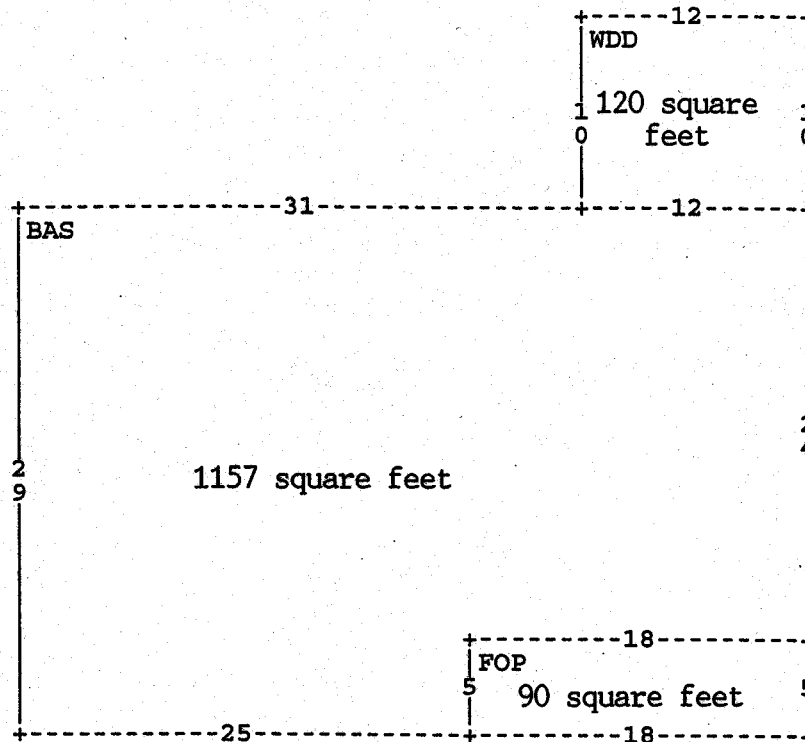


Calculation of System Values

Calculation of Index Values

In order for the user to have a basic understanding of the operation of the system and the computerized application of the index valuation models, the following step-by-step calculation of a sample parcel is presented. We have chosen a single family residence to demonstrate each of the various indices.

The following graph and structural element data will be used for the purpose of example:



Structural Element Field Collection Sheet

Foundation	
01 Earth	
02 Piers	
03 Continuous Ft	
04 Spread Footing	
05 Special Footing	
Floor System	
01 None	
02 Slab On Grade	
03 Slab Above Grade	
04 Plywood	
05 Wood	
06 Slab Platform Height	
07 Structural Slab	
Exterior Wall *	
01 Siding Minimum	
02 Corrugated Metal (Light)	
03 Comp. Shingle or Wallboard	
04 Siding without Sheathing	
05 Asbestos Shingle	
06 Board & Batten (Sheet)	
07 Corrugated Asbestos	
08 Masonite	
09 Wood	
10 Aluminum or Vinyl Siding	
11 Concrete Block	
12 Stucco on Masonry	
13 Stucco on Frame	
14 Siding Average	
15 Board & Batten (12" Boards)	
16 Wood Shingle or Log	
17 Cedar or Redwood	
18 Siding Maximum	
19 Utility Brick	
20 Common Brick	
21 Face Brick	
22 Stone	
23 Corrugated Metal (Heavy)	
24 Modular Metal	
25 Reinforced Concrete	
26 Pre-cast Panel	
27 Pre-finished Metal	
28 Glass or Thermopane	
29 Hardiplank	
Roof Structure	
01 Flat	
02 Shed	
03 Gable	
04 Hip	
05 Gambrel or Mansard	
06 Irregular or Cathedral	
07 Wood Truss	
08 Irregular Wood Truss	
09 Rigid fram with Bar Joist	
10 Steel Frame or Truss	
11 Bowstring Truss	
12 Reinforced Concrete	
13 Pre-stressed Concrete	

