
**Sustainability in building construction —
General principles**

Développement durable dans la construction — Principes généraux

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Contents

Page

Foreword.....	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions.....	1
4 General.....	5
5 Sustainability in buildings and other construction works	7
5.1 General.....	7
5.2 Objectives.....	9
5.3 Principles.....	9
6 Guidance on the application of the general principles.....	11
6.1 General.....	11
6.2 Economic aspects	12
6.3 Environmental aspects.....	13
6.4 Social aspects.....	13
Annex A (informative) Suite of standards for sustainability in building construction	14
Annex B (informative) Products of the building and construction sector	17
Bibliography	20

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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 15392 was prepared by Technical Committee ISO/TC 59, *Building construction*, Subcommittee SC 17, *Sustainability in building construction*.

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Introduction

This International Standard presents general principles of sustainability related to buildings and other construction works. These general principles form the basis for a suite of standards intended to address specific issues and aspects of sustainability relevant to building and civil engineering of 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 for the poor to be engaged 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.

Construction activities may or may not take place within a legal and regulatory, or other administrative framework present within a country or region. In either case, aspects of governance are relevant to sustainable development, in addition to those aspects related specifically to building construction. Well established administrative frameworks may contain requirements that can act as drivers and help to move the building and construction sector towards sustainability.

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

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Applying the principles of sustainability in building construction, including all related processes and activities, requires the direct and responsible involvement of all interested parties. While their legal responsibility and liability is subject to national or regional regulation, individual commitment and responsibility is voluntary. Nevertheless, this commitment is a basic principle of the application of sustainable development, including application in the building and construction sector.

Applying the concept of sustainability to specific buildings or other construction works includes an holistic approach, bringing together the global concerns and goals of sustainable development and the demands and requirements in terms of product functionality, efficiency and economy. Different target audiences will have a different perspective on these challenges and the preferred solutions.

This International Standard establishes internationally recognized principles for sustainability in building construction and establishes a common basis for communication of the information required. Interested parties, such as product manufacturers and designers will then be able to provide information. Such information can then be communicated internationally and to a wide range of target audiences, extending from policy makers and regulators to manufacturers, building owners and consumers.

The recipients of information can elaborate and interpret information according to their own perspective, reflecting other aspects of decision making, including fields of responsibility or constraints.

The concepts involved in sustainability are highly complex and under constant study. There are no definitive methods for measuring sustainability or confirming its accomplishment. These general principles do not provide a benchmark against which a claim of sustainability can be made. Nevertheless, they may be useful when considering the completeness and validity of claims of, or calls for, sustainability.

The aim of this International Standard is to set out the objectives for sustainability in building construction and from these derives general principles. For the current standardization work, see Figure 1. This International Standard forms the basis for deriving evaluation criteria and indicators for the assessment of the contribution of buildings to sustainable development, and it enables decision makers to apply the principles in their decision making.

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This International Standard does not set the political agendas, or provide priorities related to specific concerns which are established in international agendas, e.g. Agenda 21. However, requirements and targets related to political goals can be related to the identified general principles for sustainability in building construction.

This International Standard is not intended to provide the basis for assessment of organizations or other stakeholders, but does acknowledge the importance of their role in the context of sustainability in building construction.

