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**Sustainability in building construction —  
Framework for methods of assessment of  
the environmental performance of  
construction works —**

Part 1:  
**Buildings**

*Développement durable dans la construction — Cadre méthodologique  
de l'évaluation de la performance environnementale des ouvrages de  
construction —*

*Partie 1: Bâtiments*



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# Contents

Page

Foreword .....	iv
Introduction.....	v
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>1</b>
<b>3 Terms and definitions .....</b>	<b>2</b>
<b>4 Principles for assessment of the environmental performance of buildings.....</b>	<b>3</b>
4.1 General .....	3
4.2 Purpose of assessment .....	5
4.3 Relevance of local contexts .....	5
<b>5 Framework for methods of assessment of environmental performance of buildings.....</b>	<b>6</b>
5.1 General .....	6
5.2 Assessment method documentation .....	6
5.3 Purpose of the method .....	7
5.4 System boundary .....	7
5.5 Statement of assumptions and scenarios .....	7
5.6 List of issues for assessment.....	8
5.7 Building life cycle .....	10
5.8 Methods for quantification of environmental performance of buildings.....	12
5.9 Sources of information .....	14
5.10 Evaluation of assessment results .....	15
5.11 Assessment report .....	15
<b>Annex A (informative) Consideration of social aspects, such as health and comfort, related to the indoor and local outdoor environment .....</b>	<b>17</b>
<b>Annex B (informative) Extent and application of the assessment method.....</b>	<b>18</b>
<b>Annex C (informative) Relationships between environmental aspects, impacts, issues and characteristics of the building .....</b>	<b>21</b>
<b>Annex D (informative) Graphical illustration of correlation and mapping of environmental issues to different life-cycle stages .....</b>	<b>24</b>
<b>Bibliography.....</b>	<b>26</b>

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 21931-1 was prepared by Technical Committee ISO/TC 59, *Building construction*, Subcommittee SC 17, *Sustainability in building construction*.

This first edition of ISO 21931-1 cancels and replaces ISO/TS 21931-1:2006.

ISO 21931 consists of the following parts, under the general title *Sustainability in building construction — Framework for methods of assessment of the environmental performance of construction works*:

— *Part 1: Buildings*

Civil engineering works (infrastructure) is to form the subject of a part 2.

## Introduction

The ability to measure and understand the environmental performance of buildings is essential for communicating their potential environmental impacts and their influence on sustainable development.

This part of ISO 21931 establishes a framework for methods of assessment of the environmental performance of buildings and related external works, which is a central part of the process. Such assessments can be used for benchmarking performance and monitoring progress towards improvement of performance. This part of ISO 21931 does not set benchmarks or levels of performance relative to environmental impacts and aspects.

The development of methods of assessment of the environmental performance of buildings has been ongoing since the early 1990s. This has been prompted by:

- a) a recognition of impacts of buildings on the environment;
- b) an increased focus on sustainability and sustainable development in the construction sector;
- c) a need to meet the market demand for differentiation between buildings, based on measured environmental performance and environmental information;
- d) a shift from single performance measures to a more comprehensive set of environmental considerations;
- e) a recognition of the benefits of proactive voluntary measures.

The methods of assessment of the environmental performance of buildings provide a basis for demonstrating and communicating the result of efforts to improve environmental performance in construction works. The methods typically establish a means of assessing a broad range of environmental considerations against explicitly declared criteria, and give a summary of environmental performance.

The methods of assessment of the environmental performance of buildings provide:

- a common and verifiable set of references, such that building owners, striving for higher environmental standards, have a means of measuring, evaluating and demonstrating that effort,
- a reference as a common basis by which building owners, design teams, contractors and suppliers can formulate effective strategies in building design and operation which are intended to improve environmental performance,
- detailed information on the building which is gathered and organized in such a way that it can be used to lower operating, financing and insurance costs, and vacancy rates, and increase marketability,
- a clear description of the factors considered to be the key environmental considerations and their relative importance, thereby assisting the design process.

To achieve the above-mentioned practical goals, methods of assessment of the environmental performance of buildings need to refer to limited criteria and seek a balance between rigour and practicality. Life cycle-based approaches play an increasingly significant role for setting performance criteria within methods of assessment of environmental performance of buildings. However, the collection and maintenance of current data sets for the multitude of building systems and elements might not be practicable. Also, the context of overall building performance is important for considering each environmental criterion.

Considering all of these issues, the purpose of this part of ISO 21931 is to describe the framework and the principles that apply in the assessment of the environmental performance of new and existing buildings and

their related site works, taking into account the various environmental impacts these buildings are likely to have.

This part of ISO 21931 aims to bridge the gap between regional and national methods for the assessment of the environmental performance of buildings, by providing a common framework for their expression.

Practical relevant rules and recommendations concerning methods for the assessment of the environmental performance of buildings, which can exist on either a national or regional basis, can be examined and improved by the use of the framework of assessment, which is the basis of this part of ISO 21931.

An improvement of the environmental performance of a building requires an appropriate operation of the building over its lifetime. In existing buildings, it can be enhanced through the use of an environmental policy and the implementation of an environmental management system.

This part of ISO 21931 is one in a suite of International Standards dealing with sustainability in building construction, which includes ISO/TS 21929-1, ISO 21930 and ISO 15392, along with the terminology of sustainability in building construction, (future ISO/TR 21932).

This part of ISO 21931 deals with environmental performance related to environmental impacts and aspects. Social aspects related to the indoor and local outdoor environment are discussed in Annex A.

The relationship among the International Standards is illustrated in Figure 1.

