This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: E2168 – 10 (Reapproved 2023)

Standard Classification for Allowance, Contingency, and Reserve Sums in Building Construction Estimating[1]

This standard is issued under the fixed designation E2168; 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.

INTRODUCTION

In building construction estimating the terms allowance, contingency, and reserve are often used almost interchangeably and are assumed to be universally understood, yet they often mean different things to different people. Consequently they can be ambiguous in meaning and intent.

Applying these terms, as classified herein, adds a needed precision and rigor in their use as each term is held to be specific in its meaning, intent, and use.

1. Scope

1.1 This classification establishes a classification for allowance, contingency, and reserve sums used in construction, project, and program estimating.

1.2 This classification applies to all construction work.

1.3 This classification is not based on permanent physical elements of construction (as defined and classified in Classification E1557). Rather, the classification items are cost components common to construction, project, and program estimates.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

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

E1804 Practice for Performing and Reporting Cost Analysis During the Design Phase of a Project

E1946 Practice for Measuring Cost Risk of Buildings and Building Systems and Other Constructed Projects

E2013 Practice for Developing Functions, Constructing FAST Diagrams, and Performing Function Analysis During Value Engineering (VE)/Value Analysis (VA) Study

3. Terminology

3.1 *Definitions*—For definitions of terms used in this classification, refer to Terminologies E631 and E833.

4. Significance and Use

4.1 When preparing construction, project, and program cost estimates, it is often necessary to make monetary provision for change or risk, or both, or other exigencies where information is incomplete.

4.2 Such allowance, contingency or reserve sums are employed by many persons engaged in the planning, delivery, and financing of construction work.

4.3 These users include owners, developers, facilities programmers, cost planners, estimators, schedules, architects and engineers, specification writers, operating and maintenance staff, manufacturers, educators, financial managers, and comptrollers.

4.4 *Usage:*

4.4.1 These sums are especially appropriate when performing the following activities:

Cost budgeting;
Conceptual, design, and construction cost estimating;
Preparing complete forecast cost for economic evaluation, investment analysis, and approval; and
Controlling cost during planning, design, and construction.

4.4.2 In any of these activities a needed requirement, or component, of the planned construction can be known while the defined solution, design or specification, for providing this

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

Current edition approved May 1, 2023. Published May 2023. Originally approved in 2001. Last previous edition approved in 2016 as E2168 – 10 (2016). DOI: 10.1520/E2168-10R23.

[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.

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may not. The usual, and appropriate, response in these situations, is the inclusion of a monetary sum, within an estimate, to provide for this (these) requirement(s).

4.4.3 Such sums may be general or specific in scope, may be planned to be spent or may only be included as possible mitigation for unplanned events and requirements.

4.4.4 To distinguish between these sums, and in recognition of their differing purpose, they are described, and classified here, using the terms allowance, contingency, or reserve.

NOTE 1—Section 5 includes a generic statement of purpose for each of the three terms and provides a sub-classification that distinguishes between sums included for specific purposes and for non-specific, that is, general purposes. In cost budgeting, conceptual and design estimating especially, an estimator may intuitively recognize the need for a general purpose sum. This recognition comes in the absence of any known specific requirement other than the need to ensure the estimate total is a reasoned forecast of a reasonable bid result.

4.5 This classification defines allowance, contingency, and reserve sums as items common to construction, project, and program estimates through planning, design, construction, and completion. The terms are sufficiently generic to be applied in all forms of construction work.

5. Basis of Classification

5.1 *Classification Criteria:*

5.1.1 The selected classification of terms is based on the following criteria. The terms shall:

Be readily distinguishable one from the other,
Be simple and must identify their properties and usage directly,
Be appropriate in all forms of construction financial activities, and
Allow a distinction between the environments (internal or external) within which they are applied.

5.2 *Primary Classification:*

5.2.1 *Allowance*—A sum of money that is intended to be spent on the planned scope of work. Used in the absence of precise knowledge, and estimated, to the best of one's abilities, to ensure a full and complete estimate. Allowances cover events and activities that are normally internal and so are directly controllable within the project plan.

5.2.2 *Contingency*—A sum of money that is provided to cover the occurrence of unintended departures from the planned scope of work. Used in the absence of precise knowledge, and estimated to the best of one's knowledge to ensure that a financial buffer is available within a budget. Contingencies assist in mitigating the effects of unplanned events and other risks that are external to, and are not directly controllable within, a project plan.

5.2.3 *Reserve*—A sum, usually held by management (client) to be disbursed only when project requirements are changed. Used to provide insurance against a project or program failing to complete on budget or for the revision of a budget in the case of changed management or program direction and requirement.

NOTE 2—For the purposes of the classification an internal environment is that which exists within an organization. An internal environment may readily allow cost control through revision of design or specification, or both. External environment changes impact the project cost and may be the result of contractual obligation, uncovered site conditions or changed legislation, for example. External environment changes may allow little or no opportunity for mitigation.

5.3 *Secondary Classification:*

5.3.1 Each of the Primary Classifications may be further sub-classified as:

5.3.2 *Specific*—Where the content of a sum is uniquely identified and the sum is calculated solely for that distinct purpose, and

5.3.3 *Non-Specific*—Where the content of a sum is only broadly identified and the sum is calculated for application to that general purpose.

NOTE 3—Reference should also be made to Practice E1946, which describes a formal methodology for estimating the amount of each sum.

