



SLOVENSKI STANDARD

oSIST prEN 15643:2019

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Trajnostnost gradbenih objektov - Okvir za ocenjevanje trajnostnosti stavb in gradbenih inženirskih objektov

Sustainability of construction works - Framework for assessment of buildings and civil engineering works

Nachhaltigkeit von Bauwerken - Allgemeine Rahmenbedingungen zur Bewertung von Gebäuden und Ingenieurbauwerken

Contribution des ouvrages de construction au développement durable - Cadre pour l'évaluation des bâtiments et des ouvrages de génie civil

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EUROPEAN STANDARD
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English Version

Sustainability of construction works - Framework for assessment of buildings and civil engineering works

Contribution des ouvrages de construction au
développement durable - Cadre pour l'évaluation des
bâtiments et des ouvrages de génie civil

Nachhaltigkeit von Bauwerken - Allgemeine
Rahmenbedingungen zur Bewertung von Gebäuden
und Ingenieurbauwerken

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.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Content	Page
European foreword.....	3
Introduction	4
1 Scope	7
2 Normative references	7
3 Terms and definitions.....	8
4 Principles.....	22
4.1 General.....	22
4.2 Objectives of sustainability performance assessment of construction works	22
4.3 Approach to assessment of sustainability	22
4.4 Relevance of technical and functional requirements.....	23
4.5 Consideration of the construction works life cycle	23
4.6 Assessment of impacts and aspects related to the buildings and civil engineering works ..	23
4.7 Consideration of options for sustainable refurbishment of existing construction works....	23
5 Requirements for assessment methods.....	24
5.1 General.....	24
5.2 Object of assessment and the system boundary	24
5.3 Functional equivalent	25
5.4 Type of data and their assignment to the construction works life cycle	25
5.4.1 Assignment of data to the construction works life cycle	25
5.4.2 Reference study period.....	25
5.4.3 Aspects and impacts specific to the construction works	26
5.4.4 Scenarios	27
5.5 Requirements for data quality	27
5.6 Requirements for verification.....	28
5.7 Transparency of the assessment methods	28
5.8 Requirements for reporting and communication.....	28
5.8.1 General.....	28
5.8.2 Results of the assessment	28
5.8.3 Environmental, social and economic requirements from regulations and client's brief... 30	30
5.8.4 Technical and functional performance	30
6 Requirements for assessment methods of environmental, social and economic performance of construction works	31
6.1 Overview of the methodology for assessment of environmental, social and economic performance of construction works	31
6.2 Environmental indicator categories	32
6.3 Social indicator categories	33
6.4 Economic indicator categories.....	34
Bibliography.....	35

European foreword

This document (prEN 15643:2019) has been prepared by Technical Committee CEN/TC 350 “Sustainability of construction works”, the secretariat of which is held by AFNOR.

This document replaces a series of standards that consists of the following parts:

- 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 environmental 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 15643-5, *Sustainability of construction works - Sustainability assessment of buildings and civil engineering works - Part 5: Framework on specific principles and requirement for civil engineering works*

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Introduction

This document forms part of a series of European Standards, written by CEN/TC 350, that provide a system for the sustainability assessment of buildings and civil engineering works using a life cycle approach. The sustainability assessment quantifies aspects and impacts to assess the environmental, social and economic performance of buildings and civil engineering works using quantifiable indicators 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 and/or civil engineering works, to be made concurrently and on an equal footing, on the basis of the technical characteristics and functionality of the object of assessment.

