

Table 16.1 Book Depreciation vs. Market Value

With a 2% Increase in Market Value per Year	Book Value	Market Value
Purchase price of land and buildings	\$1,250,000	\$1,250,000
Estimated land value	<u>– \$250,000</u>	<u>– \$250,000</u>
Estimated building value	\$1,000,000	\$1,000,000
Annual depreciation rate = $1/39 = - 2.56\%$	<u>– \$25,641</u>	
Annual appreciation rate = +2%		<u>+ \$20,000</u>
Values at the end of Year 1	Subtotal \$974,359	\$1,020,000
Annual depreciation rate = $1/39 = - 2.56\%$	<u>– \$25,641</u>	
Annual appreciation rate = +2%		<u>+ \$20,400</u>
Values at the end of Year 2	Subtotal \$948,718	\$1,040,400
Annual depreciation rate = $1/39 = - 2.56\%$	<u>– \$25,641</u>	
Annual appreciation rate = +2%		<u>+ \$20,808</u>
Values at the end of Year 3	Subtotal \$923,077	\$1,061,208
Annual depreciation rate = $1/39 = - 2.56\%$	<u>– \$25,641</u>	
Annual appreciation rate = +2%		<u>+ \$21,224</u>
Values at the end of Year 4	Subtotal \$897,436	\$1,082,432
Annual depreciation rate = $1/39 = - 2.56\%$	<u>– \$25,641</u>	
Annual appreciation rate = +2%		<u>+ \$21,649</u>
Values at the end of Year 5	Subtotal \$871,795	\$1,104,081
Annual depreciation rate = $1/39 = - 2.56\%$	<u>– \$25,641</u>	
Annual appreciation rate = +2%		<u>+ \$22,082</u>
Values at the end of Year 6	Subtotal \$846,154	\$1,126,162
Annual depreciation rate = $1/39 = - 2.56\%$	<u>– \$25,641</u>	
Annual appreciation rate = +2%		<u>+ \$22,523</u>
Values at the end of Year 7	Subtotal \$820,513	\$1,148,686
Annual depreciation rate = $1/39 = - 2.56\%$	<u>– \$25,641</u>	
Annual appreciation rate = +2%		<u>+ \$22,974</u>
Values at the end of Year 8	Subtotal \$794,872	\$1,171,659
Assume a resale at the end of Year 8		
Add back in the land value	<u>+ \$250,000</u>	<u>+ \$292,915</u>
	\$1,044,872	\$1,464,574
Capital gains income = \$419,702		

Table 16.2 Depreciation of Newer Improvements Estimated Using Sales Comparison

	Sale 1	Sale 2	Sale 3
Address	143 Goldenrod Dr.	201 Jasmine Dr.	831 E. 13th St.
Sale price	\$255,000	\$265,000	\$275,000
Rights conveyed	\$0	\$0	\$0
Seller concessions	\$0	\$0	\$0
Conditions of sale	\$0	\$0	\$0
Net sale price	<u>\$255,000</u>	<u>\$265,000</u>	<u>\$275,000</u>
Estimated land value	– \$50,000	– \$52,000	– \$55,000
Site improvement value	<u>– \$5,500</u>	<u>– \$6,500</u>	<u>– \$7,500</u>
Depreciated value of buildings	\$199,500	\$206,500	\$212,500
Reproduction cost	\$212,000	\$225,000	\$235,000
Less building value	<u>– \$199,500</u>	<u>– \$206,500</u>	<u>– \$212,500</u>
Total depreciation	\$12,500	\$18,500	\$22,500
Percentage depreciation	5.90%	8.22%	9.57%
Actual age	3	5	6
Percentage depreciation per year	1.97%	1.64%	1.60%

Table 16.3 Depreciation of Older Improvements

	Sale 1	Sale 2	Sale 3
Address	477 Pennsylvania	478 New Jersey	420 Washington
Sale price	\$355,000	\$390,000	\$400,000
Rights conveyed	\$0	\$0	\$0
Seller concessions	\$0	\$0	\$0
Conditions of sale	\$0	\$0	\$0
Net sale price	<u>\$355,000</u>	<u>\$390,000</u>	<u>\$400,000</u>
Estimated land value	– \$65,000	– \$59,000	– \$75,000
Site improvement value	<u>– \$5,500</u>	<u>– \$6,500</u>	<u>– \$7,500</u>
Depreciated value of buildings	\$284,500	\$324,500	\$317,500
Reproduction cost	\$386,000	\$430,000	\$460,500
Less building value	<u>– \$284,500</u>	<u>– \$324,500</u>	<u>– \$317,500</u>
Total depreciation	\$101,500	\$105,500	\$143,000
Percentage depreciation	26.30%	24.53%	31.05%
Actual age	70	69	80
Percentage depreciation per year	0.38%	0.36%	0.39%

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Table 16.4 Depreciation of an Office Building

