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Sustainability in building construction — Sustainability indicators —

Part 1: Framework for the development of indicators and a core set of indicators for buildings

*Développement durable dans la construction — Indicateurs de
développement durable —*

*Partie 1: Cadre pour le développement d'indicateurs et d'un ensemble
d'indicateurs principaux pour le bâtiment*



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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.

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 21929-1 was prepared by Technical Committee ISO/TC 59, *Buildings and civil engineering works*, Subcommittee SC 17, *Sustainability in buildings and civil engineering works*.

This first edition of ISO 21929-1 cancels and replaces ISO/TS 21929-1:2006, which has been technically revised.

ISO 21929 consists of the following parts, under the general title *Sustainability in building construction — Sustainability indicators*:

— *Part 1: Framework for the development of indicators and a core set of indicators for buildings*

A part 2 dealing with the framework for development of indicators for civil engineering works is under development.

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Introduction

This part of ISO 21929 describes and gives guidelines for the development of sustainability indicators related to buildings and defines the aspects of buildings to consider when developing systems of sustainability indicators.

These guidelines form a basis for the suite of ISO/TC 59 standards intended to address specific issues and aspects of sustainability relevant to construction works. The issue of sustainable development is broad and of global concern, and, as such, involves all communities and interested parties. Both current and future needs define the extent to which economic, environmental and social aspects are considered in a sustainable development process.

The built environment (buildings and civil engineering works) is a key element in determining quality of life, and contributes to cultural identity and heritage. As such, it is an important factor in the appreciation of the quality of the environment in which society lives and works.

The building and construction sector is highly important for sustainable development because

- it is a key sector in national economies;
- it has a significant interface with poverty reduction through the basic economic and social services provided in the built environment and the potential opportunities to engage the poor in construction, operation and maintenance;
- it is one of the single largest industrial sectors and, while providing value and employment, it absorbs considerable resources, with consequential impacts on economic and social conditions and the environment;
- it creates the built environment, which represents a significant share of the economic assets of individuals, organizations and nations, providing societies with their physical and functional environment;
- it has considerable opportunity to show improvement relative to its economic, environmental and social impacts.

Over their life cycle, construction works absorb considerable resources and contribute to the transformation of areas. As a result, they can have considerable economic consequences, and impacts on the environment and human health.

While the challenge of sustainable development is global, the strategies for addressing sustainability in building construction are essentially local and differ in context and content from region to region. These strategies reflect the context, the preconditions and the priorities and needs, not only in the built environment, but also in the social environment. This social environment includes social equity, cultural issues, traditions, heritage issues, human health and comfort, social infrastructure and safe and healthy environments.

It can, in addition, particularly in developing countries, include poverty reduction, job creation, access to safe, affordable and healthy shelter, and loss of livelihoods.

This part of ISO 21929 defines a framework for the development of sustainability indicators for buildings based on the premise that sustainable development of buildings brings about the required performance and functionality with minimum adverse environmental impact, while encouraging improvements in economic and social (and cultural) aspects at local, regional and global levels. This part of ISO 21929 follows the general principles presented in ISO 15392.

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Indicators are figures or other qualitative or descriptive measures that enable information on a complex phenomenon, like environmental impact, to be simplified into a form that is relatively easy to use and understand.

The three main functions of indicators are quantification, simplification and communication. Targets can also be set with the help of indicators. Changes in a building over time, and the development of changes in relation to stated objectives, can be monitored with the help of indicators. One of the important functions of an indicator with reference to decision-making is its potential to show a trend.

Sustainability indicators for construction works are required by a number of parties interested in the building and construction sector. Indicators are required in decision-making by

- developers and owners of buildings;
- designers;
- contractors;
- administrative bodies;
- users and property managers.

The building and construction sector requires sustainability indicators both for its own decision-making within design, production and management of buildings, as well as for indicating to the public and to clients the overall economic, environmental or social impact of buildings, building products and related processes.

Indicators, as well as sets and systems of indicators, for the specification, assessment and representation of the contribution of individual buildings to sustainable development can be used in many different ways. For example, among others, their application can support the following:

- design and decision-making process(es) during the planning phase of a building (e.g. design for environment, design for sustainability);
- development and application of assessment methods and certification systems (e.g. labelling);
- indicating the building performance (e.g. signalling, marketing);
- specification and verification of requirements in the context of procurement (e.g. green procurement, sustainability procurement);
- monitoring or evaluating the achievement of objectives over time (i.e. periodic review);
- accepting responsibility for impacts on the environment and society (e.g. social responsibility);
- representation of activities and results in the context of responsibility towards the economy, environment and society (e.g. sustainability reporting).

