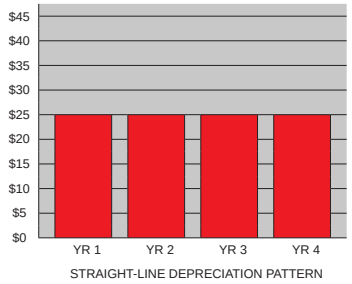
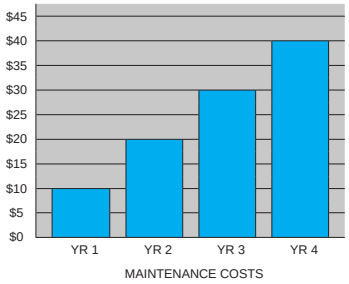
9. Depreciation Methodology

After the cost and service life of an asset are determined, it is time to move on to the choice of depreciation method. The depreciation method is simply the pattern by which the cost is allocated to each of the periods involved in the service life. You may be surprised to learn that there are many methods from which to choose. Four popular methods are: (1) straight-line, (2) units-of-output, (3) double-declining-balance, and (4) sum-of-the-years'-digits.

Before considering the specifics of these methods, you may wonder why so many choices. Perhaps a basic illustration will help address this concern. Let us begin by assuming that a $100 asset is to be depreciated over 4 years. Under one method, which happens to be the straight-line approach, depreciation expense is simply $25 per year (shown in red below). This may seem very logical -- especially if the asset is used more or less uniformly over the 4 year period. But, what if maintenance costs (shown in blue) are also considered? As an asset ages, it is not uncommon for maintenance costs to expand. Let's assume the first year maintenance is $10, and rises by $10 each year as follows:

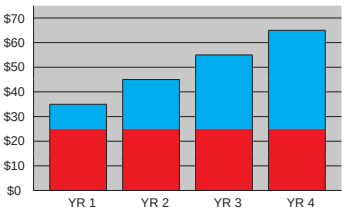


STRAIGHT-LINE DEPRECIATION PATTERN



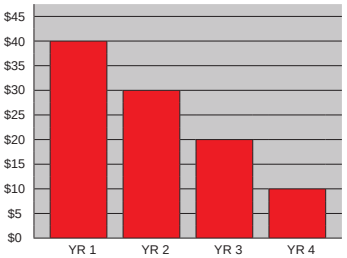
MAINTENANCE COSTS

Combining the two costs together reveals an interesting picture, showing that total cost rises over time, even though the usage is deemed to be constant.

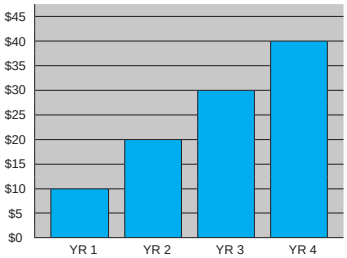


COMBINED COSTS

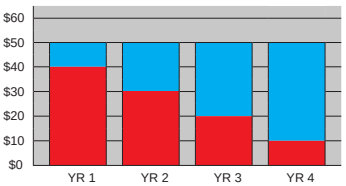
The following graphics show what happens if we run the same scenario with an alternative depreciation method called sum-of-the-years'-digits (the mechanics will be covered shortly):



SUM-OF-THE-YEARS' DIGITS DEPRECIATION PATTERN



MAINTENANCE COSTS



COMBINED COSTS

Now, the combined cost is level, matching the unit's usage/cost and perceived benefit to the company. Arguably, then, the sum-of-the-years' digits approach achieves a better matching of total costs and benefits in this particular scenario. Does this mean that sum-of-the-years' digits is better? Certainly not! The point is simply to show an example that brings into focus why there are alternative depreciation methods from which to choose. In any given scenario, ample professional judgment must be applied in selecting the specific depreciation method to apply. The above discussion is but one simple illustration; life affords an almost infinite number of scenarios, and accountants must weigh many variables as they zero-in on their preferred choice under a given set of facts and circumstances (author's note: Not meaning to detract from the importance of this discussion, it must be noted that the choice of depreciation method can become highly subjective. Some research suggests that such choices are unavoidably "arbitrary," despite the best of intentions). Having set the stage for consideration of multiple depreciation methods, it is now time to dig into the mechanics of each approach.

