



ILNAS

TECHNICAL STANDARDIZATION

# SUSTAINABLE CONSTRUCTION

Version 1.0 · December 2023

ISBN 978-99987-734-0-0



Egalement disponible en français :

<https://gd.lu/66x8Pc>



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**SUSTAINABLE CONSTRUCTION**

Version 1.0 · December 2023

**ILNAS**

Institut Luxembourgeois de la  
Normalisation, de l'Accréditation, de la  
Sécurité et qualité des produits et services

 **ANEC**

Agence pour la Normalisation et  
l'Economie de la Connaissance

## Foreword

Standardization and technical standards have a major role to play in supporting economic development. Today, almost all professionals use technical standards to increase the efficiency of their daily activities. By representing the state of the art, standards create a common language to facilitate exchanges and promote transparency and ethics.

Furthermore, technical standardization provides privileged access to the latest technologies, with the opportunity to benefit from a network of many experts. Standards also create trust in innovative solutions and guarantee their interoperability to ensure market acceptance. Standards are therefore considered as a source of benefits in all economic sectors.

At the national level, the *Institut Luxembourgeois de la Normalisation, de l'Accréditation, de la Sécurité et qualité des produits et services* (ILNAS), a public administration under the supervision of the Minister of the Economy, is the only national standards body. In this frame, ILNAS is a member of the European (CEN, CENELEC, ETSI) and international (ISO, IEC, ITU-T) standardization organizations and, among other missions, allows the participation of the national market in the development of standards within these entities.

In order to promote technical standardization and develop the ad hoc skills of economic players in Luxembourg, ILNAS is leading the implementation of the "[Luxembourg standardization strategy 2020-2030](#)", signed by the Minister of the Economy, which identifies the construction sector as one of the most relevant to support, specifically in terms of technical standardization, in addition to the information and communication technology and aerospace sectors.

Directly linked to this strategy, ILNAS has drawn up "[Luxembourg's policy on technical standardization in the construction sector 2020-2025](#)", which is implemented with the support of the Economic Interest Group "*Agence pour la Normalisation et l'Economie de la Connaissance*" (ANEC GIE – Standardization Department). As such, for the construction sector, the policy aims to promote and strengthen the use of technical standards in the national market, to reinforce the position of Luxembourg in the global construction standardization landscape - particularly through a stronger involvement of national stakeholders in the relevant standardization technical committees - and to pursue the development of research and education programs in standardization for the construction domain.

The objective of this technical report is to raise national construction sector stakeholders' awareness on technical standardization by providing them with a detailed overview of the latest standardization developments in the field of sustainable construction and to encourage them to get actively involved in the field of technical standardization.

ILNAS, with the support of ANEC GIE, remains at the service of national actors in order to encourage and assist any initiative related to this topic.

**Jean-Marie REIFF,**  
Director  
ILNAS

**Jean-Philippe HUMBERT,**  
Deputy Director  
ILNAS



# Introduction

The construction sector includes all design and build activities, from public and private buildings to transport infrastructure and distribution networks. It is constantly facing new challenges, with the adoption of innovative technologies for example, and must also work to implement more sustainable practices to reduce its environmental impact. Indeed, the construction sector plays a significant role in the production of waste and the emission of greenhouse gases, pushing many institutions and governments to place sustainability of the sector among their priorities. In this context, and to maintain companies' competitiveness, the reinforcement of ad hoc skills is an essential element.<sup>1</sup>

Technical standardization remains an effective tool for professionals looking to expand their knowledge, preserve their know-how, and anticipate future best practices. As national standards body, ILNAS actively promotes the development of technical standardization at the national level, ensuring that Luxembourg's interests are taken into account in European and international standardization, and actively encouraging the use of standards for the benefit of the market. The Institute undertakes many actions to develop a national network of experts, to support the transfer of knowledge to interested stakeholders, and to strengthen their participation in the relevant technical committees.

This standardization report aims to inform the national market on the subject of sustainable construction, and also to provide a link with the main technical committees involved in its development.

This report begins by introducing the definition and concept of "sustainable construction", and then details the European and international context that led Luxembourg to set up appropriate initiatives, detailed at the end of the first chapter.

The second part describes the basic principles of technical standardization and offers an initial approach to standardization through a presentation of the two main technical committees responsible for the development of sustainable construction, as well as published standards and projects currently under development. The remainder of the report describes the activities of several technical standardization committees. For the reader's convenience, these committees are listed by theme:

- Environmental management,
- Cities and communities,
- Products and materials,
- Energy performance,
- Renewable energies,
- Living environment.

