multiplying the replacement cost of the structure (entered in the “Replacement Cost” column) by the multiplier obtained in Step 2.

Remainder cost = Replacement cost x Multiplier obtained in Step 2

Enter the remainder value in the “Remainder Value” column rounded to the nearest \$10.

**Example:** The replacement cost of a structure is \$5,500. The normal depreciation percentage for the structure is 30%. The remainder value is:  
 $100\% - 30\% = 70\% \div 100 = .70 \times \$5,500 = \$3,850$ .

### **Task 5—Calculating the Improvement Value**

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The structure's improvement value is its remainder value, adjusted for abnormal obsolescence and neighborhood factor (if applicable) rounded to the nearest \$100. The shading in Figure 5-7 indicates the columns of the “Summary of Non-Residential Improvements” table that you complete when calculating the improvement value of the structure.

IMPROVEMENT DATA AND COMPUTATIONS																			
Major Items					Improvement Features														
Residential					Agricultural														
C Concrete Floor D Dirt Floor E Electric Lights F Grade G Insulation H Loft I Plumbing J Siding K Stairs L Type of Construction M BOAT HOUSE N T/G/D/Q O Open Side P Open/D Q T/G/D R Open/Enclosed S Back-to-back T DETACHED GARAGE U T/G/D/L/Q V GREENHOUSE W Free Standing X Attached at End Y Lean-to Z ST/D/G/L AA SWIMMING POOL AB Underwater Lighting AC Tile, Ceramic/Plastic AD Filter AE Heater AF Concrete Apron AG Enclosure Type AH TENNIS COURT AI ASPHALT AJ UTILITY SHED AK T/G					BARNS B/S/S/P/E/I/D/Q D/S/S CONFINEMENT T/P/E/C/I Shelled Floors CORN CRIB T Frame/Wire No Roof Drive-thru Floor GRANARIES Storage Bins Pole Type GRAIN BINS - STEEL Capacity Bushel Capacity QUONSET BUILDINGS E/I/H SLURRY TANKS Inground/above ground Round/rectangle SILO Cover/NO Cover Concrete Conc. Stave/Reinfd Tile/Conc. Blk/Brick Steel Unlined/Glass Lined TRENCH & BUNKER SILOS Depth Width														
SUMMARY OF RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Total Degr.	Remainder Value	% Comp	Nhbhd Factor	Improvement Value	
01	Dwelling																		
02																			
03																			
04																			
05																			
06																			
07																			
O T E N																			
SUMMARY OF NON-RESIDENTIAL IMPROVEMENTS																			
ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Total Degr.	Remainder Value	% Comp	Nhbhd Factor	Improvement Value	
01																			
02																			
03																			
04																			
05																			
06																			
07																			
Supplemental Card Non-Residential Improvement Value																			
Total Residential Improvement Value																			

Figure 5-7. Columns Completed in Task 5

To calculate the improvement value of the structure, perform these steps:

Step 1 *If abnormal obsolescence depreciation applies to the structure*, divide the dollar amount of abnormal obsolescence by the “Remainder Value” to get an abnormal obsolescence depreciation percentage. Enter this percentage in the “Abnorm Obs” Column of the property record card.

**Note:**

This column can also be utilized to make adjustments for improvements less than 100% complete. Be sure to indicate what you have done in the memorandum section.

Step 3 Calculate the neighborhood factor and enter the result in the “Nhbd Factor” cell. Information on neighborhood factors can be found in Appendix B.

Step 4 The improvement value is the remainder value of the dwelling, adjusted for % complete, abnormal obsolescence and neighborhood factor (if necessary), rounded to the nearest \$100. Enter this amount in the “Improvement Value” column on the property record card.

**Example:** The remainder value of a structure is \$3,850. Assuming the structure is 100% complete, suffers no abnormal obsolescence and the neighborhood factor is 1.00, the improvement value is **\$3,900**.

## **Task 6—Calculating the Total Non-Residential Improvement Value**

Calculate the improvement value for each structure by performing Task 1 through Task 5 for each structure. If you run out of rows in the “Summary of Non-Residential Improvements” section of the property record card, use an additional card (or cards).