9.1 Many Methods

A variety of approaches can be used to calculate depreciation. And, those methods are usually covered in intermediate accounting courses. Fortunately, most companies elect to stay with one of the fairly basic techniques -- as they all produce the same "final outcome" over the life of an asset, and that outcome is allocating the depreciable cost of the asset to the asset's service life. Therefore, although you will now only be exposed to four methods, those methods are the ones you are most apt to encounter.

9.2 Some Important Terminology

In any discipline, precision is enhanced by adopting terminology that has very specific meaning. Accounting for PP&E is no exception. An exact understanding of the following terms is paramount:

- Cost: The dollar amount assigned to a particular asset; usually the ordinary and necessary amount expended to get an asset in place and in condition for its intended use.

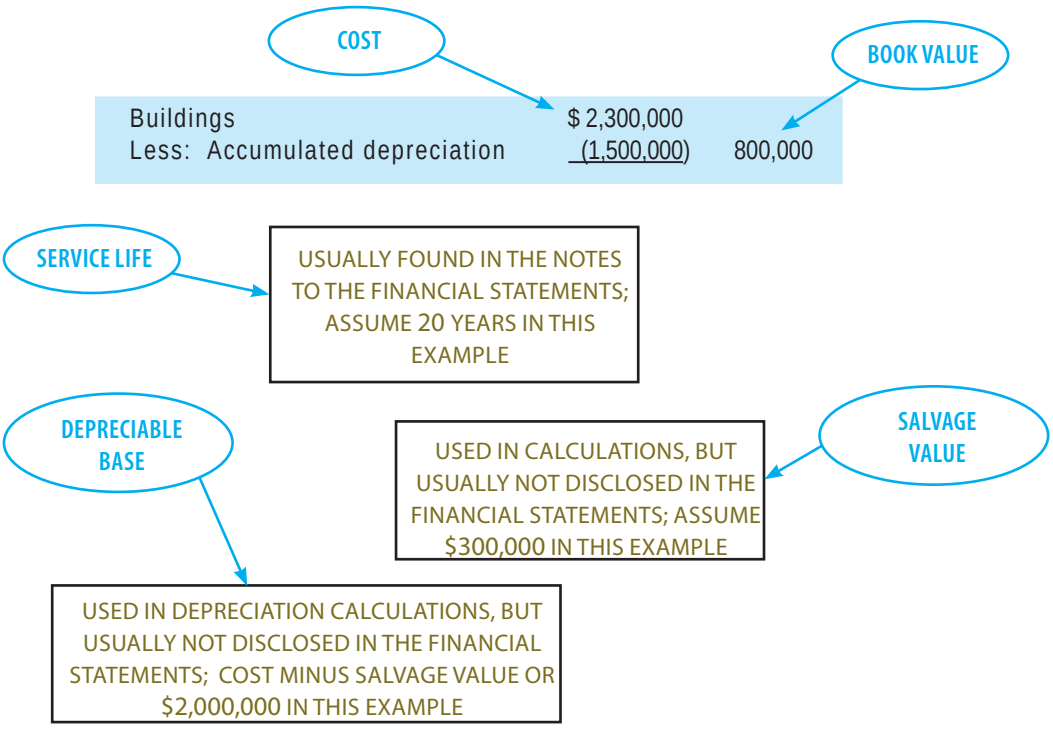
- Service life: The useful life of an asset to an enterprise, usually relating to the anticipated period of productive use of the item.

- Salvage value: Also called residual value; is the amount expected to be realized at the end of an asset's service life. For example, you may anticipate using a vehicle for three years and then selling it. The anticipated sales amount at the end of the service life is the salvage or residual value.

- Depreciable base: The cost minus the salvage value. Depreciable base is the amount of cost that will be allocated to the service life.

- Book value: Also called net book value; refers to the balance sheet amount at a point in time that reveals the cost minus the amount of accumulated depreciation (book value has other meanings when used in other contexts -- so this definition is limited to its use in the context of PP&E).

Below is a diagram relating these terms to the financial statement presentation for a building:



In the above illustration -- assuming straight-line depreciation -- can you determine the asset's age?

It is 15 years old; the $2,000,0000 depreciable base ($2,300,000 - $300,000) is being evenly spread over 20 years. This produces annual depreciation of $100,000. As a result, the accumulated depreciation is $1,500,000 (15 X $100,000).