The final part of this chapter presents the opportunities offered to Luxembourg's socio-economic actors in the field of technical standardization, highlighting the advantages of active involvement in the standards development process and their use, and detailing the solutions available for purchasing and consulting standards.

1 [https://single-market-economy.ec.europa.eu/industry/sustainability/buildings-and-construction\\_en](https://single-market-economy.ec.europa.eu/industry/sustainability/buildings-and-construction_en)



# Table of contents

	<b>Foreword</b>	<b>4</b>
	<b>Introduction</b>	<b>5</b>
<b>1.</b>	<b>Sustainable construction</b>	<b>9</b>
1.1.	Concept	9
1.2.	International context	11
1.3.	European context	12
1.4.	National context	13
<b>2.</b>	<b>Technical standardization and sustainable construction</b>	<b>21</b>
2.1.	Introduction to technical standardization	21
2.1.1	Definition of a standard	21
2.1.2	Standardization organizations	21
2.2.	Main technical standardization committees	22
2.2.1	ISO/TC 59/SC 17	22
2.2.2	ISO/TC 59/SC 15	25
2.2.3	ISO/TC 59/SC 14	26
2.2.4	CEN/TC 350	27
2.3.	Other relevant technical committees	30
2.3.1	Environmental management	31
2.3.2	Cities and communities	32
2.3.3	Products and materials	35
2.3.4	Energy performance	37
2.3.5	Renewable energies	42
2.3.6	Living environment	46
2.4.	Opportunities in Luxembourg	50
2.4.1	Purchase and consult standards	50
2.4.2	Participate in standardization	51
	<b>Conclusion</b>	<b>52</b>

# 1

# Sustainable construction



# 1. Sustainable construction

## 1.1. Concept

In 1987, the United Nations World Commission on Environment and Development (WCED) proposed the following definition of the concept of sustainable development:

*"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given, and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs".<sup>2</sup>*

To be sustainable, construction must take into account the social, environmental and economic needs of today's population while preserving those of future generations. The aim is to limit the impact of construction on the environment while improving living comfort and taking care of people's health. It is an eco-responsible approach that also takes into account the profitability of projects.

Sustainable construction includes all construction, renovation and demolition work aimed at reducing the impact of structures on the environment, while guaranteeing **superior quality in terms of aesthetics, durability and resistance**.



Figure 1 – Sustainable construction concept

<sup>2</sup> <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>

The entire life cycle of a structure needs to be considered in terms of sustainability, from the extraction of resources all the way to dismantling activities, but also in terms of work processes. The role of every stakeholder involved in the life of a structure must therefore be taken into account in a sustainable construction approach.

There are many areas in which the sector needs to take an eco-responsible approach. The following are just a few examples:



Figure 2 - The sustainable construction environment

## 1.2. International context

### 1970s:

- Awareness of the consequences of industrial development on the planet,
- Birth of the concept of eco-development.

### 1980s:

- Use of the term “sustainable development”, driven by the [United Nations](#) (UN),
- 1987: Publication of the [Brundtland report](#) on the need to adopt a development model that does not adversely affect the living conditions of future generations,
- Creation in Germany of the “Passivhaus” label, which spread throughout Europe within a few years and reached America at the beginning of the 21st century. Its recommendations set out the techniques and processes required to obtain building products with energy savings of up to 80%.<sup>3</sup>

**1990:** Appearance of the first passive house in Darmstadt, Germany.

**1993:** Creation of the [World Green Building Council](#) (WorldGBC), a global organization of national green building councils whose aim was to “create green buildings for everyone, everywhere”.

**1997:** [Kyoto Protocol](#), international treaty on the reduction of greenhouse gas emissions.

**2015:** UN Plan – [Sustainable development goals](#) for 2030.

According to the IEA ([International Energy Agency](#)), the construction sector currently accounts for the following worldwide energy consumption:

- 36% of energy consumption,
- 39% of CO2 emissions,
- 50% of extracted materials,
- 33% of water consumption,
- 35% of waste generated.

