



# ISO and construction

Great things happen **when the world agrees.**



We are ISO,  
the International Organization  
for Standardization



We are an independent,  
non-governmental organization.



We are a global network  
of national standards bodies  
with one member per country.



Our job is to make International  
Standards.



We are coordinated by a Central  
Secretariat in Geneva, Switzerland.



We are not for profit: selling our  
standards allows us to finance  
their development in a neutral  
environment, to maintain them  
and to make new ones.



ISO provides a platform for  
developing practical tools through  
common understanding and  
cooperation with all stakeholders.

162\* members

21700\*  
International Standards

100  
new standards each month

247\*  
technical committees

ἴσος

Notice that our acronym  
doesn't match our name?

It's not meant to.

"ISO" is derived from  
the Greek word *isos* (equal),  
so that it's the same in  
all languages.

\* October 2017



## Why do we need ISO standards for construction ?

The world's rapid population growth and rampant urbanization have brought an increasing need for a high-quality, safe and sustainable built environment. In the world of building and construction, ISO standards help codify international best practice and technical requirements to ensure buildings and other structures (known as civil engineering works) are safe and fit for purpose.

Updated on a regular basis to account for climate, demographic and social changes, ISO's standards for construction are developed with input from all stakeholders involved, including architects, designers, engineers, contractors, owners, product manufacturers, regulators, policy makers and consumers.

# Who benefits from ISO standards for construction ?

## Industry



ISO standards help to make the construction industry more effective and efficient by establishing internationally agreed design and manufacturing specifications and processes. They cover virtually every part and process of the construction project, from the soil it stands on to the roof.

ISO standards also provide a platform for new technologies and innovations that help the industry respond to local and global challenges related to demographic evolution, natural disasters, climate change and more.

## Regulators

Regulators can rely on best-practice test methods, processes and harmonized terminology that are constantly reviewed and improved, as a technical basis for regulation and policy related to construction.

## Consumers

ISO standards give consumers confidence in the construction industry, providing reassurance that buildings and related structures such as bridges are built to internationally agreed safety and quality standards. These help ensure that the buildings people live, work and study in are safe, comfortable and function as intended.

# What standards does ISO have for construction ?

Of the more than 21 700\* International Standards and related documents, ISO has over 1 100 related to buildings and construction, with many more in development. These cover:



**Structures**



**Masonry**



**Building materials and products**



**Information management in construction**



**Energy performance and sustainability**



**Heating, cooling and lighting**



**Fire safety and fire fighting**



**Lifts and escalators**



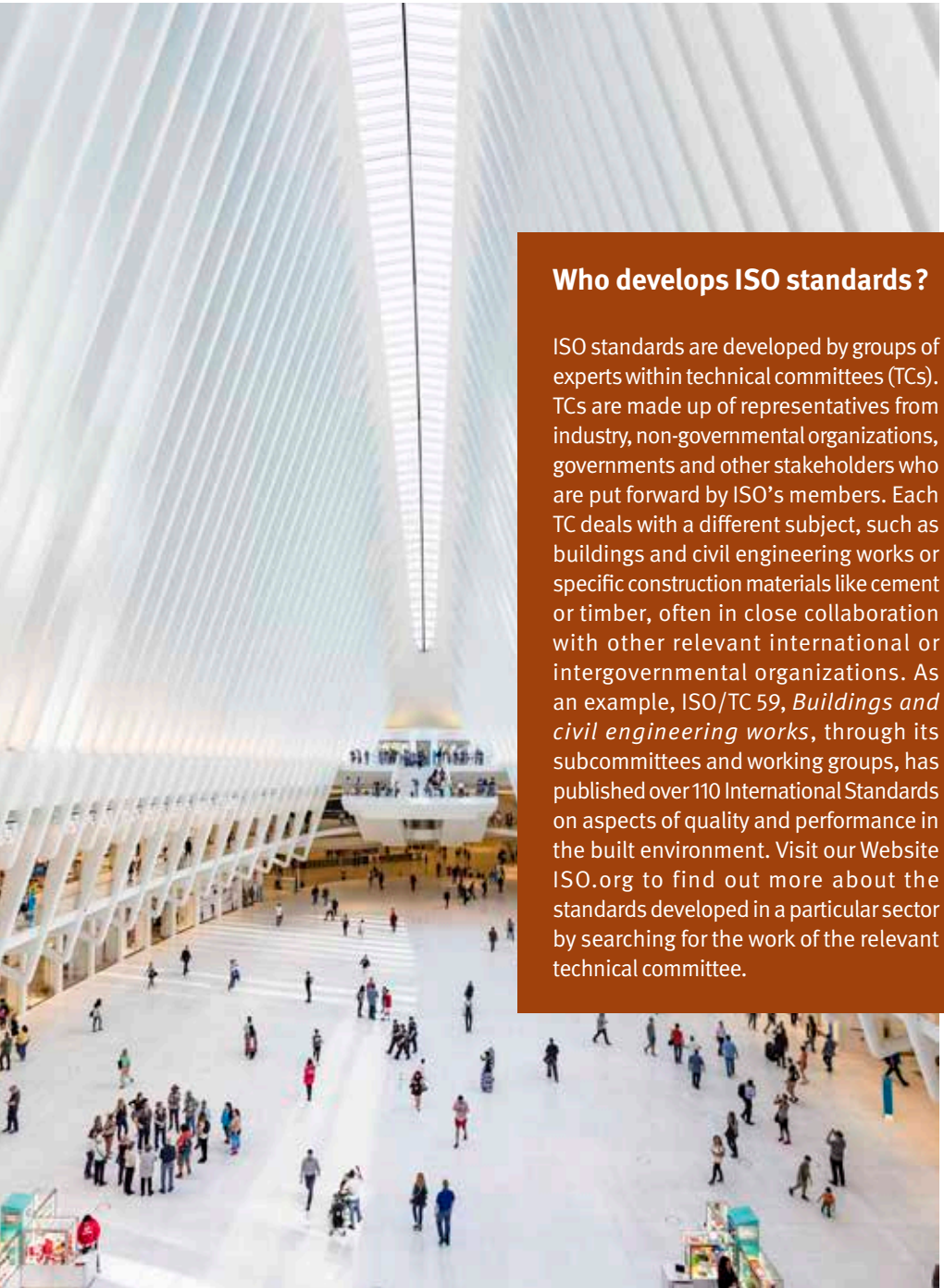
**Concrete and cement**



**Design life, durability and service life planning**



**Timber**



## Who develops ISO standards?

ISO standards are developed by groups of experts within technical committees (TCs). TCs are made up of representatives from industry, non-governmental organizations, governments and other stakeholders who are put forward by ISO's members. Each TC deals with a different subject, such as buildings and civil engineering works or specific construction materials like cement or timber, often in close collaboration with other relevant international or intergovernmental organizations. As an example, ISO/TC 59, *Buildings and civil engineering works*, through its subcommittees and working groups, has published over 110 International Standards on aspects of quality and performance in the built environment. Visit our Website [ISO.org](https://www.iso.org) to find out more about the standards developed in a particular sector by searching for the work of the relevant technical committee.





## Structures

Ensuring all the components of structures are strong enough to withstand appropriate loads and everything fits together as it should is the objective of a number of ISO standards for construction. By establishing defined specifications and test methods, they help ensure structures are designed and built to agreed levels of quality.

- **ISO/TC 98, *Bases for design of structures***, lays down the basic requirements for the design of structures. With standards focusing especially on terminology and symbols, loads and forces, it ensures constructions are built to last and can withstand outside forces such as extreme weather events and natural disasters.
- **ISO/TC 167, *Steel and aluminium structures***, develops standards that specify requirements for the structural use of steel and aluminium alloys in the design, fabrication and erection of buildings and civil engineering works. Its scope of work includes materials, structural components and connections.
- **ISO/TC 165, *Timber structures***, deals with the strength and load requirements of structural timber, while geotechnical analysis (interactions between soil and structure) is the focus of ISO/TC 182, *Geotechnics*.



## Building materials and products

Being able to count on reliable, quality materials is essential for the construction of safe and robust buildings. ISO has more than 100 standards related to the raw materials used in construction, such as concrete, cement, timber and glass. These include standards on terminology, testing procedures and the assessment of safety levels.