To calculate the total non-residential improvement value for the property, perform these steps:

Step 1 *If you used **only one** property record card to complete the “Summary of Non-Residential Improvements” for the property*, sum the entries in the “Improvement Value” column and enter the total in the “Total Non-Residential Improvement Value” cell.

*If you used **more than one** ~~property record card~~~~property record card~~ to complete the “Summary of Non-Residential Improvements” for the property*, on each card except Card 001, sum the entries in the “Improvement Value” column and enter the total in the “Total Non-Residential Improvement Value” cell.

Step 2 Sum the entries in the “Total Non-Residential Improvement Value” cell of all of the ~~property record card~~~~property record card~~s except Card 001. Enter the total in the “Supplemental Card Non-Residential Improvement Total” cell on Card 001.

Step 3 On Card 001, sum the entries in the “Improvement Value” column, including the entry in the “Supplemental Card Non-Residential

Improvement Total” cell and enter the total in the “Total Non-Residential Improvement Value” cell.

IMPROVEMENT DATA AND COMPUTATIONS									
Major Items					IMPROVEMENT FEATURES				
Residential					Agricultural				
<p>Concrete Floor Electric Lights Open Side H Heating I Insulation L Loft O Plumbing S Stairs T Type of Construction</p>					<p>BARN Agricultural Open Side CONFINEMENT T/P/E/C/I H Heating I Insulation P Hatched Floors CORNER CRIB T Frame/Wire No Roof No Roof Floor GRANARIES Storage Bins Pole Type GRAIN BINS - STEEL Capacity BUSH Capacity QUONSET BUILDINGS E/I/H SLURRY TANKS Concrete Inground/above ground Round/rectangular SILAGE Cover/No Cover Concrete Cone. Slave/Rein'd Masonry Unlined/Glass Lined Steel NO ROOF TENNIS COURT &amp; BUNKER SILOS Depth Width</p>				
<p>BOAT HOUSE T/G/D/Q Open Side T/G/D Open/Enclosed Back-to-back DETACHED GARAGE T/G/D/L/Q GREENHOUSE See Standing Attached at End Lean-to ST/D/L SWIMMING POOL Underwater Lighting Underwater Heater Filler Non-rectangular Shape Non-rectangular TENNIS COURT Enclosure Type Clay/Sod/Asphalt UNITS SHED T/G</p>									
<p>0 None 1 1/4 2 1/2 3 3/4 4 Full</p>									
<p>Attic None Unfinished 1/2 Finished 3/4 Finished Finished Living Area</p>									
<p>Story Height None 2 Bi-level 3 Tri-level 4 Full</p>									
<p>Base Area Floor Basement Crawl</p>									
<p>Occupancy 1 Single Family 2 Duplex 3 Triplex 4 4-6 Family 5 M. Home</p>									
<p>Construction 1 Frame or Aluminum 2 Siloco 3 Tile 4 Concrete Block 5 Metal 6 Concrete 7 Brick 8 Stone 9 Frame w/Masonry</p>									
<p>Roofing Asphalt Shingles Slate or Tile Metal Floors Eanh Slab Sub &amp; Joists Wood Parquet Tile Carpet Unfinished Interior Finish Plaster or Dry Wall Paneling Fiberboard Unfinished No Electrical Service Accommodations Total Number of Rooms Bedrooms Family Room Formal Dining Room</p>									
<p>Row-type Adjustment SUB-TOTAL</p>									
<p>Unfinished Interior [-] Extra Living Units [+] Rec. Room [+] Loft [+] Fireplace [+] No Heating [-] Air Conditioning [+] No Electrical Service [-] Plumbing TF: -5 = x 700 No Plumbing [-] Specialty Plumbing [+] SUB-TOTAL, ONE UNIT SUB-TOTAL, UNITS Garages Integral [-] Attached Garage [+] Attached Carport [+] Basement [+] Exterior Features Grade and Design Factor ADJUSTED SUB-TOTAL</p>									