The UN estimates that the world’s population will reach 9.6 billion<sup>4</sup> by 2050. This exponential growth will lead to a proportional increase in the amount of building space required, multiplying all the environmental, social and economic impacts associated with construction. This applies to all aspects of the sector, from manufacturing to the transportation of materials to the construction sites themselves. The machinery used on construction sites relies mainly on fossil fuels, and the manufacturing of concrete emits a level of CO2 comparable to that of a country ranked third in the world for CO2 emissions, just behind China and the United States.<sup>5</sup>

Considering these statistics, it is crucial that companies in the construction sector adopt more sustainable practices, which are essential to support the decarbonization of the global economy. Companies involved in eco-construction preserve the environment for future generations while responding to strong demand from customers who are now concerned about protecting the environment.

<sup>3</sup> [What is energy efficiency in construction and how is it achieved? \(synthesia.com\)](#)

<sup>4</sup> <https://www.un.org/fr/desa/un-report-world-population-projected-to-reach-9-6-billion-by-2050>

<sup>5</sup> AFP : “Le béton-ciment, troisième “pays” des émissions de gaz à effet de serre” France24, 19/10/2021

## 1.3. European context

At the European level, a policy focused on eco-responsibility has been in place since the 2000s.

**2001:** Adoption by the European Union of a sustainable development strategy ([COM\(2001\) 264](#)).

**2005:** Sustainable development strategy review ([COM\(2005\) 658](#)).

**2009:** [Directive 2009/125/EC](#) establishing a framework for the setting of ecodesign requirements for energy-related products.

**2010:** [Directive 2010/31/EU](#) on the energy performance of buildings, which “promotes the improvement of the energy performance of buildings within the Union, taking into account outdoor climatic and local conditions, as well as indoor climate requirements and cost-effectiveness”.

**2011:** [Regulation \(EU\) n° 305/2011](#) “lays down harmonised conditions for the marketing of construction products” extending the scope of the previous Construction Products Directive, CPD ([89/106/EEC](#)). With this extension, aspects of the sustainable use of natural resources as well as the health and safety of workers during production, construction and end-of-life operations are covered.

**2011:** Publication of three European Commission roadmaps:

- [COM\(2011\) 112](#), for moving to a competitive low carbon economy by 2050,
- [COM\(2011\) 571](#), for a resource-efficient Europe,
- [COM\(2011\) 885](#), for energy management by 2050.

**2012:** [COM\(2012\) 433](#) Strategy for the sustainable competitiveness of the construction sector and its enterprises.

**2012:** [Directive 2012/27/EU](#) on energy efficiency, to ensure the achievement of the Union’s 2020 20% headline target on energy efficiency.

**2013:** [COM\(2013\) 196](#), to build a single market for green products, facilitating better information on the environmental performance of products and organisations.

**2019:** [COM\(2019\) 640](#), The European Green Deal, a roadmap to achieve climate neutrality by 2050.

**2020:** [Regulation \(EU\) 2020/852](#) on the establishment of a framework to facilitate sustainable investment (taxonomy).

**2021:** The European Commission has published a proposal ([COM\(2021\) 802 final](#)) to renovate 15% of the worst insulated buildings in each EU member state by 2030. The aim is to make Europe’s building stock entirely carbon-neutral by 2050.

**2021:** [Level\(s\)](#), a European program that provides a common language for assessing and reporting on the sustainability performance of buildings.

**2022:** [Revision of Regulation \(EU\) 305/2011](#) on construction products, with the introduction of the manufacturer’s declaration of performance.

**2023:** [Directive 2023/1791/UE](#) on energy efficiency (recast).

## 1.4. National context

In this European and international landscape, Luxembourg has given itself the resources needed to promote the development of sustainable construction, notably through several national initiatives.



Figure 3: A regulatory framework for sustainable development<sup>6</sup>

A number of structures have been set up to support the country’s move towards eco-responsibility, under the impulse of several Luxembourg government ministries:



LE GOUVERNEMENT  
DU GRAND DUCHE DE LUXEMBOURG

*Ministère de l’Economie,*

*Ministère de l’Environnement, du Climat et de la Biodiversité,*

*Ministère du Logement et de l’Aménagement du territoire,*

*Ministère de la Mobilité et des Travaux publics,*

*Ministère des Finances.*

<sup>6</sup> CNCD, Conference “Décarbonation du secteur luxembourgeois de la construction”, Luxembourg, 20/09/2023.



