SLOVENSKI STANDARD
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Trajnostnost gradbenih objektov - Vrednotenje ekonomskega učinka kakovosti stavb - Računska metoda

Sustainability of construction works - Assessment of economic performance of buildings - Calculation method

Nachhaltigkeit von Bauwerken - Bewertung der ökonomischen Qualität von Gebäuden - Methoden

Contribution des ouvrages de construction au développement durable - Evaluation de la performance économique des bâtiments - Méthodes de calcul

Ta slovenski standard je istoveten z: **prEN 16627**

ICS:

91.040.01	Stavbe na splošno	Buildings in general

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EUROPEAN STANDARD
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English Version

Sustainability of construction works - Assessment of economic performance of buildings - Calculation method

Contribution des ouvrages de construction au développement durable - Evaluation de la performance économique des bâtiments - Méthodes de calcul

Nachhaltigkeit von Bauwerken - Bewertung der ökonomischen Qualität von Gebäuden - Methoden

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 350.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (prEN 16627:2013) has been prepared by Technical Committee CEN/TC 350 “Sustainability of construction work”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

Introduction

The purpose of this European Standard is to provide calculation rules for the assessment of the economic performance of new and existing buildings as one part of an assessment of the sustainability of the building.

This European Standard is part of a suite of European Standards, Technical Specifications and Technical Reports for the assessment of the economic performance of buildings that together support quantification of the contribution of the assessed building to sustainable construction and sustainable development.

The economic performance of a building is only one aspect of its sustainability. The environmental and social performance of the building are also aspects of sustainability that should be assessed as part of a sustainability assessment. These are described in the framework standards (EN 15643-1, EN 15643-2, and EN 15643-3, EN 15643-4).

NOTE The economic assessment at building level requires information from products and services.

The evaluation of technical and functional performance is beyond the scope of this European Standard. Technical and functional characteristics are taken into account here by reference to the functional equivalent, which also forms a basis for comparison of the results of assessments.

This European Standard is intended to support the decision-making process and documentation of the assessment of the economic performance of a building. Although the assessment results are based on realistic scenarios, they may not fully reflect the actual and future performance of the building. Figure 1 illustrates how the assessment of the economic performance takes place within the concept of the sustainability assessment of buildings.