<p>Location Multiplier Replacement Cost Heating &amp; Air Conditioning Central Warm Air Hot Water or Steam Heat Pump No Heat (Gravty/Wall/Space) Central Air Cond. Extra Living Unit</p>									
<p>Plumbing Full Bath Half Baths Kitchen Sink Water Heater Extra Fixtures TOTAL No Plumbing</p>									
<p>Attic None Unfinished 1/2 Finished 3/4 Finished Finished Living Area</p>									
<p>Story Height None 2 Bi-level 3 Tri-level 4 Full</p>									
<p>Base Area Floor Basement Crawl</p>									
<p>Occupancy 1 Single Family 2 Duplex 3 Triplex 4 4-6 Family 5 M. Home</p>									
<p>Construction 1 Frame or Aluminum 2 Siloco 3 Tile 4 Concrete Block 5 Metal 6 Concrete 7 Brick 8 Stone 9 Frame w/Masonry</p>									
<p>Roofing Asphalt Shingles Slate or Tile Metal Floors Eanh Slab Sub &amp; Joists Wood Parquet Tile Carpet Unfinished Interior Finish Plaster or Dry Wall Paneling Fiberboard Unfinished No Electrical Service Accommodations Total Number of Rooms Bedrooms Family Room Formal Dining Room</p>									
<p>Row-type Adjustment SUB-TOTAL</p>									
<p>Unfinished Interior [-] Extra Living Units [+] Rec. Room [+] Loft [+] Fireplace [+] No Heating [-] Air Conditioning [+] No Electrical Service [-] Plumbing TF: -5 = x 700 No Plumbing [-] Specialty Plumbing [+] SUB-TOTAL, ONE UNIT SUB-TOTAL, UNITS Garages Integral [-] Attached Garage [+] Attached Carport [+] Basement [+] Exterior Features Grade and Design Factor ADJUSTED SUB-TOTAL</p>									
<p>Location Multiplier Replacement Cost Heating &amp; Air Conditioning Central Warm Air Hot Water or Steam Heat Pump No Heat (Gravty/Wall/Space) Central Air Cond. Extra Living Unit</p>									
<p>Plumbing Full Bath Half Baths Kitchen Sink Water Heater Extra Fixtures TOTAL No Plumbing</p>									
<p>Attic None Unfinished 1/2 Finished 3/4 Finished Finished Living Area</p>									
<p>Story Height None 2 Bi-level 3 Tri-level 4 Full</p>									
<p>Base Area Floor Basement Crawl</p>									
<p>Occupancy 1 Single Family 2 Duplex 3 Triplex 4 4-6 Family 5 M. Home</p>									
<p>Construction 1 Frame or Aluminum 2 Siloco 3 Tile 4 Concrete Block 5 Metal 6 Concrete 7 Brick 8 Stone 9 Frame w/Masonry</p>									
<p>Roofing Asphalt Shingles Slate or Tile Metal Floors Eanh Slab Sub &amp; Joists Wood Parquet Tile Carpet Unfinished Interior Finish Plaster or Dry Wall Paneling Fiberboard Unfinished No Electrical Service Accommodations Total Number of Rooms Bedrooms Family Room Formal Dining Room</p>									
<p>Row-type Adjustment SUB-TOTAL</p>									
<p>Unfinished Interior [-] Extra Living Units [+] Rec. Room [+] Loft [+] Fireplace [+] No Heating [-] Air Conditioning [+] No Electrical Service [-] Plumbing TF: -5 = x 700 No Plumbing [-] Specialty Plumbing [+] SUB-TOTAL, ONE UNIT SUB-TOTAL, UNITS Garages Integral [-] Attached Garage [+] Attached Carport [+] Basement [+] Exterior Features Grade and Design Factor ADJUSTED SUB-TOTAL</p>									
<p>Location Multiplier Replacement Cost Heating &amp; Air Conditioning Central Warm Air Hot Water or Steam Heat Pump No Heat (Gravty/Wall/Space) Central Air Cond. Extra Living Unit</p>									
<p>Plumbing Full Bath Half Baths Kitchen Sink Water Heater Extra Fixtures TOTAL No Plumbing</p>									

Figure 5-8. Calculating the Total Non-Residential Improvement Value Example