Created in 2014, the *Conseil National pour la Construction Durable* (CNCD) brings together the main representatives of the Luxembourg construction sector. A not-for-profit association, the CNCD was established with the common desire of the construction sector and the government to foster a concerted approach by representatives of the Luxembourg construction sector to the major developments and opportunities that the sector will have to respond to in the near future.

**Founders:**

- The government of the Grand Duchy of Luxembourg,
- The *Conseil pour le développement économique de la construction* ([CDEC](#)),
- The *Groupement des fabricants de matériaux de construction* (GFMC),
- The Real Estate Association of Luxembourg ([LuxReal](#)),
- The Order of Architects and Consulting Engineers ([OAI](#)).

**Missions:**

- Promote sustainable construction,
- Contribute to developing the excellence of the skills of its stakeholders,
- Improve the visibility of the Luxembourgish sustainable construction sector at the international level.

At the international level, the CNCD is now officially a member of the [World Green Building Council](#) (WGBC), a network of national sustainable construction entities and the largest international organization influencing the sustainable construction market.

The CNCD board of directors defined an action plan and set up thematic working groups focusing on:

- Working Group 1: Sustainable construction observatory,
- Working Group 2: Training and qualifications,
- Working Group 3: Building of the future,
- Working Group 4: International Promotion,
- Working Group 5: Renovation strategy.

For more information:

<https://www.construction21.org/luxembourg/project/h/conseil-national-pour-la-construction-durable.html>



The *Conseil pour le Développement Économique de la Construction* (CDEC), was created in 2008 by the *Groupe des entrepreneurs* and the *Fédération des entreprises de construction et de génie civil*. This non-profit association aims to pilot an integrated strategy for the sector, in order to bring all its stakeholders towards sustainable competitiveness.

To achieve its objective, the CDEC has based its strategy on four main pillars: Finance, Training, Certification and Engineering, and Innovation.



**Working axes:**

- Reduction of the carbon footprint of the construction sector,
- Implementation of eco-circular construction,
- Integration within companies of responsible sustainability management.

**“Finance” pillar:**

The CDEC is responsible for managing the collection of contributions linked to the building sector training system as defined in the collective contract.

**“Innovation” pillar:**

[Neobuild](#) is a technological innovation center for sustainable construction in the Grand Duchy of Luxembourg with the mission of disseminating technological innovation and coaching innovative projects.



**“Training” pillar:**

The *Institut de Formation Sectoriel du Bâtiment* (IFSB) aims to ensure the energy efficiency of buildings through an educational approach based on practice and to improve the skills of the construction sector.



**“Engineering” pillar:**

[Cocert](#) (*Construction Certification SA*), the agency for controlling the energy efficiency of buildings, offers a range of services:



- Energy advice to building certification and project management assistance for businesses,
- Energy cadasters for municipal administrations.





For more information: <https://cdec.lu/>

Klima-Agence is the national structure for promoting a sustainable energy transition. Supported by the State of the Grand Duchy of Luxembourg as well as represented by the Ministry of the Economy, the Ministry of the Environment, Climate and Sustainable Development, and the Ministry of Housing, its mission is to be the main partner and public facilitator to mobilize and support Luxembourg's society with a view towards a rational and sustainable use of energy. The members of the group are the State of the Grand Duchy of Luxembourg, the *Ordre des Architectes et des Ingénieurs-Conseils*, and the *Chambre des Métiers*.

#### Goals:

- Reducing energy consumption,
- The promotion of renewable energies,
- Sustainable construction and housing.

For more information: <https://www.klima-agence.lu/en>



The *Centre de Ressources des Technologies et de l'Innovation pour le Bâtiment* (CRTI-B) is a neutral and open platform for all stakeholders in the construction sector to improve their productivity and competitiveness.

One of its objectives is to define, introduce, record, and keep up-to-date standard documentation to manage tenders for governing construction project contracts.

The CRTI-B has the status of national standardization office for the construction sector since 2015 through the signature of an agreement with ILNAS.

The CRTI-B has developed a [guide to sustainable construction](#) for project owners and project managers. This tool helps to integrate the principles of sustainable development from the early stages of construction projects.

In June 2022, a draft was published on the general technical clauses ([CTG.003](#)) on deconstruction and demolition. "Technical clause 003 applies to all deconstruction and demolition work (even partial) of buildings, works of art and structures - regardless of the type of construction and its previous use".<sup>7</sup>

For more information: <http://www.crtib.lu/>



Luxinnovation, the national innovation agency, gives businesses the means to innovate today so that they are ready for tomorrow, and contributes to the development of the economy as a whole, by identifying innovation opportunities and promoting collaborative innovation projects that stimulate the development of a competitive, digital and sustainable economy.

