



# SLOVENSKI STANDARD

## SIST EN 15643-2:2011

01-maj-2011

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### Trajnostnost gradbenih objektov - Ocenjevanje stavb - 2. del: Okvir za ocenjevanje učinkov ravnanja z okoljem

Sustainability of construction works - Assessment of buildings - Part 2: Framework for the assessment of environmental performance

Nachhaltigkeit von Bauwerken - Bewertung der Nachhaltigkeit von Gebäuden - Teil 2: Rahmenbedingungen für die Bewertung der umweltbezogenen Qualität

Contribution des ouvrages de construction au développement durable - Évaluation des bâtiments - Partie 2: Cadre pour l'évaluation des performances environnementales

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#### **ICS:**

13.020.20	Okoljevarstvena ekonomika	Environmental economics
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 15643-2**

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English Version

## Sustainability of construction works - Assessment of buildings - Part 2: Framework for the assessment of environmental performance

Contribution des ouvrages de construction au  
développement durable - Évaluation des bâtiments - Partie  
2: Cadre pour l'évaluation des performances  
environnementales

Nachhaltigkeit von Bauwerken - Bewertung der  
Nachhaltigkeit von Gebäuden - Teil 2:  
Rahmenbedingungen für die Bewertung der  
umweltbezogenen Qualität

This European Standard was approved by CEN on 15 January 2011.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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## Foreword

This document (EN 15643-2:2011) has been prepared by Technical Committee CEN/TC 350 “Sustainability of construction works”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2011, and conflicting national standards shall be withdrawn at the latest by September 2011.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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## Introduction

This European Standard forms part of a series of European Standards, written by CEN/TC 350, that provide a system for the sustainability assessment of buildings using a life cycle approach. The sustainability assessment quantifies impacts and aspects to assess the environmental, social and economic performance of buildings using quantitative and qualitative indicators, both of which are measured without value judgements. The purpose of this series of standards is to enable comparability of the results of assessments. This series of European Standards does not set benchmarks or levels of performance.

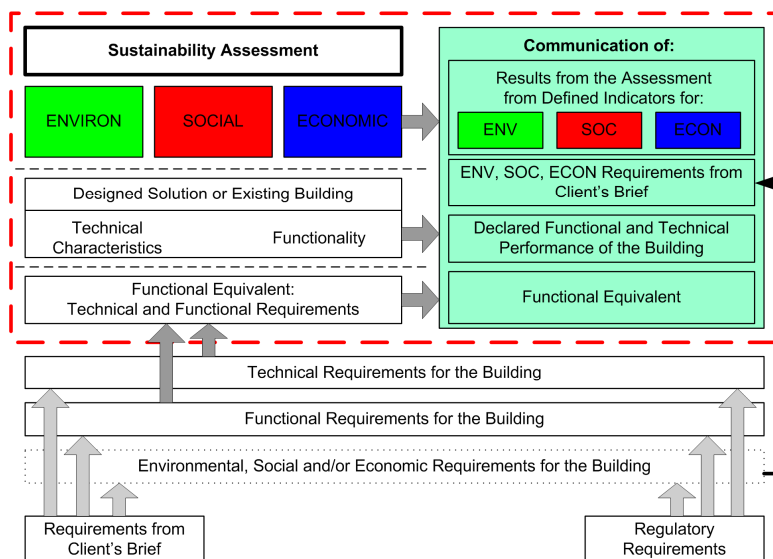
This series of standards will allow the sustainability assessment, i.e. the assessment of environmental, social and economic performance of a building, to be made concurrently and on an equal footing, on the basis of the same technical characteristics and functionality of the object of assessment.

The sustainability assessment of buildings uses different types of information. The results of a sustainability assessment of a building provide values for the different types of indicators, the related building scenarios and on the life cycle stages included in the assessment.

In carrying out assessments, scenarios and a functional equivalent are determined at the building level. Assessment at the building level means that the descriptive model of the building with the major technical and functional requirements has been defined in the client's brief or in the regulations, as illustrated in Figure 1. Assessments can be undertaken for the whole building, for parts of the building, which can be used separately, or for elements of the building.

Although the evaluation of technical and functional performance is beyond the scope of this series of standards, the technical and functional characteristics are considered within this framework by reference to the functional equivalent. The functional equivalent takes into account the technical and functional requirements and forms a basis for comparisons of the results of the assessment.

