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

**Part 1:
Buildings**

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

Partie 1: Bâtiments



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Published in Switzerland

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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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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

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

- *Part 1: Buildings* [Technical Specification]

Construction assets other than buildings is to form the subject of a future part 2.

Introduction

The aim of this part of ISO/TS 21931 is to define a framework for methods of assessment for the environmental performance of buildings.

In order to be able to communicate information to interested parties regarding the potential environmental impact of buildings, in relation to the concept of sustainability, it is important to understand how the buildings themselves perform in this respect and to benchmark their progress towards achieving improved performance.

To this end, assessment methods for environmental performance of buildings have been developed and have been in use worldwide since the early 1990s. These developments have been prompted by

- a shift from single performance measures to a more comprehensive set of environmental considerations,
- a recognition of the benefits of proactive voluntary measures, and
- the need to meet market demands for information on environmental performance.

Assessment methods for the environmental performance of buildings are the basis for demonstrating and communicating the extent of the proactive commitment of a building's suppliers toward achieving higher levels of environmental performance. The methods attempt to establish an objective and comprehensive means of simultaneously assessing a broad range of environmental considerations against explicitly declared criteria, and to offer a summary of environmental performance.

Assessment methods for the environmental performance of buildings

- provide a common and verifiable set of criteria and targets so that building owners striving for higher environmental standards have a means of measuring, evaluating and demonstrating that effort,
- provide a reference as a common basis by which building owners, design teams, contractors and suppliers, can formulate effective environmental performance improvement strategies,
- gather and organize detailed information on the building that it can be used to lower operating, financing and insurance costs, lower vacancy rates and increase marketability, and
- assist the design process by providing a clear declaration of what are considered as the key environmental considerations and their relative importance.

Life-cycle approaches will inevitably play a greater role for setting performance criteria within methods of assessment of overall environmental performance of buildings. However, the collection and maintenance of current data sets for the multitude of systems and elements is not practically achievable at the moment. Consequently, to achieve the practical goals noted above, assessment methods for the environmental performance of buildings need to refer to a limited number of criteria and seek a balance between rigour and practicality. This means that the deployment of LCA within the methods of assessment of overall environmental performance of buildings must consider the significance of the individual performance criterion within the context of the overall building performance.

Considering all these issues, there is a need to formalize an International Standard that will ensure the quality, and comparability, of assessment methods for the environmental performance of buildings.

The purpose of this part of ISO/TS 21931 is to describe the framework and the principles behind the assessment of the environmental performance of both new and existing buildings, taking into account the various environmental impacts these buildings are likely to have.

This part of ISO/TS 21931 is part of a projected suite of standards (see Bibliography) addressing sustainability in building construction and covering

- general principles (ISO 15392) [1],
- terminology (ISO 21932) [2],
- environmental declarations of building products (ISO 21930), and
- a framework for the development of indicators for buildings (ISO/TS 21929-1) [3].

As with ISO 21930, this part of ISO/TS 21931 deals exclusively with environmental impact and excludes consideration of the social and economic areas that are part of sustainability.

See Figure 1.