Luxinnovation provides a "[Sustainability Innovation Hub](#)" which brings together all Luxinnovation activities that support companies in their sustainable transformation. This "Hub" is part of the *Klimapakt fir Betriber* initiative of Luxinnovation and Klima-Agence and offers the following opportunities:

<sup>7</sup> [CTG003-V1Projet\\_fr\\_0.pdf \(crtib.lu\)](#)

- [Fit 4 Sustainability](#) helping companies to assess and reduce their environmental impact,
- [Simplified guide to aid for environmental protection](#): raising awareness of environmental protection measures and encouraging people to use available aid,
- [Sustainable solutions for groups of companies](#): pilot projects for innovation on sustainability,
- [Mapping of sustainability enablers](#): tool listing technology and service providers that offer innovative solutions for greater sustainability.

For more information: <https://www.luxinnovation.lu/>



The Luxembourg Institute of Science and Technology (LIST) is a Research and Technology Organization (RTO) with the mission of developing advanced technologies and offering the economy and society innovative products and services. These innovations also make it possible to address several societal challenges, particularly in the areas of the environment, security, education and culture, sustainable development, as well as the efficient use of resources.

LIST currently manages a large number of research projects in sustainable construction, including:

- [FCRBE](#) : Facilitating the circulation of reclaimed building elements in northwestern Europe,
- [INSTRUCT](#) : Evidence-based market and policy instruments implementation across EU to increase the demand for energy skills across the construction sector value chain,
- [SmartBuilt4EU](#) : The European smart building innovation platform,
- [DigitalDeConstruction](#) : Advanced digital solutions supporting reuse and high-quality recycling of building materials,
- [SemanticLCA](#) : Attenuating the environmental impact of our buildings through semantic-based dynamic life cycle assessment,
- [gENESiS](#) : Energy management system for smart sustainable buildings: planning, operation, and optimal integration in the smart energy.

For more information: <https://www.list.lu/>



The House of Sustainability is a coordination, unifying, and facilitating platform for sustainable development.

#### Goal:

“Support companies in their sustainable transition and in the implementation of the [“Luxembourg Sustainable Business Principles”](#) which aims for a more systematic integration of sustainable development issues and opportunities at the heart of corporate strategy”.

For more information: <https://www.houseofsustainability.lu/>



University of Luxembourg  
Faculty of Science, Technology and Medicine  
Department of Engineering



“The Department of Engineering (DoE) serves Luxembourg by educating the next generation of engineers, developing research, and catalysing industrial innovation”.<sup>8</sup>

The university's engineering department offers numerous qualifying training courses, including:

- [Master in Sustainable Development – Energy and Environment](#),
- [Master of Science in Civil Engineering – Megastructure Engineering with Sustainable Resources](#),
- [Master in Engineering Sciences – Energy and economic efficiency](#).

The engineering department has two research groups focused on sustainable construction:

- [Building energy and building services engineering](#),
- [Structural Engineering and Composite Structures](#).

For more information:

<https://www.uni.lu/>

<https://www.uni.lu/en/education/study-programme-list/#ma-fstm>

<https://www.uni.lu/fstm-en/research-departments/department-of-engineering/>

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<sup>8</sup> <https://www.uni.lu/fstm-en/research-departments/department-of-engineering/>



# 2

## **Normalisation technique et construction durable**

## 2. Technical standardization and sustainable construction

### 2.1. Introduction to technical standardization

#### 2.1.1. Definition of a standard

As defined by ISO: “A standard is a document, established by a consensus of subject matter experts and approved by a recognized body that provides guidance on the design, use or performance of materials, products, processes, services, systems or persons”.<sup>9</sup> In the construction sector, standards are used to formalize the state of the art in the various trades.

#### 2.1.2. Standardization organizations

Technical standards are developed by organizations that bring all interested stakeholders together and follow well-accepted principles. In the European Union (EU), [Regulation \(EU\) No 1025/20124](#) recognized the following standardization organizations:

**At the international level**, the three recognized standardization organizations are the:

- International Organization for Standardization (ISO),
- International Electrotechnical Commission (IEC),
- International Telecommunication Union’s Telecommunication Standardization Sector (ITU-T).