	Sale 1	Sale 2	Sale 3
Address	9999 N. Meridian	8809 N. Pennsylvania	7765 N. Andrews
Sale price	\$3,100,000	\$1,250,000	\$4,050,000
Rights conveyed	– \$50,000	\$0	\$0
Seller concessions	\$0	\$0	– \$35,000
Conditions of sale	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Net sale price	\$3,050,000	\$1,250,000	\$4,015,000
Estimated land value	– \$215,000	– \$75,000	– \$325,000
Site improvement value	<u>– \$35,000</u>	<u>– \$22,000</u>	<u>– \$55,000</u>
Depreciated value of buildings	\$2,800,000	\$1,153,000	\$3,635,000
Reproduction cost	\$6,600,000	\$3,000,000	\$7,500,000
Less building value	<u>– \$2,800,000</u>	<u>– \$1,153,000</u>	<u>– \$3,635,000</u>
Total depreciation	\$3,800,000	\$1,847,000	\$3,865,000
Percentage depreciation	57.58%	61.57%	51.53%
Actual age	27	31	25
Percentage depreciation per year	2.13%	1.99%	2.06%

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Table 16.5 The Functional Obsolescence Procedure

Step	\$	Item	Explanation
1	\$	Estimate the cost of the item.	This line represents the cost of the item that is causing the problem. In the case of a missing item that is causing a loss, this amount would be \$0.
2	–	Less the depreciation already charged.	This amount is usually the appraiser's estimate of the loss due to physical deterioration. This has to be subtracted from the cost of the item to prevent double-counting of the item for both physical and functional losses. This will be \$0 if there is a missing item.
3	+	Plus the cost to cure or the present value of the loss. (In many cases this includes the cost of retrofitting an item.)	This step is the main adjustment. If the item is curable, the estimate of depreciation will be the cost of cure; if the item is incurable, the depreciation amount would be the present value of the future additional expenses. Adding these amounts will reveal the amount of depreciation that will be subtracted from the cost new to reduce the value estimate derived via the cost approach.
4	–	Less the cost of the <i>correct</i> item if installed new as of the appraisal date.	This line is a deduction from the amount subtracted from the cost new, which means this line actually increases the property value. This line is required because this analysis is starting from the total cost of the item as installed in the building on the date of construction. This is the cost of the correct item if it were included in the construction when built. It does not include retrofitting cost.
5	=	Equals the depreciation attributable to functional obsolescence.	This is the amount the appraiser subtracts from reproduction cost for functional obsolescence. This amount lowers the value of the property.

Table 16.6 Curable Functional Obsolescence Caused by a Deficiency Requiring an Addition

Step	\$	Item	
1	\$0	Estimate the cost of the item.	There is no item on site now, so this is \$0.
2	\$0	Less the depreciation already charged.	Again, since there is no elevator, this is also \$0.
3	+\$200,000	Plus the cost to cure or the present value of the loss.	This is curable because the owner can spend \$200,000 and return \$210,000 in value. The cost of curing the problem is the cost of installing a new elevator.
4	-\$75,000	Less the cost of the correct item if installed new as of the appraisal date.	This has to be subtracted because the market is recognizing only \$210,000 difference in the value with and without the item. And the cost for this building is already starting out \$75,000 less than a property that has an elevator. If you do not subtract this amount, the value of the property would be diminished twice for the cost of the item (\$75,000) because the cost at the time of completion is already \$75,000 less than a property with the item in place.
5	\$125,000	Equals the depreciation for functional obsolescence.	This is correct because a buyer would say, "I can buy this property for \$200,000 less (75,000 + 125,000) and then put an elevator in the building." The \$75,000 represents the lower cost of the subject improvement without an elevator.

Table 16.7 Incurable Functional Obsolescence Caused by a Deficiency

Step	\$	Item	
1	\$0	Estimate the cost of the item	There is no item.
2	\$0	Less the depreciation already charged	There is no item.
3	\$100,000	Plus the cost to cure or the present value of the loss.	The owner lost \$100,000 in land value due to the inability to sell off the two outlots. This is incurable because of the high cost of moving the building.
4	\$0	Less the cost of the correct item if installed new as of the appraisal date.	There is no correct item here, so the cost should be \$0.
5	\$100,000	Equals the depreciation for functional obsolescence	This loss is equal to the lost revenue from the sale of the outlots.

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Table 16.8 Curable Functional Obsolescence Caused by a Deficiency Requiring Substitution or Modernization

Step	\$	Item	
1	\$20,000	Estimate the cost of the item.	This is the cost of the existing fixtures with magnetic ballasts. Since this is an estimate of depreciation, not value, this dollar amount will be subtracted from the cost of construction.
2	-\$10,000	Less the depreciation already charged.	The existing units were not new. This adjustment prevents double-counting the physical deterioration of the light fixtures. Note that this amount is subtracted to reduce the amount of depreciation attributable to the functional obsolescence of the item by the amount of depreciation attributable to the physical deterioration.
3	\$29,000	Plus the cost to cure or the present value of the loss.	This is the cost to replace the ballasts with the correct item now. This is curable because the capital amount of the loss was $\$10,000/0.09 = \$111,111$, which is a lot more than the cost of the modernization at \$29,000. This adds to the amount of depreciation.
4	-\$25,000	Less the cost of the correct item if installed new as of the appraisal date.	This is the cost of installing the more efficient units today during original construction. This lowers the depreciation amount. The difference between the cost to cure and the cost of the correct item if installed new (i.e., steps 3 and 4) is the excess cost to cure.
5	\$14,000	Equals the depreciation for functional obsolescence.	This amount will be deducted from the estimate of cost new.