* Circle one or two choices

Roofing Cover	
01 Corrugated or Sheet Metal	
02 Rolled Composition	
03 Asphalt or Comp. Shingle	
04 Built Up Tar & Gravel	
05 Rubberized	
06 Asbestos	
07 Clay or Concrete Tile	
08 Cedar Shakes	
09 Enameled Metal	
10 Wood or 310 Shingle	
11 Slate	
12 Metal	
Interior Wall *	
01 Masonry or Min	
02 Wallboard or Wood	
03 Plaster	
04 Plywood Panel	
05 Drywall	
06 Custom	
Interior Floor Cover *	
01 None	
02 Plywood/Linoleum	
03 Concrete Finished	
04 Concrete Tapered	
05 Asphalt Tile	
06 Vinyl Asbestos	
07 Cork/Vinyl Tile	
08 Sheet Vinyl	
09 Pine or Soft Wood	
10 Terrazzo (poured)	
11 Ceramic Tile	
12 Hardwood	
13 Parquet	
14 Carpet	
15 Quarried/Hard Tile	
16 Terrazzo (epoxy strip)	
17 Pre-cast Concrete	
18 Slate	
19 Marble	
Heating Fuel	
01 None	
02 Oil/Wood/Coal	
03 Gas	
04 Electric	
05 Solar	
Heating Type	
01 None	
02 Baseboard	
03 Forced Air (not ducted)	
04 Forced Air (ducted)	
05 Radiant Ceiling Heat	
06 Hot Water	
07 Steam	
08 Radiant Electric	
09 Radiant Water	
10 Heat Pump	

Air Cond Type	
01 None	
02 Wall Unit	
03 Central	
04 Packaged Roof Top	
05 Chilled Water	
Bedrooms and Baths	
BAS FUS LL	
Bedrooms	3
Baths	2
½ Baths	0
Commercial Plumbing	
Restrooms	
Total Fixtures	
Apartment Plumbing	
Total Fixtures	
House Style	
1 1 Story	
2 1½ Stories	
3 2 Stories	
4 2½ Stories or More	
5 Ranch with Basement	
6 A-frame	
7 Split Level	
8 Split Foyer	
Fireplace	
01 None	
02 Prefabricated	
03 1 story single	
04 2 Story Single or 1Double	
05 2 or More	
06 Massive	
07 2/More Mass	
08 Prefab 2/More	
Marketability	
01 Factor 1	
02 Factor 2	
03 Factor 3	
04 Factor 4	
05 Factor 5	
06 Factor 6	
07 Factor 7	
08 Factor 8	
09 Factor 9	
Quality Adjustment	
01 Minimum	
02 Below Average	
03 Average	
04 Above Average	
05 Above Average Custom	
06 Excellent	
Year Built	
Actual Year Built	1993
Effective Year Built	1993

Obsolescence	
Economic	
Functional	
Special Condition	
Code	
Percent	
Commercial HVAC	
1 None	
2 Packaged	
3 Split	
Condominium/Apartment	
Floor Number	
Location	
Number of Units	
Land Type	
Percent of Common	
Structural Frame	
1 None	
2 Wood	
3 Pre-Fabricated	
4 Masonry	
5 Reinforced Concrete	
6 Steel	
7 Fireproof Steel	
8 Special	
Ceiling and Wall Finish	
Suspended Ceiling with	
1 Ceiling Insulated	
2 Wall Insulated	
3 Ceiling and Wall Insulated	
4 No Insulation	
Non-Suspended Ceiling with	
5 Ceiling Insulated	
6 Wall Insulated	
7 Ceiling and Wall Insulated	
8 No Insulation	
No Ceiling	
9 Roof Insulated	
10 Wall Insulated	
11 Roof and Wall Insulated	
12 No Insulation	
Commercial and Industrial	
Rooms per Floor	
Common Wall Pct.	
Wall Height(non-std)	

Step 1. Area Calculations

- A. Determine the square foot area of all the auxiliary areas. As shown on the sample graph, the structure has three auxiliary areas.
- B. Multiply each actual area by the percentages assigned to it (this percentage is located in Table of Auxiliary Area Adjustments found on page 6-48).

