



Standard Practice for Performing Value Engineering (VE)/Value Analysis (VA) of Projects, Products and Processes¹

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1. Scope

1.1 This practice covers a procedure for defining and satisfying the functions of a project, product, or process (hereafter referred to as focus of study). Projects include construction of commercial and residential buildings and other engineered systems.² Products include components, systems and equipment.³ Processes include procurement, materials management, work flow, fabrication and assembly, quality control, and services.

1.2 A multidisciplinary team uses the procedure to convert stakeholder constraints, needs, and desires into descriptions of functions and then relates these functions to resources.

1.3 Examples of costs are all relevant costs over a designated study period, including the costs of obtaining funds, designing, purchasing/leasing, constructing/manufacturing/installing, operating, maintaining, repairing, replacing and disposing of the particular focus of study. While not the only criteria, cost is an important basis for comparison in a VE/VA study. Therefore, accurate and comprehensive cost data is an important element of the analysis.

1.4 This is a procedure to develop alternatives that meet the functions of the focus of study. Estimate the costs for each alternative. Provide the owner/user/stakeholder with specific, technically accurate alternatives which can be implemented. The owner/user/stakeholder selects the alternative(s) that best satisfies their constraints, needs and desires.

¹ This practice is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.81 on Building Economics.

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² Projects also include analytical studies that provide the technical basis for standards development or identify alternative means for achieving organizational objectives and research and development activities that support the deployment of new products and processes.

³ Typical construction-related products for each product type are: (1) components—structural steel members; (2) systems—fire protection systems such as sprinklers; and (3) equipment—motorized vehicles for excavation and earthmoving, and transporting, lifting, and placing materials and components.

1.5 Apply this practice to an entire focus of study, or to any subsystem/element thereof. The user/owner/stakeholder can utilize the VE/VA procedure to select the element or scope of the study.

2. Referenced Documents

2.1 ASTM Standards:⁴

E631 Terminology of Building Constructions

E833 Terminology of Building Economics

E917 Practice for Measuring Life-Cycle Costs of Buildings and Building Systems

E1369 Guide for Selecting Techniques for Treating Uncertainty and Risk in the Economic Evaluation of Buildings and Building Systems

E1557 Classification for Building Elements and Related Sitework—UNIFORMAT II

E1765 Practice for Applying Analytical Hierarchy Process (AHP) to Multiattribute Decision Analysis of Investments Related to Buildings and Building Systems

E2013 Practice for Constructing FAST Diagrams and Performing Function Analysis During Value Analysis Study

E2103/E2103M Classification for Bridge Elements—UNIFORMAT II

3. Terminology

3.1 *Definitions*: For definitions of general terms related to building construction used in this practice, refer to Terminology E631; and for general terms related to building economics, refer to Terminology E833.

3.2 *Definitions of Terms Specific to This Standard*:

3.2.1 *value, n*—An expression of the relationship between function and resources, where function is measured by the performance requirements of the customer and resources are measured in cost for materials, labor, and time required to accomplish that function.

3.2.2 *value engineering (VE), n*—The application of value methodology to projects, products, and processes for the

⁴ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.