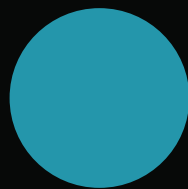


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## Conclusion

Depreciation is the loss in value of a piece of equipment or real property. Different depreciation schedules may be used for the preparation of financial statements, the billing of equipment, and the preparation of income taxes, which may result in very different depreciation rates. For the preparation of financial statements and the billing of equipment, there are three commonly used methods. They are the straight-line method, the sum-of-the-years method, and the declining-balance method. For tax purposes, the IRS has set up standard recovery periods for assets and has identified the depreciation methods that may be used for each of the recovery periods. The depreciation methods allowed by the IRS include the straight-line, 200% declining-balance, and 150% declining-balance methods. The IRS has also established three standard conventions that are used to determine the percentage of the annual depreciation allowed when equipment or property is placed in service or disposed of. They are the half-year convention, the midquarter convention, and the mid-month convention. A business owner may expense some equipment under Section 179 of the Internal Revenue Code without having to depreciate the equipment.

## Discussion Questions

1. What is a depreciation schedule?
2. Why would a company use the sum-of-the-year or declining-balance methods to calculate depreciation?
3. How many years does it take to depreciate a piece of equipment with a five-year recovery period using MACRS? Why does this happen?
4. How does calculating depreciation using the IRS tables, such as Table 6, differ from calculating depreciation using declining-balance method used in Example 3?
5. How does Section 179 of the Internal Revenue Code affect depreciation?
6. For the current tax year, what are the maximum Section 179 deductions and the amount where Section 179 begins to be phased out?
7. What are some of the reasons for using a different depreciation method or recovery period for financial purposes than is used for tax purposes?

## Problems

8. A piece of equipment is purchased for \$110,000 and has an estimated salvage value of \$10,000 at the end of the recovery period. Prepare a depreciation schedule for the piece of equipment using the straight-line method with a recovery period of seven years.
9. A piece of equipment is purchased for \$40,000 and has an estimated salvage value of \$1,000 at the end of the recovery period. Prepare a depreciation schedule for the piece of equipment using the straight-line method with a recovery period of five years.
10. A piece of equipment is purchased for \$110,000 and has an estimated salvage value of \$10,000 at the end of the recovery period. Prepare a depreciation schedule for the piece of equipment using the sum-of-the-years method with a recovery period of seven years.
11. A piece of equipment is purchased for \$40,000 and has an estimated salvage value of \$1,000 at the end of the recovery period. Prepare a depreciation schedule for the piece of equipment using the sum-of-the-years method with a recovery period of five years.
12. A piece of equipment is purchased for \$110,000 and has an estimated salvage value of \$10,000 at the end of the recovery period. Prepare a depreciation schedule for the piece of equipment using the 200% declining-balance method with a recovery period of seven years.
13. A piece of equipment is purchased for \$40,000 and has an estimated salvage value of \$1,000 at the end of the recovery period. Prepare a depreciation schedule for the piece of equipment using the 200% declining-balance method with a recovery period of five years.
14. A piece of equipment is purchased for \$110,000 and has an estimated salvage value of \$10,000 at the end of the recovery period. Prepare a depreciation schedule for the piece of equipment using the 150% declining-balance method with a recovery period of seven years.
15. A piece of equipment is purchased for \$40,000 and has an estimated salvage value of \$1,000 at the end of the recovery period. Prepare a depreciation schedule for the piece of equipment using the 150% declining-balance method with a recovery period of five years.
16. Prepare a depreciation schedule to be used for tax purposes for a \$110,000 railroad spur (track) using the 200% declining-balance method and a half-year convention. Ignore any special depreciation allowances.
17. Prepare a depreciation schedule to be used for tax purposes for \$40,000 of computer equipment using the 150% declining-balance method and a half-year convention. Ignore any special depreciation allowances.
18. Prepare a depreciation schedule to be used for tax purposes for a \$110,000 railroad spur (track) using the 200% declining-balance method and the midquarter convention. The equipment was placed in service during the second quarter of the company's tax year. Ignore any special depreciation allowances.
19. Prepare a depreciation schedule to be used for tax purposes for \$40,000 of computer equipment using the 200% declining-balance method and a midquarter convention. The equipment was placed in service during the third quarter of the company's tax year. Ignore any special depreciation allowances.