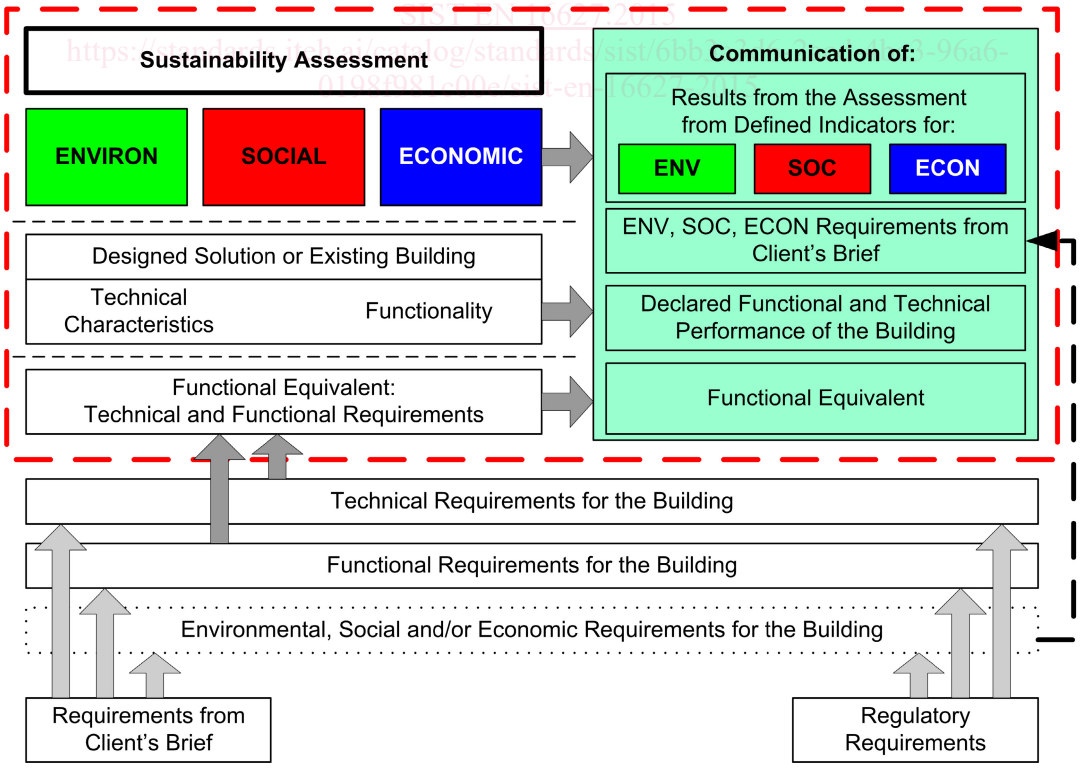
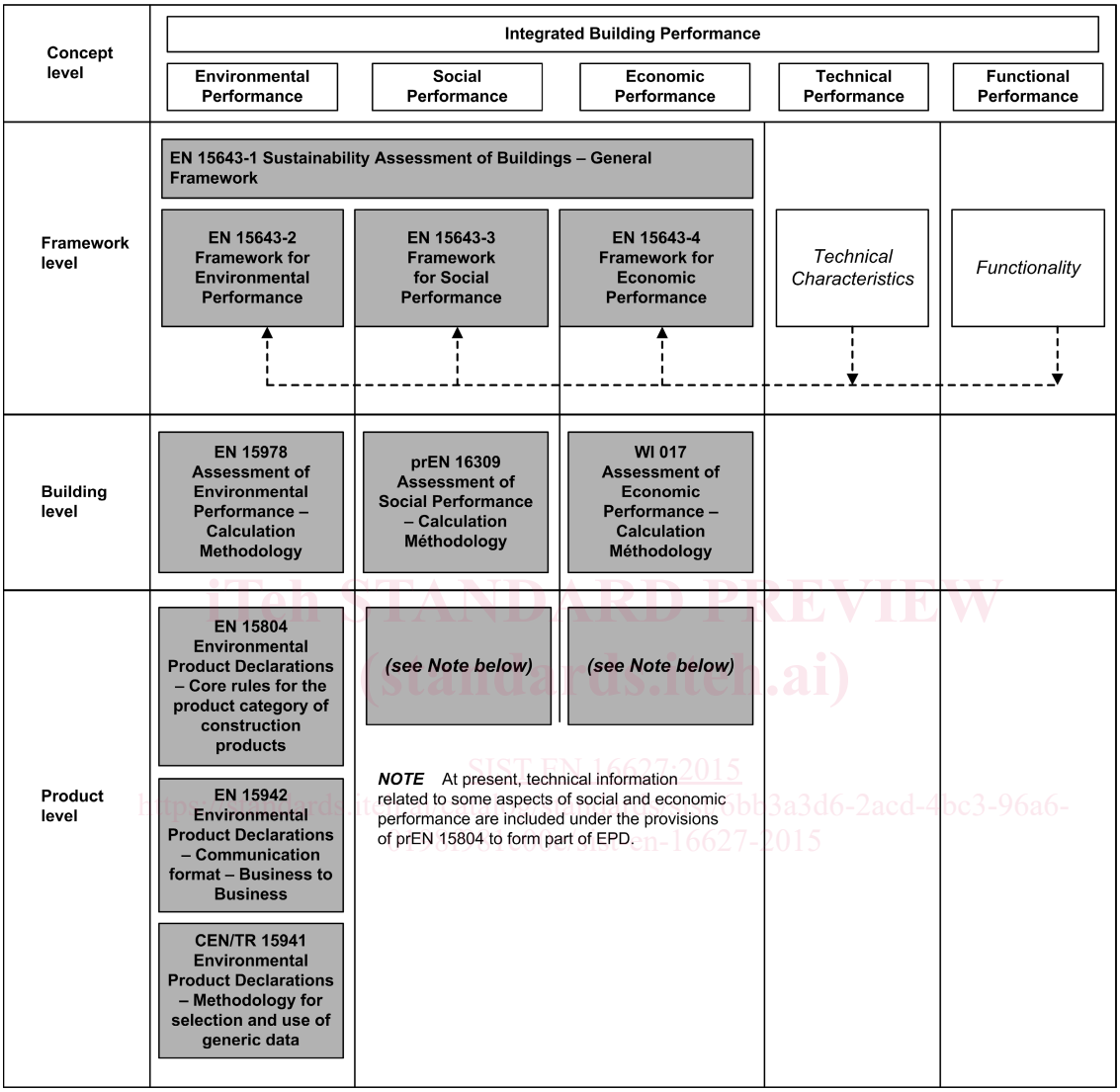