NOTE 4—For examples of specific allowance items refer to Practice E1804.

5.4 *Classifications in Context:*

5.4.1 Placing these classifications in the context of typical/generic usage provides an additional understanding of the distinctions between the classified terms.

5.4.2 Table 1 is a tabulation of the basic properties, events

TABLE 1 Classification of Allowance, Contingency, and Reserve—Typical Application

	Allowance	Contingency	Reserve
1. Intend to spend?	Yes	No	No
2. Applied to work actions that are:	Intended	Unintended	At Client Discretion
3. Expenditure is effected by:			
Internal Change	Yes	No	No
External Change	No	Yes	No
Management (Client) Change	No	No	Yes
4. Is an integral part of:			
Construction Estimate	Yes	No	No
Project Estimate	Yes	Yes	No
Program Estimate	Yes	Yes	Yes
5. Commitment Sanctioned by:			
Consultants	Yes	No	No
Project Manager	Yes	Yes	No
Management (Client)	Yes	Yes	Yes
6. Calculated on the basis of:			
Past Personal/Corporate Experience	Yes	Yes	Yes
Statistical Analysis of Past Projects	Yes	Yes	Yes
Probabilistic Assessment of Change	Yes	No	No
Probabilistic Assessment of Risk	No	Yes	No
Management Policy	No	No	Yes

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and methods defined for allowances, contingencies, and reserves as typically applied in the building construction industry. This table identifies the key differences and some similarities, makes for easy identification of the generic principles driving the classifications, and so allows consistent application. It also draws attention to the need for a subsidiary cost classification that is typically part of a generic Work Breakdown Structure.

5.5 *Subsidiary Classification:*

5.5.1 *Construction Estimate*—An estimated cost for the construction work including all trade costs and the prime contractors' Field Requirements and Office Overhead & Profit; that is, an estimate of construction work intended to forecast the amount of a reasonable bid figure. A construction estimate may include both specific and non-specific allowance(s).

5.5.2 *Project Estimate*—An estimated cost that includes Design and Project Management Fees & Disbursements, and other costs, in addition to the Construction Estimate, that are discretely packaged as a total project; that is, a total estimate includes acquisition costs, construction work, fees (professional and legal), expenses, and any other disbursements. A project estimate may include both specific and non-specific contingency(s).

5.5.3 *Program Estimate*—An estimated cost that includes all Client Costs in addition to the Project Estimate(s) that are collectively part of the main Program of Work, that is, an overall management estimate including project estimate(s), and other program delivery, operation and maintenance, estimates. A program estimate may include both specific and non-specific reserve(s).

NOTE 5—These subsidiary classifications, while not obviously needed to classify allowances, contingences, and reserves, are important to understanding the context in which they are used.

6. Keywords

6.1 allowance; budgeting; building economics; classification; construction estimating; contingency; cost control; cost estimating; cost planning; cost risk; reserve; UNIFORMAT II

APPENDIXES

(Nonmandatory Information)

X1. GUIDANCE NOTES

X1.1 These guidance notes are included to aid in understanding the application of the classification terms. A simple and relatively common arrangement used in building construction has been used, within the mandatory information as Table 1, describing a common usage. Appendix X2 provides an example of its application within the transportation construction sector.

X1.2 Most especially with design construction estimates there is a need to make provision for the, as yet, undefined detail. It is necessary to make allowance for this if an estimate total is to be a reasoned forecast of construction cost. An estimate based on complete drawings and specifications will include only those allowances specifically prescribed in that documentation. Both specific allowances and non-specific allowances may be required, particularly during the early design stages.

X1.3 Table 1 considers just three levels of a typical Work Breakdown Structure—program, project, and construction—and the cost estimates within them. Each rolls up into the other, with program being the top level. In Table 1, it is assumed that responsibility for maintaining these levels within budget is delegated down from management/client (program), to project manager (project), to consultant (construction), although each level has an oversight responsibility for their subordinate's actions. Table 1 uses this hierarchy.

X1.4 *Construction Level*—When summarizing estimates, specific allowances are usually included within the section to which they apply, that is, an allowance for rock excavation would be included within the appropriate trade or elemental category. Non-specific allowances, by their very nature, cannot be treated that way and so must be included in a unique section or category of their own. In architectural building parlance, an allowance is sometimes described as provision for a deferred or evolving design decision.

NOTE X1.1—This summary methodology and its distinction between the specific and the non-specific also applies to contingencies and reserves.

X1.5 *Project Level*—A project manager, whose responsibility is to deliver a project "on time and within budget," will make provision within the project estimate for risk items when advising management of their financial exposure. This may be done by including a contingency sum within the total forecast project cost. Although estimated in several possible ways contingency sums should reflect both the upside and down side of identified project risks. Contingencies are reasoned sums that take into account the probability of occurrence of such identified risks. Such sums may likely be included for funds appropriation purposes and are only to be expended, as needed, against those risks.

X1.6 *Program Level*—A prudent client may also make provision for changes in overall program direction, changes in requirement, and other discretionary or unavoidable changes. A management reserve is the usual approach. For purposes of this discussion, a program may include several projects but only one reserve. Such reserves are controlled by the client and the amount may be based on company policy, calculation, or the recommendation of others. Again it is a measure of possible exposure and is for use in the event that the client needs to change the program's direction. Similar to many respects to a

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