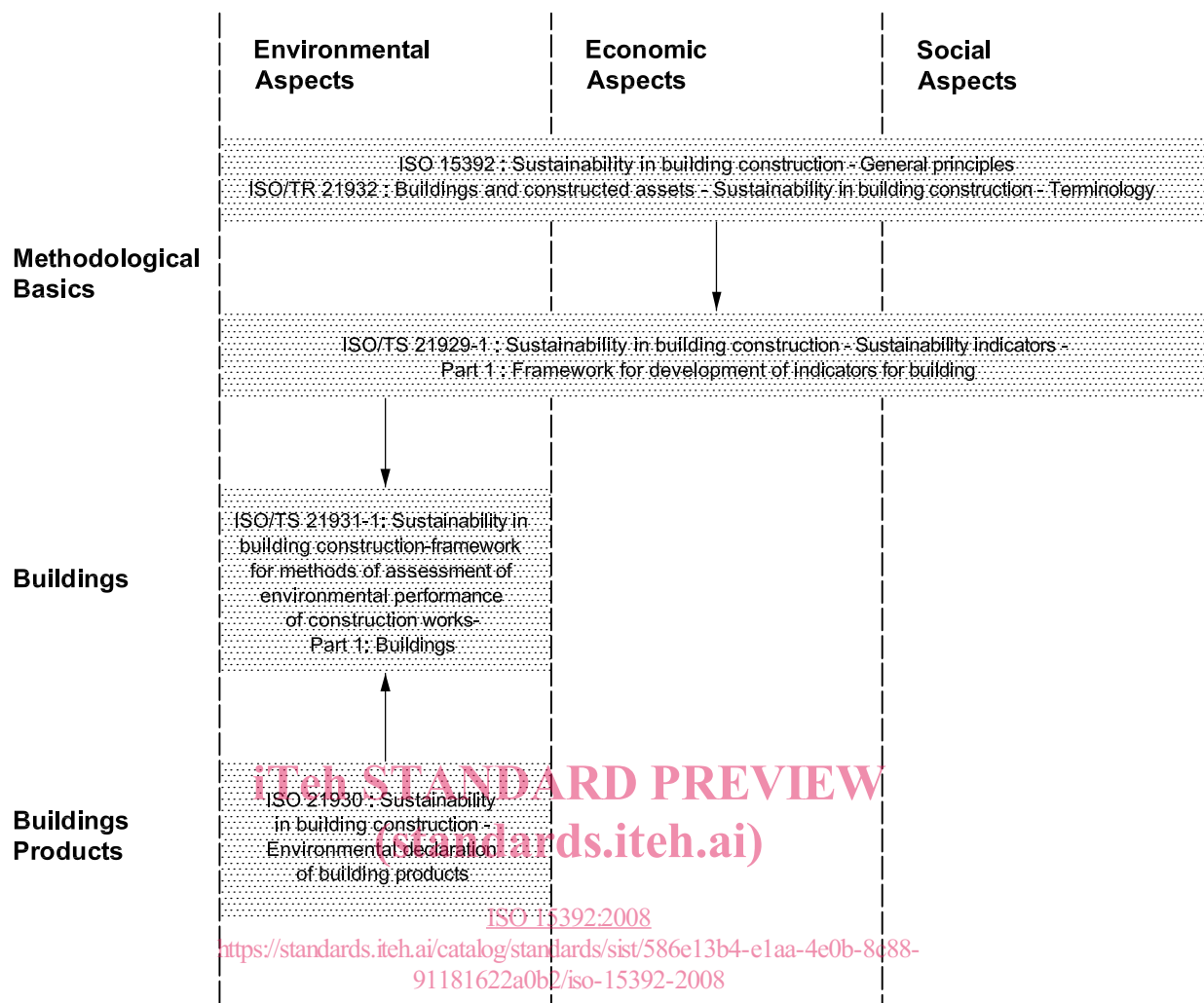


Figure 1 — Suite of related International Standards for sustainability in buildings and construction works

NOTE For a description of the suite of International Standards, see Annex A. This suite of standards currently contains the documents indicated in Figure 1.

Intended users of the suite of International Standards include (in alphabetical order): builders, certification bodies, clients, contractors, designers, facility managers, fund providers, governmental and non-governmental organizations associated with the United Nations (NGOs), insurers, manufacturers, owners, planners, policy makers, promoters, real estate agents, regulators, researchers, standards developers, users (tenants as well as public), etc.

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Sustainability in building construction — General principles

1 Scope

This International Standard identifies and establishes general principles for sustainability in building construction. It is based on the concept of sustainable development as it applies to the life cycle of buildings and other construction works, from their inception to the end of life.

This International Standard is applicable to buildings and other construction works individually and collectively, as well as to the materials, products, services and processes related to the life cycle of buildings and other construction works.

This International Standard does not provide levels (benchmarks) that can serve as the basis for sustainability claims.

This International Standard is not intended to provide the basis for assessment of organizations or other stakeholders.

NOTE 1 The principles established in this International Standard are intended to be applied broadly in the context of buildings and other construction works. Specific applications are the subject of other related international standards.

NOTE 2 Buildings and other construction works are designed to meet numerous requirements, expressed and established in national and international standards or regulations. None of these requirements is replaced or changed by this International Standard.

NOTE 3 Social responsibility aspects relative to organizations will be addressed in ISO 26000¹⁾.

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 6707-1:2004, *Building and civil engineering — Vocabulary — Part 1: General terms*

ISO 14050, *Environmental management — Vocabulary*

ISO/TS 21929-1, *Sustainability in building construction — Sustainability indicators — Part 1: Framework for development of indicators for buildings*

3 Terms and definitions

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

NOTE 1 Terms are not defined where they retain their normal dictionary definition.

NOTE 2 Where bold type is used in a definition, this indicates a cross-reference to another concept defined in this clause, and the numbered reference for the concept is given in parentheses.

1) Under preparation.

ISO 15392:2008(E)

NOTE 3 For an elaboration on the terms used to designate various concepts related to products of the building and construction sector, see Annex B.

3.1

access to services

availability and accessibility of services outside the building

NOTE Services can include public transportation, parking, entertainment, health-care, water and energy supply, etc.