Figure 1 — Concept of sustainability assessment of buildings

In this European Standard, the assessment method for the quantitative evaluation of the economic performance of the building is based on a life cycle approach. The general requirements for sustainability assessment of buildings are described in EN 15643-1 (the general framework standard). Other requirements for the assessment of economic performance are given in EN 15643-4. Other European Standards developed by CEN/TC 350 in this area, and how they are related to this European Standard, are shown in Figure 2.



NOTE The grey boxes represent the work programme as presented in EN 15643-1.

Figure 2 — Work program of CEN/TC 350

This European Standard is intended for use to assess the economic aspects of sustainable performance of a building. This is a distinct activity from the Commission Delegated Regulation (EU) No 244/2012 of 16 January 2012 supplementing Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings, which is a methodology for the setting of energy performance standards by Member States.

EN 15459, Economic evaluation procedure for energy systems in buildings, is the European Standard which provides a calculation method for the costs of heating systems and other systems that are involved in the energy use of a building, It does not address the calculation of the whole economic impact of a building.

1 Scope

This European Standard specifies the calculation method, based on Life Cycle Assessment (LCA) and other quantified economic information, to assess the economic performance of a building, and gives the means for the reporting and communication of the outcome of the assessment. This European Standard is applicable to new and existing buildings and refurbishment projects.

This European Standard gives

— the description of the object of assessment,

— the system boundary that applies at the building level,

— the procedure to be used for the inventory analysis,

— the list of indicators and procedures for the calculations of these indicators,

— the requirements for presentation of the results in reporting and communication,

— and the requirements for the data necessary for the calculation.

The approach to the assessment covers all stages of the building life cycle and includes all building related construction products, processes and services, used over the life cycle of the building.

The interpretation and value judgments of the results of the assessment are not within the scope of this European Standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

To be completed, but currently includes ALL of the following as References in NORMATIVE TEXT:

EN 15643-1, *Sustainability of construction works — Sustainability assessment of buildings — Part 1 General framework.*

EN 15643-2, *Sustainability of construction works — Assessment of buildings — Part 2: Framework for the assessment of economic performance.*

EN 15643-3, *Sustainability of construction works — Assessment of buildings — Part 3: Framework for the assessment of social performance.*

EN 15643-4, *Sustainability of construction works — Assessment of buildings — Part 4: Framework for the assessment of economic performance.*

EN 15804, *Sustainability of construction works — Economic product declarations — Core rules for the product category of construction products.*

EN 15603, *Energy performance of buildings — Overall energy use and definition of ratings.*

ISO 15392, *Sustainability in building construction — General principles*.

ISO 15686-1, *Buildings and constructed assets — Service life planning — Part 1: General principles and framework*.

ISO 15686-2, *Buildings and constructed assets — Service life planning — Part 2: Service life prediction procedures*.

ISO 15686-7, *Buildings and constructed assets — Service life planning — Part 7: Performance evaluation for feedback of service life data from practice*.

ISO 15686-8, *Buildings and constructed assets — Service-life planning — Part 8: Reference service-life and service life estimation*.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15643-2, EN 15643-4 and ISO 15686-1 apply.

4 Abbreviations

For the purposes of this document, the following abbreviations apply.