We also have over 500 standards on building products, such as doors and windows, wood-based panels, floor coverings, ceramic tiles and plastic pipes and fittings. These not only determine the correct dimensions and specifications to ensure products are manufactured to agreed quality levels, but also define test methods for assessing product safety and resistance to things like crushing or chemicals, so that they do not fail or deteriorate prematurely.





## Energy performance and sustainability

From insulation to energy-using products, improving the energy performance of buildings can make a significant contribution to climate-related targets. As a result, building regulations increasingly require energy-efficient designs and measures are put in place to help improve overall performance.

- **ISO/TC 163**, *Thermal performance and energy use in the built environment*, has more than 130 standards providing guidelines and methods for the calculation of energy consumption in buildings, covering areas such as heating, lighting, ventilation and so forth.

ISO's energy standards portfolio includes the recently published series ISO 52000, *Energy performance of buildings – Overarching EPB assessment*, which defines methods to help architects, engineers and regulators assess the overall energy performance of new and existing buildings in a holistic way.

- **ISO/TC 205**, *Building environment design*, has a range of standards defining methods and processes for the design of new buildings and retrofit of existing buildings, to create acceptable indoor environments and practicable energy conservation and efficiency.

**In addition, we produce standards for measuring the carbon emissions of buildings and others structures, including:**

- **ISO 21930**, *Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services*, which establishes good practices for making environmental claims and communications in the construction sector.



## Fire safety and fire fighting

Fires cause destruction and devastation, costing the lives and livelihoods of people. With the increased density of housing, protecting against fires and detecting fire risks have never been more important.

- **ISO/TC 21, *Equipment for fire protection and fire fighting*,** develops standards covering fire protection and fire-fighting apparatus and equipment, including fire extinguishers and fire and smoke detectors.
- **ISO/TC 92, *Fire safety*,** develops standards for assessing fire risks to life and property and mitigating such risks by determining the behaviour of construction materials and building structures.
- **ISO 7240, *Fire detection and alarm systems*,** defines the specifications of fire detection and alarm system equipment used in and around buildings – including their testing and performance – in order to ensure they function effectively.

## Information management in construction

Since most construction works are project-based, having documentation that is clearly understood by all stakeholders is essential to ensure each project is realized in a cost-effective manner. Building information models (BIM) are shared digital representations of the physical and functional characteristics of any built object (including buildings, bridges and roads) and form a reliable basis for decision making. They also help protect against the loss of valuable information between stages and processes.

- **ISO/TC 59/SC 13**, *Organization of information about construction works*, develops standards that define the common terms of reference and terminology used in BIMs, as well as requirements for the digital exchange of documentation and data.

### Examples include :

- **ISO 16757-1**, *Data structures for electronic product catalogues for building services – Part 1: Concepts, architecture and model*
- **ISO/TS 12911**, *Framework for building information modelling (BIM) guidance*









## Lifts and escalators

Rising urbanization and denser populations mean buildings across the world are getting taller. Efficient lifts and escalators are thus essential to cope with the increased loads and access needs and must be operable in times of disaster, such as fire, to evacuate high-rise structures.

- **ISO/TC 178, *Lifts, escalators and moving walks***, has over 50 standards, either published or in development, for all kinds of lifts. These cover requirements for everything from planning and installation to energy performance and safety.

**One prominent example is:**

- **ISO/TS 18870, *Lifts (elevators) – Requirements for lifts used to assist in building evacuation***



## Design life, durability and service life planning

- **ISO/TC 59/SC 14, *Design life***, develops standards that offer a methodology and guidance on how to plan the service life of buildings, including predicting costs and the frequency of maintenance and repairs over their life cycle. The ISO 15686 series on service life planning deals with a wide range of subjects in this area, such as performance audits and reviews, life-cycle assessment and maintenance and life-cycle costing.