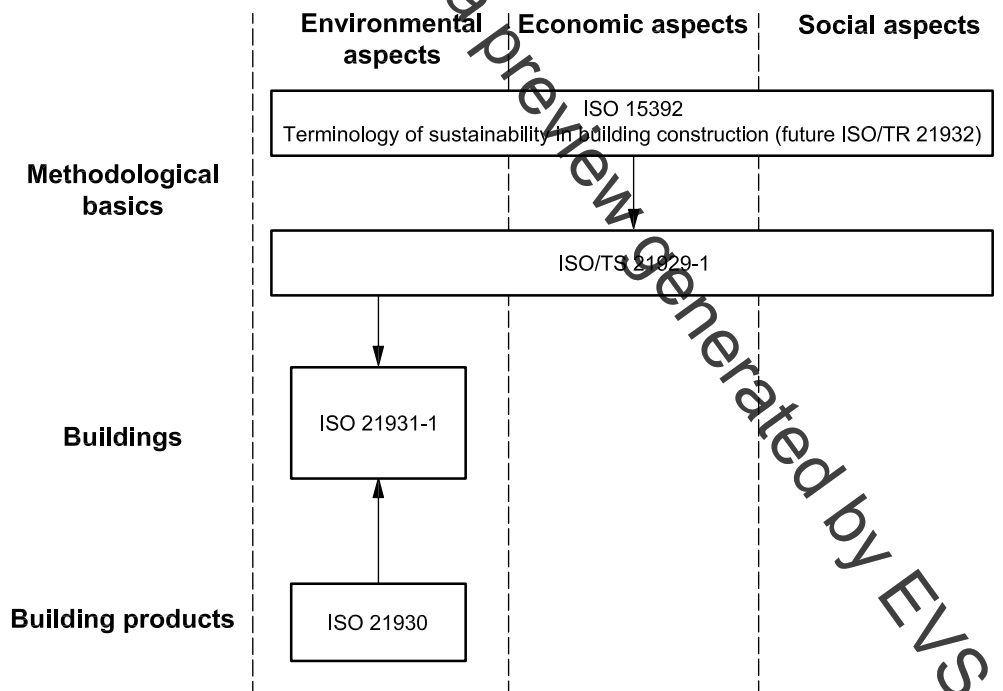


Figure 1 — Suite of related International Standards for sustainability in buildings and construction works

# Sustainability in building construction — Framework for methods of assessment of the environmental performance of construction works —

## Part 1: Buildings

### 1 Scope

This part of ISO 21931 provides a general framework for improving the quality and comparability of methods for assessing the environmental performance of buildings and their related external works.

It identifies and describes issues to be taken into account in the development and use of methods of assessment of the environmental performance for new or existing buildings related to their design, construction, operation, maintenance and refurbishment, and in the deconstruction stages.

The object of assessment in this part of ISO 21931 is the building and the external works within its site (curtilage).

This part of ISO 21931 is intended to be used in conjunction with, and following the principles set out in the “ISO 14020 family of International Standards”, which includes ISO 14020, ISO 14021, ISO 14024 and ISO 14025, as well as ISO 14040 and ISO 15392. Where deviation occurs, this part of ISO 21931 takes precedence.

This part of ISO 21931 deals only with methods of assessment of environmental performance and excludes methods of assessment of social and economic performance, which are also part of sustainability and sustainable development.

NOTE 1 It is recognized that environmental performance is only one of a number of significant factors in a building's overall performance.

NOTE 2 In many cases, methods of assessment of the environmental performance of buildings include consideration of social aspects related to the indoor and local outdoor environment (see Annex A).

### 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.

ISO 6707-1, *Building and civil engineering — Vocabulary — Part 1: General terms*

ISO 14025, *Environmental labels and declarations — Type III environmental declarations — Principles and procedures*

ISO 14040:2006, *Environmental management — Life cycle assessment — Principles and framework*

ISO 14050, *Environmental management — Vocabulary*

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

ISO 15686-1:—<sup>1)</sup>, *Buildings and constructed assets — Service life planning — Part 1: General principles and framework*

ISO 21930:2007, *Sustainability in building construction — Environmental declaration of building products*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6707-1, ISO 14025, ISO 14040, ISO 14050, ISO 15392 and ISO 21930 and the following apply.

NOTE See the terms and definitions in the terminology of sustainability in building construction (future ISO/TR 21932).

- 3.1 design life**  
required service life
- 3.2 downstream process**  
**process** (3.11) that is carried out after the designated process in the stream of relevant processes
- 3.3 environmental aspect**  
aspect of buildings, part of buildings, **processes** (3.11) or services related to their life cycle that can cause a change to the environment
- 3.4 environmental impact**  
change to the environment, whether adverse or beneficial, wholly or partially, resulting from **environmental aspects** (3.3)

NOTE Adapted from ISO 15392:2008, definitions 3.13 and 3.13.2.

- 3.5 environmental performance**  
performance of a building related to its **environmental impacts** (3.4) and environmental aspects

NOTE 1 The environmental performance is influenced by all **processes** (3.11) related to the life cycle of the building.

NOTE 2 Environmental performance can be expressed either quantitatively or qualitatively with reference to performance requirements or possibly relative to a scale of values or a benchmark.

- 3.6 estimated service life**  
service life that a building or parts of a building would be expected to have in a set of specific in-use conditions, determined from reference service life data after taking into account any differences from the reference in-use conditions

[ISO 15686-1:—, definition 4.8]

- 3.7 functional equivalent**  
quantified functional requirements and/or technical requirements for a building for use as a reference basis for comparison

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1) To be published.