Designation: E 2219 – 02

Standard Practice for Valuation and Management of Moveable, Durable Property[1]

This standard is issued under the fixed designation E 2219; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the assignment of a value to property that provides an economic and logical basis for efficient and cost-effective property management. This value should be the basis for allocating resources and developing and improving systems and processes for the acquisition, control, accounting and disposal of such property.

1.2 While acquisition cost and depreciation of property are useful and appropriate for financial accounting and reporting purposes, this information does not reflect the value of property to an organization or the costs and other damages the organization would incur if the property were lost, damaged, destroyed, or inappropriately released or handled. This financial information is therefore inadequate for property management purposes.

1.3 The degree to which property is controlled and the cost of that control must be reasonable and commensurate with the practical consequences of both a shortage; that is, the property not being available when needed due to loss, damage or destruction; or an overage; that is, maintaining inventories of excess property.

1.4 The valuation of property for the purposes of management and control is to be based upon the risks and costs of shortages and overages as well as the cost of owning property.

2. Referenced Documents

2.1 *ASTM Standards:*

E 2131 Practice for Assessing Loss, Damage, or Destruction or Property[2]

E 2132 Practice for Physical Inventory of Durable, Moveable Property[2]

E 2220 Practice for Establishing the Full Valuation of the Loss/Overage Population Identified During the Inventory of Movable, Durable Property[2]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *acquisition cost*—the purchase price paid for property and any subsequent improvements to it.

3.1.2 *agency*—government organization, regardless of level (federal, state, or local).

3.1.3 *company*—a for-profit organization.

3.1.4 *contributory valuation*—a value assigned to a property asset based on its proportional contribution to the generation of profit or its criticality to the accomplishment of an organization's mission or the manufacturing process. It is represented by the sum of the profit or profit equivalent earned as the result of the use of the property asset and the estimated return the agency, company or institution will earn from the sale of the property. The term contributory valuation emphasizes that this value accounts for the contribution of the property to organizational success.

3.1.5 *institution*—a not-for-profit, non-governmental organization.

3.1.6 *inventory variance*—phrase used to describe when the results of an inventory and the official records do not agree.

3.1.7 *organization*—an agency, company, or institution.

3.1.8 *overage*—the accumulation and maintenance of unneeded property assets as a consequence of ineffective utilization/reutilization practices, inadequate acquisition planning, record keeping, or other management system inadequacies.

3.1.9 *profit equivalent*—an indicia of success in lieu of profit for an agency or institution.

3.1.10 *property*—moveable, durable assets as opposed to realty.

3.1.11 *risk-based management*—applying the underlying principles of risk, recognizing where the instances of risk are overstated and acting to balance the likelihood of the risk of non-availability the costs of control.

3.1.12 *shortage*—property that is not available for use.

3.1.13 *Type "A" property*—property anticipated to be necessary to generate profit or accomplish an agency's or institution's mission.

3.1.14 *Type "B" property*—property not anticipated to be necessary to generate profit or accomplish an agency's or institution's mission.

3.1.15 *Type "C" property*—property that, if not properly controlled or disposed of, poses a significant risk to the success of an organization, for example, property that poses a safety or

[1] This practice is under the jurisdiction of ASTM Committee E53 on Property Management Systems and is the direct responsibility of Subcommittee E53.03 on Financial Management.

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[2] *Annual Book of ASTM Standards,* Vol 04.12.

environmental hazard or could be instrumental in a damaging release of information.

4. Significance and Use

4.1 Contributory value, an alternative model to acquisition cost valuation, provides an economic and logical basis for efficient and cost-effective property management. This value should be the basis for allocating resources and developing and improving systems and processes for the acquisition, control, accounting and disposal of such property.

4.2 Contributory valuation is based on the premise that an organization invests in property for the reason that the availability of the property is necessary to the success of the organization, either the accomplishment of a mission or the generation of profit.

4.3 The contributory valuation model assumes that the life-cycle cost of acquisition, maintenance, control and disposal of a property asset should be evaluated in the manner of any capital investment; it should yield an appropriate return on assets (ROA) in terms of profit or a contribution to the agency's or institution's mission success.

4.4 The use of contributory valuation eliminates the distortions in worth associated with acquisition valuation and encourages a more rational allocation of resources to the management and control of property. This valuation enables an organization to devote the preponderance of its attention and resources to the property that contributes the greatest value to the goods and services produced.

4.5 The Property Management Efficiency Factor (described in Section 10) can be used to trend the value added by the property management function and to compare performance with similar organizations.

5. Procedure

5.1 To establish the contributory valuation of property, it is necessary to determine the impact on the value and profit the organization would suffer as a consequence of shortages and overages.

6. Determination of Historical Risk

6.1 An analysis must be made of the historical inventory records in accordance with the Practice E 2220.

6.2 The analysis in 6.1 is a precursor to determining the contributory value lost by the organization due to shortage and overages. The allocation of inventory shortages and overages to loss categories makes possible the assignment of replacement costs and revenue losses to property assets.

6.3 A loss factor must be assigned to translate acquisition cost to contributory value to each inventory category in Practice E 2220, Section 6. The factor can be as determined under 6.3 of that standard.