Table 16.9 Curable Functional Obsolescence Caused by a Superadequacy

Step	\$	Item	
1	\$5,000	Estimate the cost of the item.	This is the cost of the existing oversized water heater.
2	-\$3,333	Less the depreciation already charged.	The existing units were not new. This adjustment prevents double-counting the physical depreciation.
3	\$2,000	Plus the cost to cure or the present value of the loss.	This is curable because it only cost \$1,000 to put in the correct unit and the capitalized cost of extra expense was \$2,000. A prudent owner would replace it.
4	-\$1,000	Less the cost of the correct item if installed new as of the appraisal date.	This is the cost of installing the more efficient units today during original construction.
5	\$2,667	Equals the depreciation for functional obsolescence.	

Table 16.10 Incurable Functional Obsolescence Caused by a Superadequacy

Step	\$	Item	
1	\$45,000	Estimate the cost of the item.	There is an item here and this is what it cost.
2	\$0	Less the depreciation already charged.	The pool is new.
3	\$0	Plus the cost to cure or the present value of the loss.	This is not curable unless the market actually deducts something for having the item. There is no additional cost because of the pool.
4	\$0	Less the cost of the correct item if installed new as of the appraisal date.	There is no correct item here. This should be \$0.
5	\$45,000	Equals the depreciation for functional obsolescence.	This is clearly the answer and the procedure shows it. The cost of the superadequate item is included in the cost, and subtracting all of the cost should resemble the thought processes of market participants.

Table 16.11 Cost Approach

Type of space	Area (sq. ft.)	Rate		Amount
Residence	2,200	@ \$85.00	=	\$187,000
Basement (base)	1,000	@ \$23.00	=	\$23,000
Basement finishing	800	@ \$22.00	=	\$17,600
Garage	750	@ \$22.00	=	\$16,500
Screened porch	400	@ \$19.00	=	\$7,600
Estimated cost all items				\$251,700

Short-lived items	Cost	Age	Life	% Depreciation	\$ Depreciation
Heating and air-conditioning	\$6,500	5	/ 25	= 20.00%	\$1,300
Plumbing fixtures	\$11,439	5	/ 30	= 16.67%	\$1,907
Lighting fixtures	\$9,975	5	/ 30	= 16.67%	\$1,663
Roof covering, etc.	\$7,500	5	/ 25	= 20.00%	\$1,500
Gutters and downspouts	\$2,300	5	/ 35	= 14.29%	\$329
Carpet/vinyl	\$9,500	5	/ 15	= 33.33%	\$3,167
Interior/exterior paint	\$7,500	5	/ 25	= 20.00%	\$1,500
Garage door and opener	\$3,400	5	/ 15	= 33.33%	\$1,133
Total	\$58,114				– \$12,498

Reproduction cost of improvements (from above)	\$251,700
Less the cost of short-lived items	– \$58,114
Cost new of long-lived items only	\$193,586
Depreciation extracted from sales comparison (not included here) (0.08333)	
Total estimated depreciation from all causes (8.33% × 251,700 = \$20,967)	
Short-lived physical depreciation (from above)	– \$12,498
Estimated depreciation for long-lived items (\$20,967 – 12,498)	– \$8,469
Subtotal	\$230,733
Functional losses (floor plan problem)	– \$10,000
External losses (none)	\$0
Depreciated value of improvements	\$220,733
Site improvements on a net basis	\$6,500
Estimated site value at highest and best use as though vacant	\$65,000
Estimated value of the building and site	\$292,233
Adjustment for property rights	\$0
Final value estimate	\$292,233
Rounded to	\$290,000

Table 16.12 Residential Cost Approach

Estimated site value						\$45,000
Estimated reproduction cost of improvements						
Dwelling	2,000 sq. ft. @ \$95.00	=		\$190,000		
Basement	1,000 sq. ft. @ \$25.00	=		\$25,000		
Fireplace, porches, patio, pool		=		\$35,000		
Garage/carport	750 sq. ft. @ \$20.00	=		<u>\$15,000</u>		
Total estimated cost new						<u>\$265,000</u>
	Physical	Functional	External			
Less depreciation	\$13,250	\$2,500	\$1,500	=	\$17,250	
Depreciated value of improvements						\$247,750
"As is" value of the site improvements				=		<u>\$6,500</u>
Indicated value of cost approach				=		<u>\$299,250</u>