Any particular demands for, or related to, the environmental, social and economic performance defined in the client's brief, or in regulations, may be declared and communicated. Figure 1 shows how the functional equivalent and the technical and functional characteristics that differ from those required, either by the client's brief or through regulations, are to be declared and communicated with the results of the assessment.

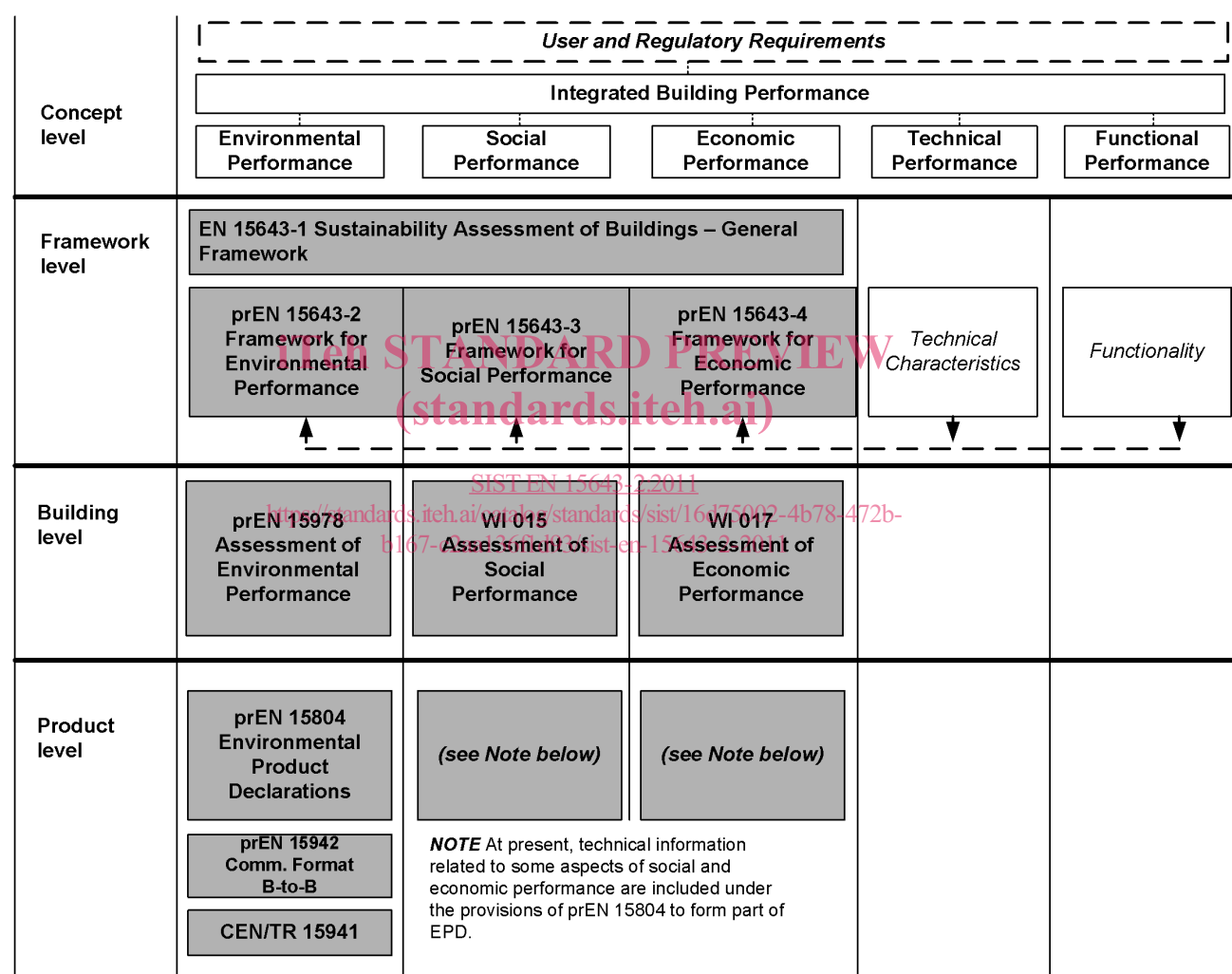


NOTE The outer box with the dotted line represents the area to be standardised by CEN/TC 350.