7. Calculation of the Historical Loss Liability Factor

7.1 The loss factor assigned to each shortage category should then be multiplied by the percentage that each category represents of the total shortage inventory. For example, if 10 % of the shortage inventory should have been replaced and the replacement cost of new equipment is 98 % of acquisition value, that category cost would be 9.8 %. When this process is followed for each shortage category, the result is a combined loss factor, which, when multiplied by the acquisition cost of the shortage and other costs, yields the contributory value.

7.2 The resulting historical loss and overage costs should be annualized and compared to the annual organizational costs of managing and controlling property and a determination made as to the scope and complexity of control, given the loss experience.

8. Acceptable Property Management Control Ratios

8.1 This is a strict criterion, which requires management investigation and analysis if the threshold ratios are exceeded, especially for sensitive items as defined under Terminology E 2135.

8.2 The threshold ratios are dependent on an organization's inventory risk factor determination as determined under Practices E 2131 and E 2132.

8.2.1 *High Risk Organizations*—Where inventory variance is more than 5 %, the ratio of control cost to loss liability should be no less than 10:1.

8.2.2 *Medium Risk Organizations*—Where inventory variance is between 2 and 5 %, the ratio of control cost to loss liability should be no less than 7:1

8.2.3 *Low Risk Organizations*—Where inventory variance is less than 2 %, the ratio of control cost to loss liability should be no less than 4:1.

8.2.4 The use of these management control ratios is intended to support efforts to neither over or under manage property assets. However, the best indicator of property management performance is the Property Management Efficiency Factor.

9. Identification of Inventory by Category

9.1 In cases where the experienced loss risk is low relative to the costs of control, organizations should act to apportion their current inventory into three categories identified as: Type "A," Type "B," and Type "C" property.

9.2 Periodically, the entire inventory should be reviewed to collectively identify all property assets that are absolutely necessary to the production of goods and services in the near-term.

9.3 Equipment in the assembly line or used in active research in the laboratory would be examples of Type "A" property.

9.4 Items found in the current inventory which have no current utility or practical anticipated application for generating profits or mission accomplishment are examples of Type "B" property. Essentially, the loss, damage or destruction of such would have no or minimal financial effect on the organization. In fact, stored inventory of this type represents a liability and a shrinking potential return when sold as the value erodes as a consequence of time and neglect.

9.5 Current inventory items that are found to be susceptible to loss by theft or represent an environmental, safety or health risk should be identified as Type "C" property.

10. Calculation of the Property Management Efficiency Factor

10.1 Using the data generated in Sections 7 and 8, an organization can evaluate the effectiveness and efficiency of its property management function.

10.2 To calculate the Property Management Efficiency Factor, the Annual Property Management Expenditures plus the Annualized Historical Contributory Value Losses (see Section 7) should be divided by the sum of the Contributory Value of all Type "A" assets and the organizations annual revenue (company) or property administrative control budget (agency).

10.3 The Property Management Efficiency Factor should be compared over time to internal organizational performance as well as to peer and other benchmark organizations.

11. Risk-Based Management

11.1 Organizational financial and human resources dedicated to the activity of property management should be allocated and managed to minimize the sum of losses and management and control costs.

11.2 By applying the risk management and valuation techniques recommended in this standard, organizations will begin to manage property assets like all other organizational assets, that is, based on their reasonably calculated effect on profit, loss and mission success.

12. Acceptable Management and Control Cost Allocation Ratios

12.1 The allocation ratios are dependent on an organization's inventory risk factor determination as determined under Practices E 2131 and E 2132.

12.1.1 *High Risk Organizations*—Type "A" and Type "C" property should be allocated property management resources at a ration of 3:1 to Type "B" property.

12.1.2 *Medium Risk and Low Risk Organizations*—Type "A" and Type "C" property should be allocated property management resources at a ratio of 2:1 to Type "B" property.

12.2 Property management resources fielded and systems designed with the purpose of ensuring the highest levels of protection and control are dedicated to Type "A" and Type "C" property.

12.3 Type "B" property should be controlled and protected consistent with a reasonableness test tempered by a consideration of the limited value to the organization. In most cases, inventoried items stored in an access-controlled warehouse located within a gated complex would satisfy the reasonableness test.

13. Summary

13.1 This standard concerns the valuation of moveable, durable assets and the allocation of property management and control resources.

13.2 The standard for Property Management Control Ratios in Section 8 is a strict threshold and resource allocations below the stated ratios may lead to negative effects of profit, loss and mission success.

13.3 The standards for Property Management and Control Cost Allocation Ratios in Section 12 are intended as guidelines against which individual policies and procedures may be developed and implemented.

14. Keywords

14.1 category; control cost ration; control ratio; efficiency factor; historical risk; inventory; profit; property; risk management; shortage; threshold ratios; valuation

Bibliography

(**1**) The NPMA Standard Property Book, Second Edition, August 2001, available from www.npma.org.

(**2**) GAO Manual for Guidance of Federal Agencies, Title 2, Accounting, available from www.firstgov.gov.

(**3**) Federal Property and Administrative Services Act of 1949, available from www.firstgov.gov.

(**4**) Federal Property Management Regulation, available from www.firstgov.gov.

(**5**) Federal Management Regulations, available from www.firstgov.gov.

(**6**) The Budget and Accounting Procedures Act of 1950, available from www.firstgov.gov.