



Standard Practice for Constructing FAST Diagrams and Performing Function Analysis During Value Analysis Study¹

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1. Scope

1.1 This practice covers a logical structure for the function analysis of a building project or process.

1.2 This practice provides a system to identify unnecessary costs of a project.

1.3 The values stated in SI units are to be regarded as standard. The values given in parentheses are mathematical conversions to inch-pound units that are provided for information only and are not considered standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

E631 Terminology of Building Constructions

E833 Terminology of Building Economics

E1557 Classification for Building Elements and Related Sitework—UNIFORMAT II

E1699 Practice for Performing Value Analysis (VA) of Buildings and Building Systems and Other Constructed Projects

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this practice, refer to Terminologies **E631** and **E833**.

4. Summary of Practice

4.1 This practice provides an organized approach for determining the needs and desires of the stakeholders during the

Value Analysis (VA) of a project. These needs and desires are used in developing the functions of the project.

4.2 This practice establishes a logical procedure for allocating cost to each function.

4.3 Function analysis helps design professionals justify the value of their concepts. It also provides the stakeholders with a justification of their investments.

5. Significance and Use

5.1 This practice establishes a communication format through which all stakeholders can understand, analyze, revise, and agree on the purposes of the project. This practice presents a method by which stakeholders' needs and desires are compared to the cost to satisfy those needs and desires. This is done by identifying the low preference/high cost functions and high preference/low cost functions. These data will be used in the value analysis study as a basis to create alternative solutions.

5.2 This practice helps stakeholders, which include developers, owners, users, planners, contractors, architects, engineers, value analysts, cost professionals, and anyone who is responsible for the budget, construction, maintenance, or operation of the project.

5.3 A practice on performing value analysis of buildings and building systems and other constructed projects, Practice **E1699**, has been published. As part of the value analysis study, perform function analysis after the collection of relevant information and prior to the identification of alternatives. Function Analysis Systems Technique (FAST) data helps the user identify the alternatives that are highly valued with respect to their cost.

6. Procedure

6.1 Function analysis consists of five sequential steps: (1) select a building component, (2) define the needs and desires (functions), (3) classify functions, (4) allocate cost to each function, and (5) analyze the importance and expected performance level of the functions.

6.2 *Selection of a Building Component*—For cost-effectiveness, select building components that offer a significant opportunity for improvement of performance, reduction in cost, or both.

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 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.