**At the EU level**, the three recognized standardization organizations are the:

- European Committee for Standardization (CEN),
- European Committee for Electrotechnical Standardization (CENELEC),
- European Telecommunications Standards Institute (ETSI).

**At the national level**, the *Institut luxembourgeois de la normalisation, de l’accreditation, de la sécurité et qualité des produits et services* (ILNAS) is the national standards body representing Luxembourg in international and European standardization organizations. As such, ILNAS is a member of the following standardization organizations: CEN, CENELEC, ETSI, ISO, IEC and ITU-T.

	General Standardization	Electrotechnical Standardization	Telecommunication Standardization
International level			
European level			
National level			

Figure 4 - Standardization organizations

<sup>9</sup> [https://www.iso.org/sites/ConsumersStandards/1\\_standards.html](https://www.iso.org/sites/ConsumersStandards/1_standards.html)

## 2.2. Main technical standardization committees

As described in chapter 1, the concept of sustainable construction covers a multitude of fields. To simplify the standardization approach to sustainable construction, two technical committees provide a first relevant approach:

- International technical committee [ISO/TC 59](#) “Buildings and civil engineering works” and more specifically the following technical sub-committees:
  - [SC 17](#) “Sustainability in buildings and civil engineering works”,
  - [SC 15](#) “Framework for functional/user requirements in building construction”,
  - [SC 14](#) “Design life”.
- European technical committee [CEN/TC 350](#) “Sustainability of construction works”.

These two committees integrate the notion of the circular economy for construction:

- ISO/TC 59/SC 17/AHG 2 - Circular economy in the construction sector,
- CEN/TC 350/SC 1 - Circular economy in the construction sector.

### 2.2.1. [ISO/TC 59/SC 17](#) “Sustainability in buildings and civil engineering works”

#### Key numbers

- [13](#) published standards
- [1](#) current project



#### Scope

Standardization in the field of sustainability of new and existing construction works in the context of the UN Sustainable Development Goals and climate change mitigation and adaptation. The environmental, economic, and social aspects of sustainability and circular economy are included as appropriate.

#### Structure

Working groups	
AHG 2	Circular economy in the construction sector
AHG 3	Climate change mitigation in buildings and engineering works
WG 1	General principles and terminology
WG 3	Environmental declaration of products
WG 4	Environmental performance of buildings
WG 5	Civil engineering works



## Published standards

Framework for methods of assessment of the environmental, social and economic performance of construction works as a basis for sustainability assessment	
<a href="#">ISO 21931-1:2022</a>	Part 1: Buildings
<a href="#">ISO 21931-2:2019</a>	Part 2: Civil engineering works
Design for disassembly and adaptability	
<a href="#">ISO 20887:2020</a>	Principles, requirements and guidance
Sustainability indicators	
<a href="#">ISO 21929-1:2011</a>	Part 1: Framework for the development of indicators and a core set of indicators for buildings
<a href="#">ISO 21928-2:2023</a>	Part 2: Framework for the development of indicators for civil engineering works
Indicators and benchmarks	
<a href="#">ISO 21678:2020</a>	Principles, requirements and guidelines
Carbon metric of an existing building during use stage	
<a href="#">ISO 16745-1:2017</a>	Part 1: Calculation, reporting and communication
<a href="#">ISO 16745-2:2017</a>	Part 2: Verification
General principles and terminology	
<a href="#">ISO 15392:2019</a>	General principles
<a href="#">ISO 21930:2017</a>	Core rules for environmental product declarations of construction products and services
<a href="#">ISO/TR 21932:2013</a>	A review of terminology
<a href="#">ISO/TS 12720:2014</a>	Guidelines on the application of the general principles in ISO 15392
Data templates	
<a href="#">ISO 22057:2022</a>	Data templates for the use of environmental product declarations (EPDs) for construction products in building information modelling (BIM)

## Current projects

General principles and terminology	
<a href="#">ISO/AWI TS 12720</a>	Guidelines on the application of the general principles in ISO 15392

**Note:** The joint working group ISO/TC 59/SC 2/JWG 3 was created between the ISO/TC 59/SC 2 “Terminology and harmonization of languages” and the technical subcommittee ISO/TC 59/SC 17 to develop standards about “Vocabulary on sustainability in buildings and civil engineering works”.