3.2

accessibility

ability of a space to be entered with ease

NOTE 1 Requirements for accessibility will depend on the users' needs, as well as to activities during the **life cycle** (3.15) of the **building** (3.4), e.g. **construction work** (3.7), maintenance and deconstruction.

NOTE 2 "Barrier-free use of buildings" would relate to requirements for accessibility related to the needs of users with reduced mobility.

NOTE 3 Adapted from the definition of "accessibility" in ISO 6707-1.

3.3

areas of concern

areas of protection

protection area, sing

aspect(s) of the economy, the environment or the society that can be impacted by **construction works** (3.8), goods or services

EXAMPLES Asset value, cultural heritage, resources, human health and comfort, social infrastructure.

3.4

building

construction works (3.8) that has the provision of shelter for its occupants or contents as one of its main purposes; usually partially or totally enclosed and designed to stand permanently in one place

[ISO 6707-1:2004, definition 3.1.3]

3.5

built environment

collection of man-made or induced physical objects located in a particular area or region

NOTE 1 When treated as a whole, the built environment typically is taken to include **buildings** (3.4), external works (landscaped areas), **infrastructure** (3.6) and other **construction works** (3.8) within the area under consideration.

NOTE 2 Derived from the definition of "environment" in ISO 6707-1.

3.6

civil engineering works

infrastructure

civil engineering project US

construction works (3.8), 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** (3.4) and its associated site works

NOTE 1 Associated siteworks are included in US civil engineering projects.

NOTE 2 Derived from the definition of "civil engineering works" in ISO 6707-1:2004.

3.7**construction work**

activities of forming a **construction works** (3.8)

[ISO 6707-1:2004, definition 7.1.1]

3.8**construction works**

everything that is constructed or results from construction operations

[ISO 6707-1:2004, definition 3.1.1]

3.9**economic aspect**

aspect of **construction works** (3.8), parts of works, processes or services related to their **life cycle** (3.15) that can cause a change to economic conditions

3.10**environmental aspect**

aspect of **construction works** (3.8), parts of works, processes or services related to their **life cycle** (3.15) that can cause a change to the environment

NOTE Adapted from ISO 14001.

3.11**environmental declaration**

claim which indicates the **environmental aspects** (3.10) of any good(s) or service(s)

NOTE 1 An environmental declaration may take the form of a statement, symbol or graphic on a product or package label, in product literature, in technical bulletins, in advertising or in publicity, amongst other things.

NOTE 2 Adapted from the definition of environmental declaration in ISO 14025.
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3.12**environmental performance**

performance (3.16) related to **environmental impacts** (3.13.2) and **environmental aspects** (3.10)

NOTE The environmental performance is influenced by all processes related to the **life cycle** (3.15) of the object of consideration.

3.13**impact**

any change that may be adverse or beneficial

3.13.1**economic impact**

impact (3.13) to the economy, wholly or partially resulting from **economic aspects** (3.9)

3.13.2**environmental impact**

impact (3.13) to the environment, wholly or partially resulting from **environmental aspects** (3.10)

NOTE Adapted from ISO 14001.

3.13.3**social impact**

impact (3.13) to society or quality of life, wholly or partially resulting from **social aspects** (3.19)

**3.14
indicator**

quantitative, qualitative or descriptive measure

NOTE Adapted from ISO 14050.

**3.15
life cycle**

consecutive and interlinked stages of the object of consideration

NOTE 1 Adapted from the definition of life cycle contained in ISO 14040.

NOTE 2 For consideration of **environmental impacts** (3.13.2) and **environmental aspects** (3.10), the life cycle comprises all stages, from raw material acquisition or generation of natural resources to final disposal.

NOTE 3 For consideration of **economic impacts** (3.13.1) and **economic aspects** (3.9), in terms of costs, the life cycle comprises all stages from construction to decommissioning. A period of analysis can be chosen to be different from the life cycle, see ISO 15686-5.

**3.16
performance**

ability to fulfil required functions under intended use conditions or behaviour when in use

NOTE 1 Derived from the definition of performance in ISO 6707-1.

NOTE 2 The required functions address both the functionality requirements as well as the technical requirements.

3.17 product

**3.17.1
product**

construction product
building product

<building and civil engineering> item manufactured or processed for incorporation in **construction works** (3.8)

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NOTE Derived from the definition of product in ISO 6707-1.

**3.17.2
product**

<environmental management> any goods or service

[ISO 14025:2006, definition 3.11]

**3.18
service life**

period of time after installation during which a **construction works** (3.8) or its parts meet or exceed the performance requirements.

NOTE Derived from the definition of service life in ISO 6707-1.

**3.19
social aspect**

aspect of **construction works** (3.8), parts of works, processes or services related to their **life cycle** (3.15) that can cause a change to society or quality of life