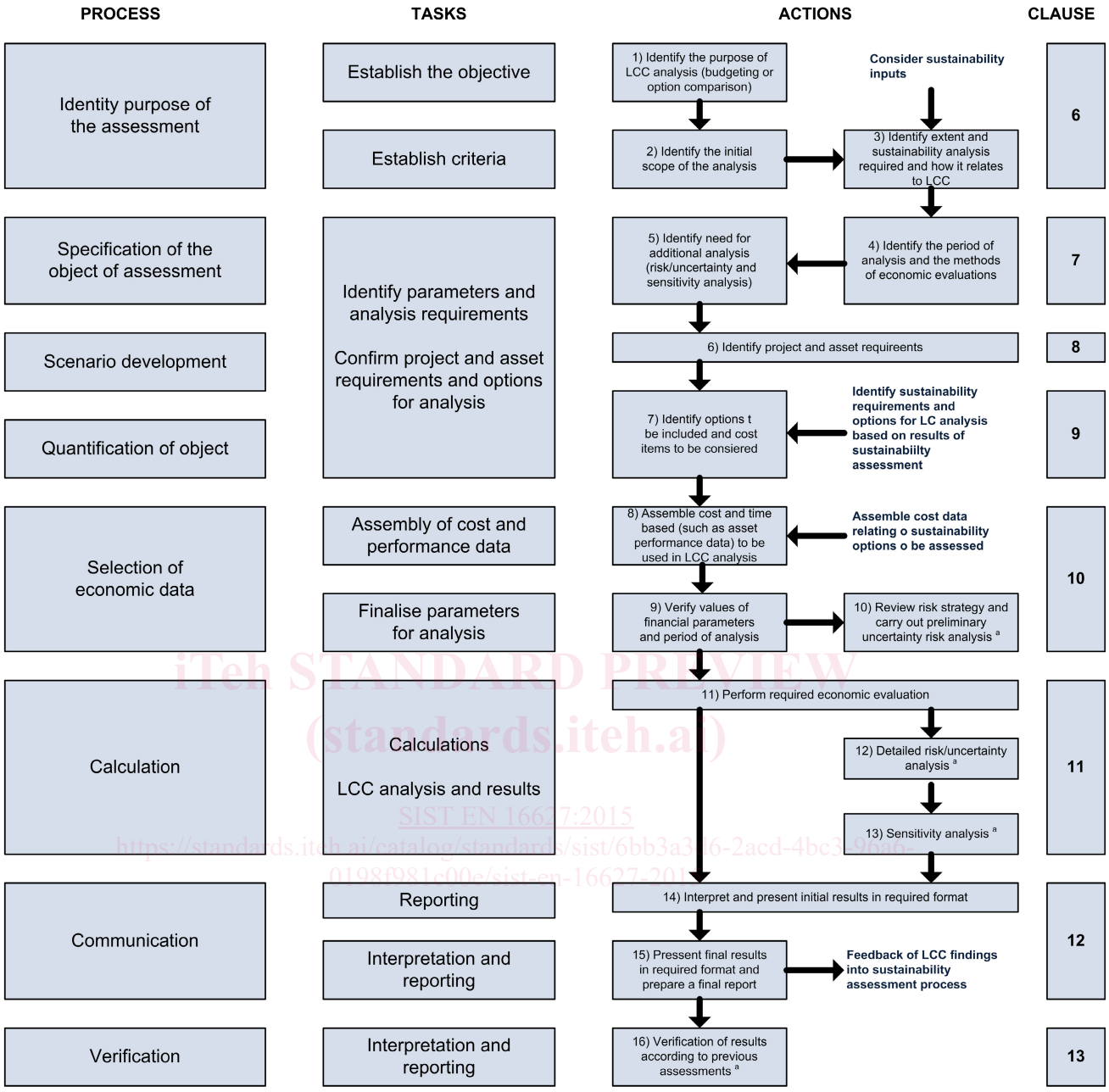
ESL Estimated Service Life

RSL Reference Service Life

RSP Reference Study Period

5 The process for setting up the calculations required for the assessment

In order to carry out and complete the calculations necessary for the assessment of economic performance of buildings, the steps illustrated in Figure 3 shall be followed. This will help ensure that the essential information is gathered and processed according to the requirements of this European Standard. The clauses numbered in the right column that follow the diagram explain in more detail each step specified in the central column of the table below.



Key

a white boxes are optional

Figure 3 — Flowchart of the process for the assessment of the economic performance

6 Purpose of the assessment

The purpose of the assessment is to quantify economic performance of the object of assessment, usually a building within its site perimeter, as one part of an integrated assessment of the sustainability of the building.

The scope and intended use of the assessment of a building in terms of economic impacts and aspects shall be defined, agreed and documented before an assessment is carried out.

The scope of an assessment shall identify and record what is included in the assessment with respect to Clauses 7, 8, 9 and 10.

