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Standard Practice for Constructing FAST Diagrams and Performing Function Analysis During Value Analysis Study[1]

This standard is issued under the fixed designation E 2013; 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 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 the standard. The inch-pound units given in parentheses are for information only.

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:*

E 833 Terminology of Building Economics[2]

E 917 Practice for Measuring Life-Cycle Costs of Buildings and Building Systems[2]

E 1557 Classification for Building Elements and Related Sitework - UNIFORMAT II[2]

E 1699 Practice for Performing Value Analysis (VA) of Buildings and Building Systems[2]

3. Terminology

3.1 *Definitions*:

3.1.1 For definitions of terms used in this practice, refer to Terminology E 833.

4. Summary of Practice

4.1 This practice provides an organized approach for determining the needs and desires of the owners/users/stakeholders during the Value Analysis (VA) of a project. These needs and desires are presented as 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 owners/users/stakeholders with a justification of their investments.

5. Significance and Use

5.1 This practice establishes a communication format through which all owners/users/stakeholders can understand, analyze, revise, and agree on the purposes of the project. This practice presents a method by which owners'/users'/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 developers, owners, users, stakeholders, planners, contractors, architects, engineers, value analysts, cost professionals, and any one who is responsible for the budget, construction, maintenance, or operation of the project.

5.3 A Practice E 1699 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. 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.

6.3 *Definition of Needs and Desires (Functions)*—Define each significant need or desire of the owners/users/stakeholders in two words using an active verb and a descriptive noun. The two-word definitions are the functions of the project.

6.4 *Classification of Functions*—Categorize the functions of the building component as basic (essential to meet the owners'/users'/stakeholders' needs) or supporting (enhances the satisfaction of the owners'/users'/stakeholders' needs and desires).

[1] This practice is under the jurisdiction of ASTM Committee E-6 on Performance of Buildings and is the direct responsibility of Subcommittee E06.81 on Building Economics.

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[2] *Annual Book of ASTM Standards*, Vol 04.07.

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