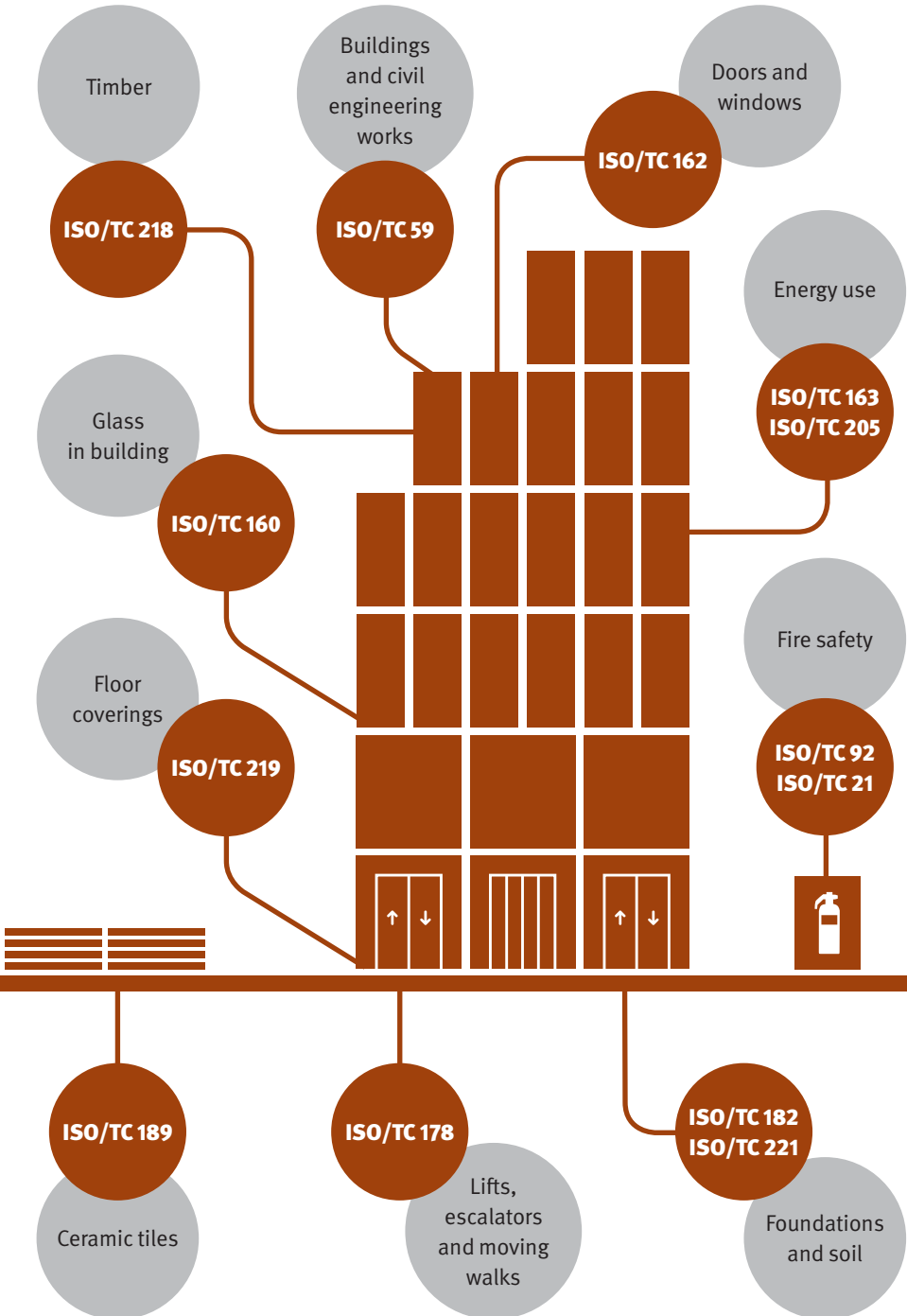
### An example is :

- **ISO 15686-5, *Buildings and constructed assets – Service life planning – Part 5: Life-cycle costing***, which helps track the cost performance over an asset’s lifespan.



**ISO standards improve safety, sustainability and durability in construction.**







## More information ?



ISO Website

**[www.iso.org](http://www.iso.org)**



ISO Website section: “Standards in action”

**[www.iso.org/standards-in-action](http://www.iso.org/standards-in-action)**



*ISOfocus* magazine

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The symbol on the cover comes from the International Standard **ISO 7000, *Graphical symbols for use on equipment – Registered symbols***. It serves to identify the control that opens the flap located in the rear of the truck bed.

Available on our Online Browsing Platform at:  
[go4oi.iso.org/isosymbols](http://go4oi.iso.org/isosymbols).