20. Prepare a depreciation schedule to be used for tax purposes for a \$1,170,000 office building. The office building is placed in service in the fifth month of the company's tax year. The cost of the land is not included in the \$1,170,000. Ignore any special depreciation allowances.
21. Prepare a depreciation schedule to be used for tax purposes for a \$495,000 apartment building. The apartment building is placed in service in the ninth month of the company's tax year. The cost of the land is not included in the \$495,000. Ignore any special depreciation allowances.
22. The truck in Example 4 was sold for \$4,000 at the end of the fifth year. What is the capital gain or loss on the sale of the truck?
23. The truck in Example 4 was sold for \$12,000 at the end of the second year. What is the capital gain or loss on the sale of the truck?
24. In 2010, your company purchased a front-end loader for \$150,000, a dump truck for \$85,000, and a dumping trailer (pup) for the dump truck for \$38,000. The front-end loader was placed in service in April and the dump truck and dumping trailer were placed in service in July. In 2011, your company purchased three side-dump trailers for \$65,000 each and three tractors to pull the side-dump trailers for \$68,000 each, which were placed in service in May. In December of 2012, your company purchased a dump truck for \$87,000. Determine the depreciation allowed for tax purposes for the 2012 tax year. The tax year runs from January to December. Ignore all Section 179 deductions. *Hint:* The tractors have a different recovery period than the rest of the equipment.
25. How would the depreciation in Problem 24 change if you include the Section 179 deductions? Use the limits for the 2010 tax year for all three tax years.
26. Modify the spreadsheet in Sidebar 1 to handle recovery periods up to 10 years. Test your spreadsheet by entering the data from Example 1 and Problems 8 and 9. Compare your spreadsheet's solution to the answer to these problems. *Hint:* Use the IF function to discontinue the depreciation and book value at the end of the recovery period.
27. Modify the spreadsheet in Sidebar 2 to handle recovery periods up to 10 years. Test your spreadsheet by entering the data from Example 2 and Problems 10 and 11. Compare your spreadsheet's solution to the answer to these problems. *Hint:* Use the IF function to discontinue the depreciation and book value at the end of the recovery period.
28. Modify the spreadsheet in Sidebar 3 to handle recovery periods up to 10 years. Test your spreadsheet by entering the data from Example 3 and Problems 12 through 15. Compare your spreadsheet's solution to the answer to these problems. *Hint:* Use the IF function to discontinue the depreciation and book value at the end of the recovery period.
29. Modify the spreadsheet in Sidebar 4 to handle 3-, 5-, 7-, and 10-year recovery periods using the depreciation rates for the 200% declining-balance method and the half-year convention (see Table 6). Test your spreadsheet by entering the data from Example 4 and Problem 16. Compare your spreadsheet's solution to the answer to these problems. *Hint:* Use the IF function to select the depreciation rate and discontinue the book value at the end of the recovery period.
30. Prepare a spreadsheet to calculate the depreciation for residential (27.5-year recovery period) and commercial (39-year recovery period) real estate using the straight-line depreciation method. The spreadsheet should allow the user to select the month that the real estate is placed in service, with January being the first month. Use the percentages in Table 5 to determine the first year's depreciation. Test your spreadsheet by entering the data from Example 6 and Problems 20 and 21. Compare your spreadsheet's solution to the answer to these problems. *Hint:* Use the IF function to discontinue the depreciation and book value at the end of the recovery period and the VLOOKUP function to select the data from Table 5. (See Appendix B for more information on the VLOOKUP function.)

## References

IRS, *Instructions for Form 4562*, 2010.

IRS publication 946, *How to Depreciate Property*, 2009.

## Depreciation

CHART OF ACCOUNTS	
110 Cash	730 Repairs and Maintenance
120 Accounts Receivable-Trade	740 Fuel and Lubrication
121 Accounts Receivable-Retention	750 Taxes, Licenses, and Insurance
130 Inventory	798 Equipment Costs Charged to Employees
140 Costs and Profits in Excess of Billings	799 Equipment Costs Charged to Jobs
150 Notes Receivable	
155 Due From Construction Loans	805 Advertising
160 Prepaid Expenses	806 Promotion
199 Other Current Assets	810 Car and Truck Expenses
	811 Computer and Office Furniture
210 Building and Land	812 Repairs and Maintenance
220 Construction Equipment	819 Depreciation
230 Trucks and Autos	820 Employee Wages and Salaries
240 Office Equipment	821 Employee Benefits
250 Less Acc. Depreciation	822 Employee Retirement
260 Capital Leases	823 Employee Recruiting
299 Other Assets	824 Employee Training
	825 Employee Taxes
310 Accounts Payable-Trade	830 Insurance
311 Accounts Payable-Retention	835 Taxes and Licenses
320 Billings in Excess of Costs and Profits	840 Office Supplies
330 Notes Payable	841 Office Purchase
340 Accrued Payroll	842 Office Rent
341 Accrued Payables	843 Office Utilities
342 Accrued Taxes	844 Postage and Delivery
343 Accrued Insurance	845 Janitorial and Cleaning
344 Accrued Vacation	846 Telephone
350 Capital Leases Payable	850 Charitable Contributions
360 Warranty Reserves	855 Dues and Memberships
379 Other Current Liabilities	860 Publications and Subscriptions
380 Long-Term Liabilities	865 Legal and Professional Services
	870 Meals and Entertainment
410 Capital Stock	875 Travel
420 Retained Earnings	880 Bank Fees
430 Current Period Net Income	881 Interest Expense
	885 Bad Debts
500 Revenue	891 Unallocated Labor
	892 Unallocated Materials
610 Materials	893 Warranty Expense
620 Labor	898 Miscellaneous
630 Subcontract	899 Overhead Charged to Jobs
640 Equipment	
650 Other	910 Other Income
	920 Other Expense
710 Rent and Lease Payments	950 Income Tax
720 Depreciation	