**Figure 1 – The concept of sustainability assessment of buildings**

In concept, the integrated building performance incorporates environmental, social and economic performance as well the technical and functional performance, and these are intrinsically related to each other, as illustrated in Figure 2. Although the assessment of technical and functional performance does not form part of this series of standards, their interrelationship with environmental, social and economic performance is prerequisite for an assessment of sustainability performance of buildings and, therefore, is taken into account.

It is advisable to carry out an assessment at the earliest opportunity during the conceptual stages of a construction or refurbishment project such as in the sketch plan stage in order to provide a broad estimate of the environmental performance, social performance and economic performance. As the project evolves the assessment may be periodically reviewed and updated to support decision making. A final assessment (as-built) should be carried out. The results of this final assessment can be used to inform all parties concerned.



NOTE The darkened boxes represent the work programme of CEN/TC 350.

**Figure 2 – The work programme of CEN/TC 350**

This European Standard EN 15643-2 is Part 2 of the framework standards for sustainability assessment of buildings. The purpose of EN 15643-2 is to provide a framework with principles, requirements and guidelines to assess the environmental performance of buildings. It focuses on the principles and requirements for the assessment of the environmental performance of a building as described at the "framework level" in Figure 2. In the drafting of this European Standard, ISO 21930 and ISO 21931-1 have been taken into consideration.

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The first revision of the general framework standard, EN 15643-1, will combine all four parts of the framework of this series of standards into one framework standard. This will ensure simultaneous revision of the interlinked parts of the frameworks within the series of standards.

In the future, the assessment methodologies within this series of standards may be part of an overall assessment of integrated building performance. The assessment methodologies may also be extended to an assessment of the neighbourhoods and wider built environment.

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## 1 Scope

This European Standard forms one part of a series of European Standards and provides the specific principles and requirements for the assessment of environmental performance of buildings taking into account technical characteristics and functionality of a building. Assessment of environmental performance is one aspect of sustainability assessment of buildings under the general framework of EN 15643-1.

The framework applies to all types of buildings and it is relevant for the assessment of the environmental performance of new buildings over their entire life cycle, and of existing buildings over their remaining service life and end of life stage.

In this series of standards, the environmental dimension of sustainability is limited to the assessment of environmental impacts and aspects of a building on the local, regional and global environment. The assessment is on Life Cycle Assessment and additional quantifiable environmental information expressed with quantified indicators. It excludes the assessment of a building's influence on the environmental impacts and aspects of the local infrastructure beyond the area of the building site, and environmental impacts and aspects resulting from transportation of the users of the building. It also excludes environmental risk assessment.

The standards developed under this framework do not set the rules for how different building assessment schemes may provide valuation methods. Nor do they prescribe levels, classes or benchmarks for measuring performance.

NOTE Valuation methods, levels, classes or benchmarks may be prescribed in the requirements for environmental, social and economic performance in the client's brief, building regulations, national standards, national codes of practice, building assessment and certification schemes, etc.

The rules for assessment of environmental aspects of organizations are not included within this framework. However, the consequences of decisions or actions that influence the environmental performance of the object of assessment are taken into account.

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## 2 Normative references

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

prEN 15804, *Sustainability of construction works — Environmental product declarations* — Product category rules

prEN 15978, *Sustainability of construction works — Assessment of environmental performance of buildings — Calculation method*

EN ISO 14044, *Environmental management — Life cycle assessment — Requirements and guidelines (ISO 14044:2006)*

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

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

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*

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

ISO 21930, *Sustainability in building construction — Environmental declaration of building products*

**3 Terms and definitions**

For the purposes of this document, the following terms and definitions apply.

**3.1****assembled system****part of works**

*component* (3.10) or a set of components incorporated in the *construction works* (3.13)

NOTE Adapted from the definitions in the Construction Products Directive (CPD) Guidance Paper C and from the definition of *construction* in ISO 6707-1.

**3.2****brief**

written document that states the *client's* (3.9) requirements for a construction project

[ISO 6707-2:1993]

**3.3****building**

*construction works* (3.13) that has the provision of shelter for its occupants or contents as one of its main purposes and is usually enclosed and designed to stand permanently in one place

[ISO 6707-1:2004]

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**3.4****building fabric**

all *construction products* (3.11) that are fixed to the *building* (3.3) in a permanent manner, so that the dismantling of the product changes the performance of the building and the dismantling or replacement of the product constitute construction operations

**3.5****building-integrated technical system**

installed technical equipment to support operation of a *building* (3.3)

NOTE This includes *technical building system* (3.70) and other systems for sanitation, security, fire safety, internal transport and building automation and control and IT communications.