The intended use of the assessment may include, but is not limited to, the following:

a) assistance in a decision-making process, for example:

- comparisons of the economic performance of different design options;
- comparisons of the economic performance of refurbishment, reconstruction and/or new construction;
- contributing to identification of the potential for improved performance;
- contributing to the setting of budgets.

NOTE A financial or investment analysis serves a different purpose and may lead to different conclusions to this economic analysis of sustainability performance.

b) declaring performance with respect to legal, funding or other requirements;

c) documenting the economic performance of a building;

d) support for policy development.

The scope and intended use determine the level of detail and accuracy required for the inputs to and outputs from the calculations.

7 Specification of the object of assessment

7.1 General

The object of assessment is the building, including its foundations and external works within the perimeter of the building's site, over its life cycle. The perimeter used to characterise the site shall be consistent with the definition and intended use of the building.

NOTE 1 The site is identified as the physical space of land occupied by and attached to the building.

NOTE 2 Clause 7.3 describes how the life cycle results can be adapted to give the results for the chosen reference study period.

If the assessment is restricted to a part of a building or to an assembled system (part of works), or to a part of the life cycle, or if any relevant impacts or aspects are not addressed, this shall be documented, reported and reasons given.

NOTE 3 The economic assessment of the building excludes permanent construction works outside of the perimeter of the site such as construction of infrastructure for communication, energy, water, waste and transportation. A building on a site which requires such construction works will generate economic impacts other than those strictly related to the building. The assessment of these economic impacts and aspects is outside of the scope of this European Standard.

The object of assessment shall be described in terms of its physical and time-dependent characteristics (including cost related information).

7.2 Functional equivalent

The functional equivalent is a representation of the required technical characteristics and functionalities of the building. It is the means by which the characteristics of the building are rationalised into a minimum description of the object of assessment.

Although assessments may be carried out on an individual object, they will in most instances form part of the process for the evaluation of decisions in relation to the object of assessment. This includes the decision whether to build new, or refurbish/reconstruct an existing building, the evaluation of the design options, locations, etc.

Comparisons between the results of assessments of buildings or assembled systems (part of works) - at the design stage or whenever the results are used - shall be made only on the basis of their functional equivalency. This requires that the major functional requirements shall be described together with intended use and the relevant specific technical requirements. This description allows the functional equivalency of different options and building types to be determined and forms the basis for transparent and fair comparison.

If the assessment results based on different functional equivalents are used for comparisons, then the basis for comparison shall be made clear.

NOTE 1 If appropriate, the assessment results of the buildings that have different functional equivalents (e.g. design options for different types of buildings on the same site or the same types of buildings exposed to different conditions) can also be compared based on a common unit of reference. The choice of the common reference unit for all buildings being compared depends on a specific requirement of a technical, functional, economic, social or economic aspect, or combination thereof, which is common to all these buildings and is linked to their corresponding functional equivalents.

NOTE 2 A reference unit can be derived from the functional equivalent and be used to present the result of the indicators of the economic assessment relative to the functional equivalent. A reference unit may be dimensionless or qualified with a dimension (e.g. per m², per year, per employee, per room per year, per m² per year).

When combining separate assessments of environmental (EN 15643-2), social (EN 15643-3) and economic (EN 15643-4) performance in a sustainability assessment of the same object of assessment, the functional equivalent used in the assessments of the individual dimensions of sustainability shall be the same.

The functional equivalent of a building or an assembled system (part of works) shall include, but is not limited to, information on the following aspects:

— building type (e.g. office, factory);

— relevant technical and functional requirements (e.g. the regulatory and client’s specific requirements);

— pattern of use (e.g. occupancy);

— required service life (ReqSL).

NOTE 3 Other specific requirements and exposure to climate and to other conditions from the immediate surroundings may be relevant for inclusion in the information on the functional equivalent.

Where the client’s brief and regulations do not provide information for defining the functional equivalent, the assessment shall include the assumptions made, the scenarios and the sources of information used by the assessor.

Where the client’s brief and regulations do not specify the required service life the design life, (which may exceed the required service life), may be used. The basis on which the design life is shall be described, e.g. determined on the basis of empirical, probabilistic or statistical data.

NOTE 4 Eurocodes and ISO 15686-1 provide guidance on determining the design life of a building.