ISO/TC 59/SC 17 works in liaison with numerous committees and has access to the working documents of the following committees:

- [ISO/TC 43/SC 2](#) - Building acoustics,
- [ISO/TC 59/SC 2](#) - Terminology and harmonization of languages,
- [ISO/TC 59/SC 13](#) - Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM),
- [ISO/TC 59/SC 14](#) - Design life,
- [ISO/TC 59/SC 15](#) - Framework for functional/user requirements in building construction,
- [ISO/TC 71/SC 8](#) - Environmental management for concrete and concrete structures,
- [ISO/TC 163/SC 2](#) - Thermal performance and energy use in the built environment - Calculation methods,
- [ISO/TC 189](#) - Ceramic tile,
- [ISO/TC 207/SC 3](#) - Environmental labelling,
- [ISO/TC 207/SC 5](#) - Life cycle assessment,
- [ISO/TC 207/SC 7](#) - Greenhouse gas and climate change management and related activities,
- [ISO/TC 268](#) - Sustainable cities and communities,
- [ISO/TC 268/SC 1](#) - Smart community infrastructures,
- [ISO/TC 323](#) - Circular economy.

## 2.2.2. ISO/TC 59/SC 15 “Framework for functional/user requirements in building construction”

### Key numbers

- **4** published standards
- **0** current project



### Scope

Standardization in the field of basic performance standards on building construction including general rules for performance requirements for buildings as a whole and for subsystems, e.g., building elements, focusing on performance description and requirements, user requirements, and the means to evaluate housing and other types of building solutions.

A special emphasis is placed on developing housing performance descriptions on aspects (e.g., for the trading of houses as a whole), such as:

- Structural integrity, durability, and serviceability,
- Fire safety,
- Operating energy,
- Accessibility and usability.

Topics covered in more specific detail by other SCs within TC 59 and other technical committees are excluded. Determination of performance level values required for specific purposes is excluded as it will be decided by the stakeholders.

### Structure

Working groups	
WG 6	Sustainable construction
WG 7	Accessibility and usability

### Published standards

Performance standards in building	
<a href="#">ISO 9836:2017</a>	Definition and calculation of area and space indicators
Buildings and building-related facilities	
<a href="#">ISO 11863:2011</a>	Functional and user requirements and performance - Tools for assessment and comparison
Houses – Description of performance	
<a href="#">ISO 15928-5:2013</a>	Part 5: Operating energy
<a href="#">ISO 15928-7:2021</a>	Part 7: Accessibility and usability

### 2.2.3. ISO/TC 59/SC 14 “Design life”

#### Key numbers

- **10** published standards
- **3** current projects



#### Structure

Working groups	
CAG	Chair's Advisory Group
WG 10	Functionality requirements/serviceability
WG 11	Concepts, principles and terminology
WG 12	Process considerations
WG 13	Methodologies, data and communication

#### Published standards

Service life planning	
<a href="#">ISO 15686-1:2011</a>	Part 1: General principles and framework
<a href="#">ISO 15686-2:2012</a>	Part 2: Service life prediction procedures
<a href="#">ISO 15686-3:2002</a>	Part 3: Performance audits and reviews
<a href="#">ISO 15686-4:2014</a>	Part 4: Service Life Planning using Building Information Modelling
<a href="#">ISO 15686-5:2017</a>	Part 5: Life-cycle costing
<a href="#">ISO 15686-7:2017</a>	Part 7: Performance evaluation for feedback of service life data from practice
<a href="#">ISO 15686-8:2008</a>	Part 8: Reference service life and service-life estimation
<a href="#">ISO/TS 15686-9:2008</a>	Part 9: Guidance on assessment of service-life data
<a href="#">ISO 15686-10:2010</a>	Part 10: When to assess functional performance
<a href="#">ISO/TR 15686-11:2014</a>	Part 11: Terminology

#### Current projects

Service life planning	
<a href="#">ISO/AWI 15686-1</a>	Part 1: Concepts, Principles and terminology
<a href="#">ISO/AWI 15686-2</a>	Part 2: Process considerations
<a href="#">ISO/AWI 15686-3</a>	Part 3: Methodologies, data and communication

## 2.2.4. CEN/TC 350 “Sustainability of construction works”

### Key numbers

- **14** published standards
- **5** current projects



### Scope

The committee is responsible for the development of horizontal standardized methods for the assessment of the sustainability aspects of new and existing construction works (buildings and civil engineering works) in the context of the UN Sustainable Development Goals and of the circular economy. The methodological basis will be developed in the context of current needs, European strategies, such as mitigation, adaptation and resilience to climate change, and life cycle thinking.