**3.6****building site**

specified area of land where a *building* (3.3) is located or is defined to be located and *construction work* (3.12) of the *building* and associated *external works* (3.28) are or will be undertaken

NOTE Adapted from the definition of site in ISO 6707-1.

**3.7****built environment**

collection of *buildings* (3.3), *external works* (3.28) (landscaped areas), infrastructure and other *construction works* (3.13) within an area

NOTE Adapted from the definition of *built environment* in ISO 6707-1.

**3.8****civil engineering works**

*construction works* (3.13) comprising a structure, such as a dam, bridge, road, railway, runway, utilities, pipeline, or sewerage system, or the result of operations such as dredging, earthwork, geotechnical processes, but excluding a *building* (3.3) and its associated site works

[ISO/TS 21929-2]

**3.9****client**

person or organization that requires a *building* (3.3) to be provided, altered or extended and is responsible for initiating and approving the *brief* (3.2)

[ISO 6707-1:2004]

**3.10****component**

*construction product* (3.11) manufactured as a distinct unit to serve a specific function or functions

[ISO 6707-1:2004]

**3.11****construction product**

item manufactured or processed for incorporation in *construction works* (3.13)

NOTE 1 *Construction products* are items supplied by a single responsible body.

NOTE 2 Adapted from the definition in ISO 6707-1 according to the recommendation of ISO/TC59/AHG Terminology.

**3.12****construction work**

activities of forming a *construction works* (3.13)

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[ISO 6707-1:2004]

**3.13****construction works**

everything that is constructed or results from construction operations

NOTE 1 This covers both *building* (3.3) and *civil engineering works* (3.8), and both structural and non-structural elements.

NOTE 2 Adapted from the definition in ISO 6707-1.

**3.14****decommissioning**

activities that change a *building* (3.3) or an *assembled system (part of works)* (3.1) from an operational status to a non-operational status

**3.15****delivered energy**

total energy, expressed per energy carrier, supplied to the *technical building system* (3.70) through the system boundary to satisfy the uses taken into account (heating, cooling, ventilation, domestic hot water, lighting, appliances etc.) or to produce electricity

NOTE 1 For active solar and wind energy systems the incident solar radiation on solar panels or on solar collectors or the kinetic energy of wind is not part of the energy balance of the building. Renewable energy produced on site is part of the *delivered energy*.

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NOTE 2 *Delivered energy* can be calculated for defined energy uses or it can be measured.

[EN 15603:2008]

**3.16**  
**design life**

*service life* (3.62) intended by the designer

[ISO 15686-1]

**3.17**  
**disposal**

*waste* (3.75) treatment operation other than *recovery* (3.50)

NOTE Adapted from the definition in Directive 2008/98.

**3.18**  
**durability**

ability to maintain required *technical performance* (3.71) throughout the *service life* (3.62), subject to specified *maintenance* (3.41) under the influence of the foreseeable actions

NOTE 1 Foreseeable actions are actions related to “normal” agents that could be expected to act on the works or parts thereof. Potential degradation agents include, for example, temperature, humidity, water, UV radiation, abrasion, chemical attack, biological attack, corrosion, weathering, frost, freeze-thaw and fatigue.

NOTE 2 Adapted from the definition in CPD Guidance Paper F and in ISO 6707-1.

**3.19**  
**economic aspect**

aspect of *construction works* (3.13), *part of works* (3.1), processes or services related to their *life cycle* (3.35) that can cause change to economic conditions

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[ISO 15392:2008]

**3.20**  
**economic impact**

any change to the economic conditions, whether adverse or beneficial, wholly or partially resulting from *economic aspects* (3.19)

NOTE Derived from the definitions of impact and economic impact in ISO 15392.

**3.21**  
**economic performance**

*performance* (3.47) related to *economic impacts* (3.20) and *economic aspects* (3.19)

[ISO 15392:2008]

**3.22**  
**energy carrier**

substance or phenomenon that can be used to produce mechanical work or heat or to operate chemical or physical processes

NOTE Adapted from the definition in EN 15603:2008.

**3.23**  
**environmental aspect**

aspect of *construction works* (3.13), *part of works* (3.1), processes or services related to their *life cycle* (3.35) that can cause change to the environment