NOTE The monitoring and evaluation of objectives can contribute to the continual improvement related to a specific building or group of buildings.

This part of ISO 21929 is one in a suite of International Standards dealing with sustainability in building construction that includes the following:

- a) ISO 15392, *Sustainability in building construction — General principles*;
- b) ISO/TR 21932, *Building construction — Sustainability in building construction — Terminology*;
- c) ISO 21929-1, *Sustainability in building construction — Sustainability indicators — Part 1: Framework for the development of indicators and a core set of indicators for buildings*;

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- d) ISO 21930, *Sustainability in building construction — Environmental declaration of building products*;
- e) ISO 21931-1, *Sustainability in building construction — Framework for methods of assessment of the environmental performance of construction works — Part 1: Buildings*.

This part of ISO 21929 deals with sustainability indicators and includes a core system of indicators for buildings. The relationship among the International Standards is elaborated in Figure 1.

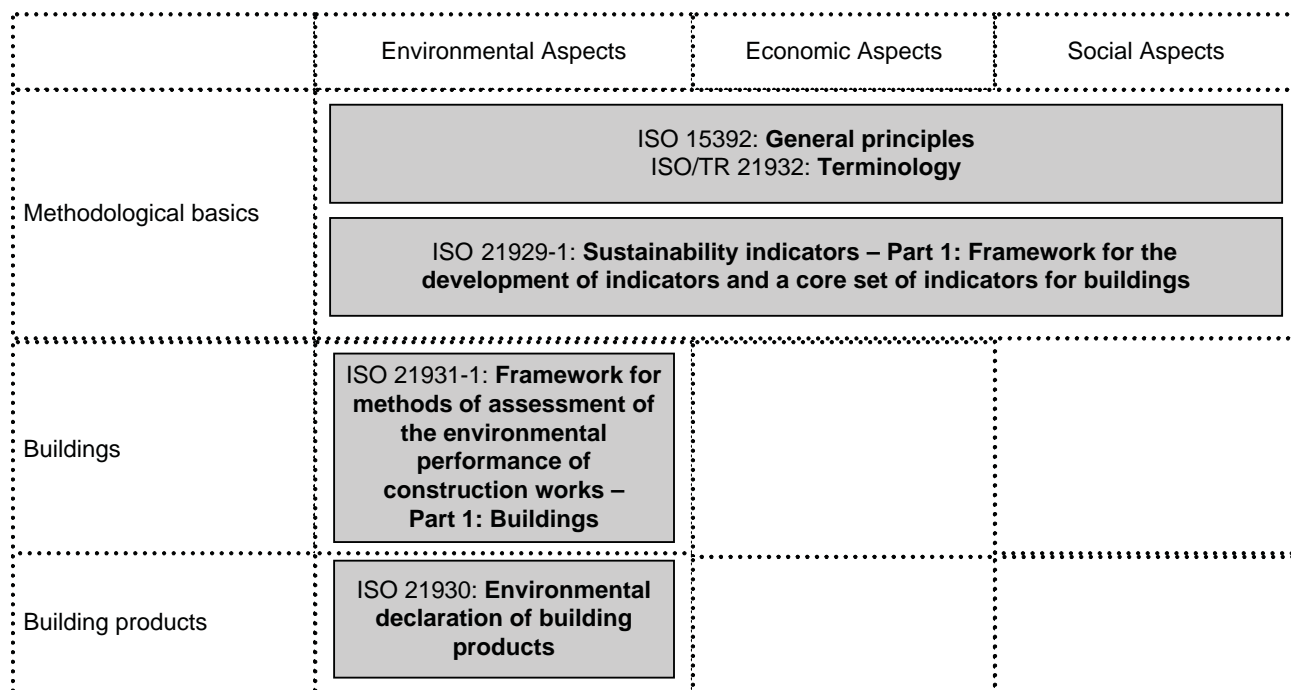


Figure 1 — Suite of related International Standards for sustainability in buildings and civil engineering works