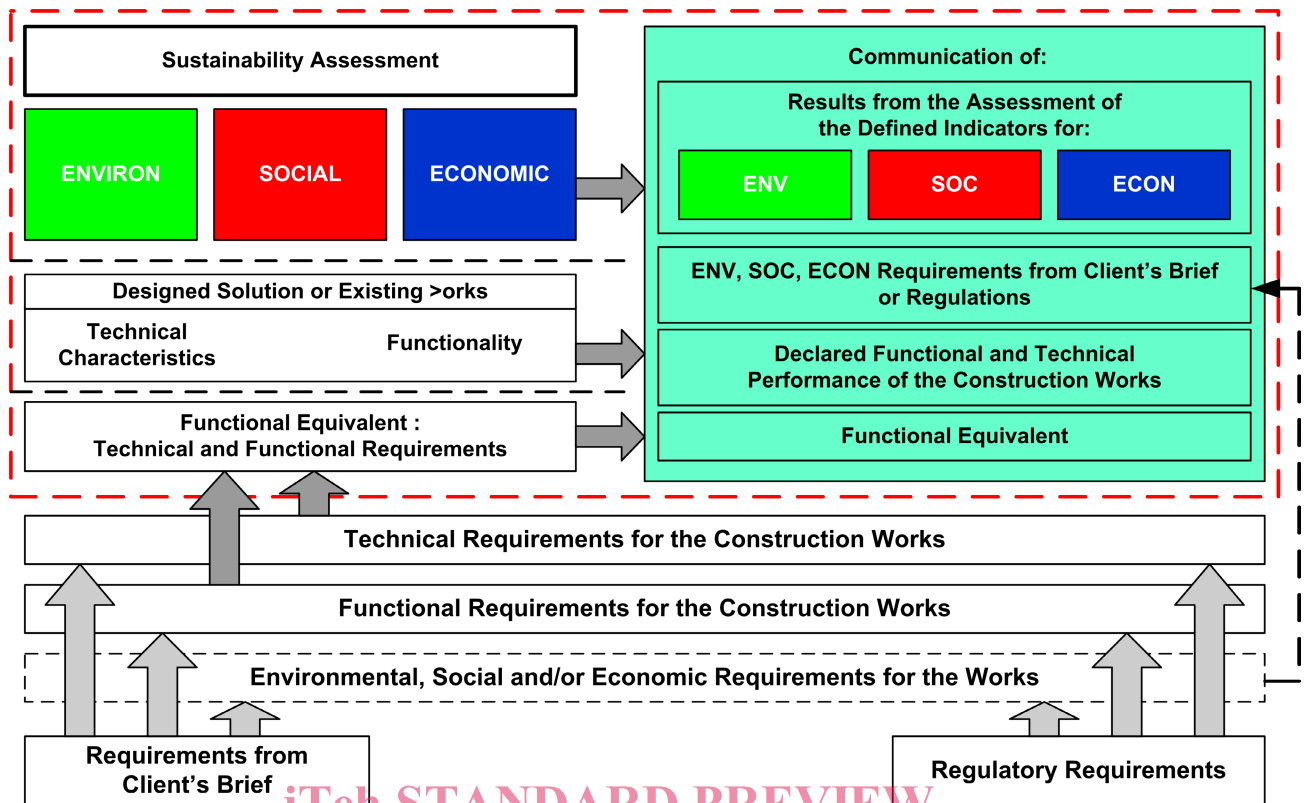
The sustainability assessment of buildings and civil engineering works uses different types of information. The results of a sustainability assessment of a building and/or civil engineering works provide information on the different types of indicators, the related works scenarios, and the life cycle stages included in the assessment.

In carrying out assessments, scenarios and a functional equivalent are determined at the construction works level. Assessment at the construction works level means that the descriptive model of the works 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 either for the whole building or civil engineering works, for a part of the works or for a combination of several buildings and/or civil engineering works.

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 the 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 standardized by CEN/TC 350.

Figure 1 — Concept of sustainability assessment of construction works

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In concept, the integrated construction works performance incorporates environmental, social and economic performance as well as the technical and functional performance, and these are intrinsically related to each other. 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 a prerequisite for an assessment of sustainability of construction works and, therefore, is taken into account, as illustrated in Figure 1.

The users' activities associated with the constructed asset (referred to as "users' activities") are part of the assessment of construction works. These can include, for example, the fuel consumed by the cars users of a road as part of the assessment of infrastructure, or the energy used for commuting to and from a building, as part of a building assessment.

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 initial planning stage in order to provide a broad estimate of the environmental performance, social performance and economic performance. As the project evolves, the assessment can 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, and also serve as the database for future new similar projects.

Framework Level	<i>Sustainability Assessment of Construction Works</i>			<i>Technical characteristics</i>	<i>Functionality</i>
	prEN 15643 (revisions of EN 15643-1...5) Sustainability of Construction Works – Framework for Assessment of Buildings and Civil Engineering Works				
Works Level	EN 15978 Assessment of Environmental Performance of Buildings	EN 16309 Assessment of Social Performance of Buildings	EN 16627 Assessment of Economic Performance of Buildings	prWI00350029 Assessment of Options for Sustainable Refurbishment of Buildings	
	prEN WI00350028 Assessment of Civil Engineering Works			EN ISO 52000 Energy Performance of Buildings	
Product Level	EN 15804 + A1 + A2 Environmental Product Declarations – Core Rules for Construction Products				Service Life Prediction Procedures ISO 15686-2,
	EN 15942 Communication Format B-to-B				Feedback from Practice ISO 15686-7,
	prEN 15941 rev Generic Data				Reference Service Life & Service Life Estimation ISO 15686-8
	prEN xxxxx Communication Format B-to-C				
	CEN/TR 16790 Guidance for EN 15804				
	CEN/TR 17005 Add. Indicators				

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

Figure 2 — Work program of CEN/TC 350

This framework is the general framework for sustainability assessment of buildings and civil engineering works. The purpose of this EN 15643 is to provide a framework with principles, requirements and guidelines for the assessment of the environmental, social and economic performance of a building and/or civil engineering works or combination thereof at the “framework level”. This document has been drafted by combining the previously published 5 parts of the framework standards; i.e. EN 15643-1, -2, -3, -4 and -5 into one framework standard.

1 Scope

This document provides principles and requirements for the assessment of environmental, social and economic performance of buildings and civil engineering works taking into account their technical characteristics and functionality. Assessments of environmental, social and economic performance are the three aspects of sustainability assessment of buildings and civil engineering works, or combination thereof, (hereafter referred to as “construction works”).

