



Standard Practice for Measuring Net Benefits and Net Savings for Investments in Buildings and Building Systems¹

This standard is issued under the fixed designation E1074; 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

The net benefits (NB) and net savings (NS) methods are part of a family of economic evaluation methods that provide measures of economic performance of an investment over some period of time. Included in this family of evaluation methods are life-cycle cost analysis, benefit-to-cost and savings-to-investment ratios, internal rates of return, and payback analysis.

The NB method calculates the difference between discounted benefits and discounted costs as a measure of the cost effectiveness of a project. The NS method calculates the difference between life-cycle costs as a measure of the cost-effectiveness of a project. The NB and NS methods are sometimes called the net present value method. The NB and NS methods are used to decide if a project is cost effective (net benefits greater than zero, or net savings greater than zero), or which size, or design, competing for a given purpose is most cost effective (the one with the greatest net benefits, or the one with the greatest net savings).

1. Scope

1.1 This practice covers a recommended procedure for calculating and interpreting the net benefits (NB) and net savings (NS) methods in the evaluation of building designs and systems.

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

1.3 *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

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.

Current edition approved May 1, 2015. Published June 2015. Originally approved in 1985. Last previous edition approved in 2009 as E1074 – 09. DOI: 10.1520/E1074-15.

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.

E833 Terminology of Building Economics

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

E964 Practice for Measuring Benefit-to-Cost and Savings-to-Investment Ratios for Buildings and Building Systems

E1057 Practice for Measuring Internal Rate of Return and Adjusted Internal Rate of Return for Investments in Buildings and Building Systems

E1121 Practice for Measuring Payback for Investments in Buildings and Building Systems

E1185 Guide for Selecting Economic Methods for Evaluating Investments in Buildings and Building Systems

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

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

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

E2204 Guide for Summarizing the Economic Impacts of Building-Related Projects

2.2 *Adjuncts:*³

Discount Factor Tables Adjunct to Practices E917, E964, E1057, E1074, and E1121

³ Available from ASTM International Headquarters. Order Adjunct No. ADJE091703.