

Using the cost approach for equipment appraisals



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While equipment appraisals frequently rely on the Sales Comparison approach, researching an opinion of value takes an interesting turn when we appraise items for which there is not an active market. When a piece of specialized equipment cannot be compared to an item of similar utility, we can find a value by using the Cost Approach, known in machinery and equipment circles as “Trend and Bend.”

At its most basic, Cost Approach involves calculating the replacement cost new (RCN) of the subject asset (“trending”) and then reducing the RCN by all forms of depreciation

(“bending”). The three forms of depreciation that need to be accounted for — and in this order — are physical deterioration, functional obsolescence and economic obsolescence.

The easiest way to arrive at the RCN is to take the cost of the subject when new (original cost) and then trending it up to the RCN using an index. In the best case scenario, the client can confirm what the original cost was. Otherwise, we have to re-engineer the subject and calculate the resulting cost. That certainly adds a layer of complication, but sometimes it’s the only way to get a number we can work with.

Test for reason

With an original cost in hand, whether provided or calculated, an appraiser then goes to the producer price index website of the Bureau of Labor Statistics and finds the particular price index table for the respective industry. Using that table, one then builds an index such that the year of manufacture is the base year and then applies that built index to the original cost to arrive at an estimate of RCN. At this point, it’s good practice to perform a “reasonableness” test on the arrived at RCN.

A simple and straightforward way to check this number is by talking to the original manufacturer to see if the RCN is reasonable. Once an appraiser has a reasonable, substantiated RCN, the “Trend” portion of the “Trend and Bend” has been completed.

The next step is to “bend” the RCN. That is, the RCN needs to be reduced by all forms of depreciation, in the proper order.

Physical deterioration is

most commonly dealt with using an age/life analysis. For instance, if the subject asset is 75 percent good, then we would multiply our RCN by 75 percent. The next reduction will come from Functional Obsolescence — that is, those factors of obsolescence inherent to the equipment itself. A complete explanation of how Functional Obsolescence is calculated is beyond the scope of this article, but it involves such factors as excess operating costs and production capabilities. For instance, if our original subject produces 100 widgets a minute and the current state-of-the-art production is 120 widgets, that would call for a Functional Obsolescence adjustment.

The final adjustment to be made to RCN will be that of Economic Obsolescence — that is, losses in value external to the subject. Often this type of obsolescence is related to regulation and can be calculated to as the cost to cure the defect. A simple example would be when a specialized filter or safety device needs to be added to the subject to make it legally operational. At that point we would take our already-reduced RCN and subtract from it the expense not only of the additional filter or safety device, but also the installation cost, thus reducing the RCN by “cost to cure” the Economic Obsolescence.

At this point, having reduced the RCN by all forms of depreciation, an appraiser is prepared to state an opinion of value. Remember that while an appraiser does not need to include all calculations and reference materials within the report itself, it is necessary to keep all of one’s working materials in the appraisal folder, just in case there’s a need to explain to either the client, counsel or other concerned parties how exactly one arrived at the opinion of value using the Cost Approach.

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