BAS	1,157 Sq. Ft.	x	100%	=	1,157
WDD	120 Sq. Ft.	x	20%	=	24
FOP	90 Sq. Ft.	x	35%	=	<u>32</u>
Total Effective Area:					1,213

Step 2. Determine Quality Index (Points)

The determination of the quality index is a very important operation. It is the discriminator allowing differences and local conditions to be expressed as an index number which, when applied to a general county wide rate for a given type of improvement, will yield an adjusted base rate. This adjusted base rate simulates the per square foot rate which the market would most probably yield should that parcel sell.

- A. Select the appropriate valuation model. In the sample parcel, the model is “01”, the model for single family residences.
- B. Determine the points associated with the structural element data:

Foundation – Continuous Ft.	5 points
Sub Floor System – Plywood	9 points
Exterior Walls – Alum. Or Vinyl	30 points
Roof Structure – Gable	8 points
Roof Cover – Asp/Comp. Shingles	3 points
Interior Walls – Drywall	20 points
Floor Covering – Sheet Vinyl	6
Carpet	6 points

Since the subject has two types of floor covering, the points are added together and then divided by two and rounded to the nearest whole number.

Heating Fuel – Gas	1 point
Heating Type – Air-Ducted	4 points
Air Conditioning Type – Central	4 points
Bedrooms – 3	
Baths – 2	12 points

A table for the “01” model which determines points for the various combinations of the number of bedrooms to the number of baths is located on page 16-20. As can be seen on this table, a residence with 3 bedrooms and 2 baths is given 12 points.

All points will be rounded after each application. For instance, if the subject had 2 exterior wall types and when divided it came out 30.5, round to 31.

From the preceding figures we have obtained the following:

Foundation	5 points
Sub Floor System	9 points
Exterior Walls	30 points
Roof Structure	8 points
Roof Cover	3 points
Interior Walls	20 points
Floor Covering	6 points
Heating Fuel	1 point
Heating Type	4 points
Air Conditioning Type	4 points
Bedrooms/Baths	12 points
Total Points	102 points

Step 3. Determine Quality Index (Factor)

With residential parcels, the following formula is utilized:

$$\text{Marketability Factor} \times \text{Quality Factor} \times \text{Size Factor}$$
$$1.10 \times 1.00 \times 1.04 = 1.144$$

With commercial and industrial parcels, the following formula is utilized:
Wall height factor x marketability factor x quality factor x size factor

Step 4. Determine Adjusted Points

The total points multiplied by the factor determined in Step 3 results in the Adjusted Points.

$$102 \times 1.144 = 116.688, \text{ rounded to } 117 \text{ Adjusted Points}$$

Step 5. Determine Adjusted Base Rate

- A. The Base Rate for a particular model is given. In this example it is \$63.00 per square foot.
- C. Multiply the Base Rate times the adjusted points (expressed as a percentage).

$$\begin{aligned} \$63.00 \times 1.17 &= \$73.71 \\ \$73.71 &\text{ is the adjusted base rate} \end{aligned}$$

Step 6. Calculate Replacement Cost New

- A. Replacement Cost New is the product of the adjusted base rate times the total effective area calculated in Step. 1 In the sample structure we have:

$$\$73.71 \times 1,213 \text{ sq. ft.} = \$89,410$$

Step 7. Determine Depreciations and Percent Condition of the Subject

- A. The sample structure is an improvement type 01 with an effective age of 11 years (as of 2004). As can be determined from the Depreciation Schedule on page 6-39, the amount of depreciation is 11% and the improvement is 89% good. Another way to determine the percent good is to subtract the amount of depreciation from 100%.

$$100 - 11 = 89$$

Step 8. Calculate the Depreciated Building Value

- A. The Depreciated Building Value is the Replacement Cost New x the Percent Condition.

$$\$89,410 \times .89 = \$79,575 \text{ rounded to } \$79,600$$

Step 9. Calculate Total Cost – Market Value

- A. To the Depreciated Building Value is added the total Depreciated Other Building/Extra Feature (OB/XF) Value (if any) and the Land Value.
- B. In this example, this is as follows:

\$79,600	Depreciated Building Value
0	Total Depreciated OB/XF Value
<u>\$18,000</u>	Land Value
\$97,600	Total