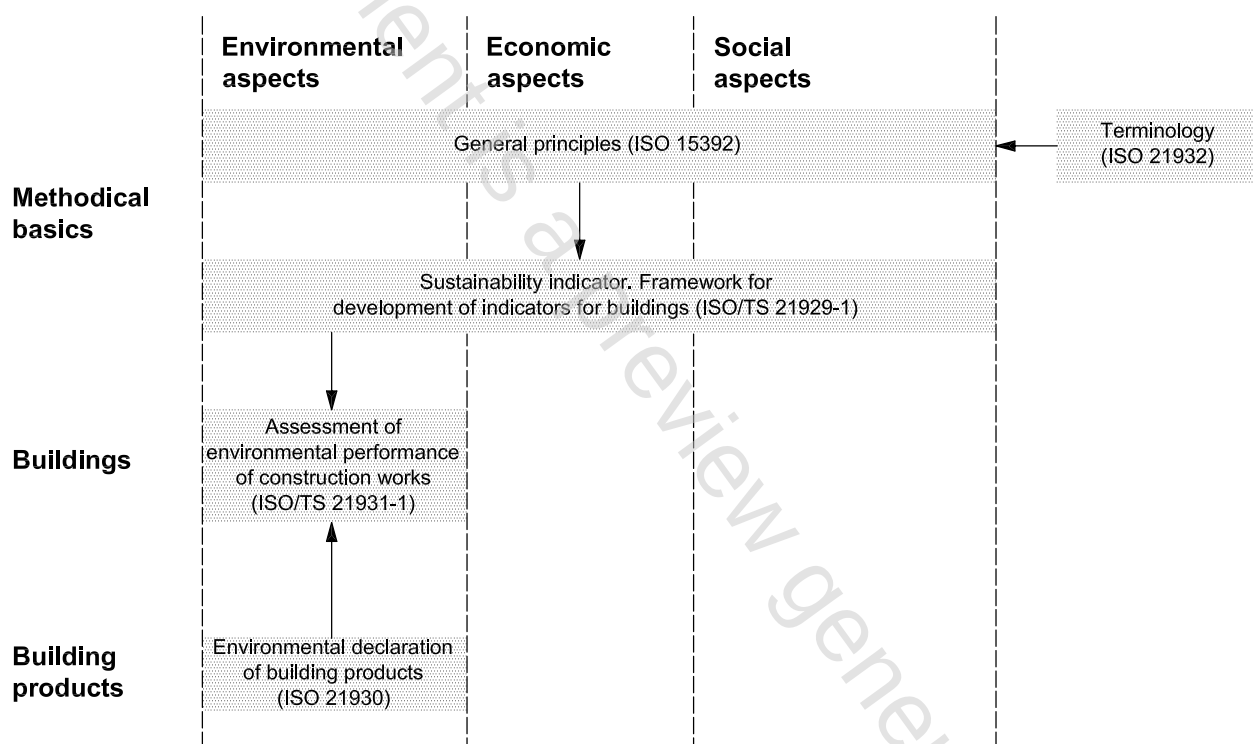


Figure 1 — Subjects covered by the related standards

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

Part 1: Buildings

1 Scope

This part of ISO/TS 21931 provides a general framework for improving the quality and comparability of methods for assessing the environmental performance of buildings. It identifies and describes issues to be taken into account when using methods for the assessment of environmental performance for new or existing building properties in the design, construction, operation, refurbishment and deconstruction stages.

The building is the object of the assessment defined in this part of ISO/TS 21931, and this encompasses the building itself, the site and the associated facilities on the site. It is recognized that environmental performance is only one of a number of significant factors in a building's overall performance.

This part of ISO/TS 21931 is intended be used in conjunction with, and following the principles set out in, the ISO 14000 series of International Standards.

2 Normative references

The following references 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 references document (including any amendments) applies.

ISO 14001, *Environmental management systems — Specification with guidance for use*

ISO 14020, *Environmental labels and declarations — General principles*

ISO/TR 14025, *Environmental labels and declarations — Type III environmental declarations*

ISO 14031:1999, *Environmental management — Environmental performance evaluation — Guidelines*

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

ISO 14041, *Environmental management — Life cycle assessment — Goal and scope definition and inventory analysis*

ISO 14042, *Environmental management — Life cycle assessment — Life cycle impact assessment*

ISO 14043, *Environmental management — Life cycle assessment — Life cycle interpretation*

ISO 14050:2002, *Environmental management — Vocabulary*

ISO/ TR 14062, *Environmental management — Integrating environmental aspects into product design and development*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14050 and the following apply.

**3.1
building environment**
surroundings in which a building operates, including air, water, land, natural resources, flora, fauna, human beings and their inter relations

NOTE Surroundings in this context extend from within a building to the boundaries of the building site.

**3.2
environmental impact**
any change to the environment, whether adverse or beneficial, wholly or partially, resulting from environmental aspects of a building

NOTE Construction products in this context include production of building components and onsite construction, operation of the building, refurbishment and deconstruction of buildings.

**3.3
environmental benefit**
any beneficial factor and/or advantage from a building brought to the environment

EXAMPLE Rehabilitation of the exterior physical environment, such as building on a brown field site.

**3.4
environmental performance**
measurable (quantitative or qualitative) effect of a building on the environment relative to a scale of values or a benchmark

NOTE 1 A positive effect of a building on the environment can be measured by the degree of the reduction of environmental impacts and by the improvement in the quality of life given to people who utilize buildings during the building life cycle.

NOTE 2 In both ISO 14031:1999 and ISO 14050:2002, environmental performance is defined as “results of an organization’s management of its environmental aspects”. Environmental performance of buildings is the result of processes of management of environmental aspects of buildings including design, construction, operation, refurbishment and deconstruction stages.

NOTE 3 The environmental performance of a building allows comparison between the interested parties’ specific requirements and the building’s environmentally related characteristics and attributes.

**3.5
environmental aspect**
characteristics of a building, its operation or its services that can interact with the environment

**3.6
system boundary**
interface between a building and the environment or other product systems

NOTE “Boundary” defines what is included and what is not included.

1) To be published.