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

The sustainability assessment of construction works concentrates on the assessment of environmental, social and economic aspects and impacts of construction works expressed with quantifiable indicators. It includes the assessment of a construction works’ influence on the environmental, social and economic aspects and impacts on the local area (area of influence) and of the local infrastructure beyond the curtilage of the building and the civil engineering works. It excludes environmental, social and economic risk assessment.

The European Standards developed under this framework do not set the rules for how the different assessment methodologies may provide valuation methods; nor do they prescribe levels or classes for measuring performance.

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

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

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.

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

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

EN 16309, *Sustainability of construction works — Assessment of social performance of buildings — Calculation methodology*

EN 16627, *Sustainability of construction works — Assessment of economic performance of buildings — Calculation methods*

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

ISO 15392:2008, *Sustainability in building construction — General principles*

ISO 15686-1:2011, *Buildings and constructed assets — Service life planning — Part 1: General principles and framework*

prEN 15643:2019 (E)

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*

ISO/TS 15686-9, *Buildings and constructed assets — Service-life planning — Part 9: Guidance on assessment of service-life data*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1**accessibility**

ability of a space or service to be entered or used with ease

Note 1 to entry: Requirements for accessibility will depend on the users' needs, as well as to activities during the life cycle of the building or civil engineering works, e.g. construction work, maintenance and deconstruction.

Note 2 to entry: "Barrier-free use of buildings" relates to requirements for accessibility to meet the needs of users with reduced mobility.

[SOURCE: ISO 15392: 2019, modified] <https://standards.iteh.ai/catalog/standards/sist/c545c161-bf30-41f8-b21a-7d44846aa418/osist-pren-15643-2019>

3.2**adaptability**

ability of the object of assessments or parts thereof to be changed or modified to make suitable for a particular use

[SOURCE: ISO 21929-1:2011, modified]

3.3**area of influence**

area or combination of areas surrounding a construction works that can be affected with changes to their economical, environmental or social conditions by the use and operations of construction works throughout its life cycle

Note 1 to entry: The area of influence is defined per aspect.

Note 2 to entry: The area of influence is variable and dependent e.g. on the use of construction works, its location and its life cycle stage.

Note 3 to entry: The influence area concerns only the construction works and not the construction products. Example: Stones coming from China, China is not in the influence area.

[SOURCE: ISO/TS 21929-2:2015]

3.4**part of works
assembled system**

component or a set of components incorporated in the construction works

3.5**backfilling**

recovery operation where suitable non-hazardous waste is used for purposes of reclamation in excavated areas or for engineering purposes in landscaping. Non-hazardous waste used for backfilling substitutes non-waste materials, be suitable for the aforementioned purposes, and be limited to the amount strictly necessary to achieve those purposes;

[SOURCE: Directive (EU) 2018/851, modified]

3.6**brief**

written document that states the client's requirements for a construction project

[SOURCE: ISO 6707-2:2017, modified]

3.7**building**

construction works 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

[SOURCE: ISO 6707-1:2017, modified]

3.8**built environment**

collection of buildings, civil engineering works, external works (landscape area), associated infrastructures and other civil engineering works within an area

[SOURCE: ISO 6707-1:2017, modified]

3.9**by-product**

co-product from a process that is incidental or not intentionally produced and which cannot be avoided

Note 1 to entry: Wastes are not by-products.

[SOURCE: ISO 21930:2017]

3.10**civil engineering works**

construction works 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 and its associated site works

[SOURCE: ISO/TS 21929-2:2015]

prEN 15643:2019 (E)**3.11****co-product**

one or more products from the same unit process, but which is not the object of the assessment

Note 1 to entry: Co-product and product have the same status and are used for identification of several distinguishable flows of products from the same unit process. Where one of two or more co-products is the object of assessment of the EPD, this is normally considered the product, and the other output(s) (ISO 14040:2006, 3.25) the co-product(s). Where one of the co-products is an input (ISO 14040:2006, 3.21) to a process (ISO 14040:2006, 3.11), this is normally considered as a product input. From co-product and product, waste (3.56) is the only output to be distinguished as a non-product.

[SOURCE: ISO 21930:2017]

3.12**client**

person or organisation that requires a building or civil engineering works to be provided, altered or extended and is responsible for initiating and approving the brief

[SOURCE: ISO 6707-1:2017, modified]

3.13**component**

construction product manufactured as a distinct unit to serve a specific function or functions

[SOURCE: ISO 6707-1:2017] iTeh STANDARD PREVIEW
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3.14**construction product**

item manufactured or processed for incorporation in construction works

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3.15**construction site**

specified area of land where a building or a civil engineering works is located or is defined to be located and construction work of the building or civil engineering works and associated external works are undertaken

[SOURCE: ISO 6707-1:2017, modified]

3.16**construction work**

activities of forming a construction works

[SOURCE: ISO 6707-1:2017]

3.17**construction works**

everything that is constructed or results from construction operations

Note 1 to entry: This includes buildings, civil engineering works, structures, landscaping, external works and other types of construction works within a built environment.

Note 2 to entry: From an economic perspective, completed construction works are typically referred to as a constructed asset.

[SOURCE: ISO/FDIS 15392: 2019]