**FIGURE A** Chart of Accounts

# **ANALYSIS OF FINANCIAL STATEMENTS**

# ANALYSIS OF FINANCIAL STATEMENTS

In this chapter you will learn to use financial ratios to analyze a company's financial statements, including comparing the company's ratios to industrial averages. This includes adapting commonly used ratios to the unique characteristics of the construction industry. Analysis of the financial statements helps the financial manager identify problems before they become a crisis. These problems may be life threatening to the company (such as realizing that the company will not be able to pay its bills in the upcoming months) or simple planning issues (such as identifying that the company's equipment is aging and that funds need to be set aside to replace this equipment in the next few years).

The most common tools used to track and measure a company's financial health are the company's balance sheet and the income statement. The financial health of a company is determined by not only the values shown on the financial statements but also the relationships among these values. These relationships are known as financial ratios. Good construction financial management includes monitoring the critical financial ratios and comparing them to other companies in the industry. In this chapter we look at ratios that are commonly used to measure the performance of a company, regardless of its industrial segment. Where necessary, these ratios are adapted to the unique characteristics found in the construction industry. We also look at recommended target ratios for the construction industry.

Analysis of financial statements is done by dividing one category or group of categories on the company's financial statements by another category or group of categories on the company's financial statements. By making this calculation, we create a ratio that can be compared to other companies within the industry. These ratios represent the relationship between the two categories or among groups of categories and are often expressed as the ratio to 1, as in 2.00 to 1. At other times the ratios are expressed as a percentage or may represent the number of times an event occurs during a period, such as the number of times a company turns over working capital during the year. These ratios can provide insights into a company's ability to pay bills, how efficiently

it uses its financial resources, profitability, and the capital structure of the company.

When calculating ratios that include categories on the income statement and categories on the balance sheet, one must use the average balance for the categories from the balance sheet rather than the ending balance. This is necessary because the income statement represents all transactions between two points in time, whereas the balance sheet represents the separate points in time. The most common method of obtaining the average balance for a category on the balance sheet is to take the average of the balance of the category at the beginning of the period represented by the income statement and the balance of the category at the end of the period represented by the income statement.

Sometimes the amounts reported on the balance sheet at the beginning and ending of the year are not representative of the average balance for the year. This is the case for excavation companies whose fiscal year is the same as the calendar year and who shut down for the winter months because of poor working conditions. While the company is shut down, its accounts receivable and accounts payable are significantly lower than they were during the construction season, as are many other accounts on the balance sheet. To get a more accurate picture of the company's financial health, one should use the average monthly balance for the accounts. The average monthly balance is calculated as follows:

$$\text{Average} = \frac{A_1}{24} + \frac{A_2}{12} + \frac{A_3}{12} + \dots + \frac{A_{11}}{12} + \frac{A_{12}}{12} + \frac{A_{13}}{24} \quad (1)$$

where

$A_1$  through  $A_{12}$  = Amounts at the beginning of the 12 months during the year

$A_{13}$  = Amount at the beginning of the next year or end of this year

As ratios are discussed, when data is available, typical ratios for construction companies in the single-family residence, commercial, heavy and highway, and specialty trades sectors are given. This data is based on the data from financial statements for over 125,000 companies for the years 1996 through 2005 as reported by Dun & Bradstreet, Inc.<sup>1</sup> Data is also published by the Risk Management Association,

<sup>1</sup>Dun & Bradstreet, Inc., *Industrial Norms and Key Business Ratios One Year—Desk Top Edition SIC #0100-8999*, years 1997 through 2006.