The standards describe coherent methodologies for the assessment of sustainability of construction works covering the assessment of environmental, social and economic performance (aspect and impacts) of buildings and civil engineering works, and the provision of construction product environmental information (EPD).

This covers:

- Environmental performance assessment:
  - Circularity principles (the circular economy in the construction sector),
  - Energy efficiency and decarbonization,
  - Sustainable use of resources (resource efficiency, waste minimization),
  - Protection of the environment and biodiversity.

Social performance assessment:

- Health and comfort,
- Safety and security,
- Adaptability and accessibility in response to user needs,
- Resilience against external events such impact of climate change,
- Sourcing of materials.

Economic performance assessment:

- Life cycle cost,
  - Whole life costs and impact on economic value,
  - “Green finance” initiatives (taxonomy).
- The implementation of the standards in response to trends in digitalization (BIM, CAD...).

**Note:** The committee is also entrusted with an advisory function to CEN committees to ensure the effective implementation of horizontal core rules regarding the development a specific Product Category Rules based on [EN 15804](#) “Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products”.

## Structure

Technical subcommittees	
SC 1	Circular Economy in the Construction Sector
> WG 1	Framework, principles and definitions
> WG 2	Gap analysis, conclusions and recommendations
> WG 3	Chair's Advisory Group
Working groups	
WG 1	Environmental performance of buildings
WG 3	Products Level
WG 5	Social performance assessment of building
WG 6	Civil Engineering works
WG 7	Framework and Coordination
WG 8	Sustainable refurbishment

## Published standards

Environmental product declarations	
<a href="#">CEN/TR 15941:2010</a>	Methodology for selection and use of generic data
<a href="#">EN 15942:2021</a>	Communication format business-to-business
<a href="#">EN 17672:2022</a>	Horizontal rules for business-to-consumer communication
<a href="#">EN 15804:2012 +A2:2019</a>	Core rules for the product category of construction products
<a href="#">EN15804:2012 +A2:2019/AC:2021</a>	Core rules for the product category of construction products
<a href="#">CEN/TR 16970:2016</a>	Guidance for the implementation of EN 15804
Sustainability assessment of civil engineering works	
<a href="#">EN 17472:2022</a>	Calculation methods
Assessment of economic performance of buildings	
<a href="#">EN 16627:2015</a>	Calculation methods
Assessment of environmental performance of buildings	
<a href="#">EN 15978:2011</a>	Calculation methods
Assessment of social performance of buildings	
<a href="#">EN 16309:2014 +A1:2014</a>	Calculation methods
Evaluation of the potential for sustainable refurbishment	
<a href="#">EN 17680:2023</a>	Evaluation of the potential for sustainable refurbishment of buildings
Framework for assessment	
<a href="#">EN 15643:2021</a>	Framework for assessment of buildings and civil engineering works

### Additional environmental impact categories and indicators - Background information and possibilities

<a href="#">CEN/TR 17005:2016</a>	Evaluation of the possibility of adding environmental impact categories and related indicators and calculation methods for the assessment of the environmental performance of buildings
<b>Data templates</b>	
<a href="#">EN ISO 22057:2022</a>	Data templates for the use of environmental product declarations (EPDs) for construction products in building information modelling (BIM) (ISO 22057:2022)

### Current projects

<b>Data quality for environmental assessment of products and construction work</b>	
<a href="#">FprEN 15941</a>	Selection and use of data
<b>Assessment of environmental performance of buildings</b>	
<a href="#">prEN 15978 rev</a>	Methodology
<b>Circular economy in the construction sector</b>	
(WI=00350039)	Framework, principles, and definitions
(WI=00350040)	Gap analysis, conclusions, and recommendations
<b>Sustainable Development Goals (SDGs)</b>	
(WI=00350038)	Connection between the contributions of CEW to sustainability and achievement of the SDGs

**Note:** Subcommittee [CEN/TC 350/SC 1](#) "Circular economy in the construction sector" was set up in 2021 to produce standards in the field of the circular economy in the built environment. Two projects are in the preliminary phase.

### Scope of CEN/TC 350/SC 1

Standardization in the field of circular economy in the built environment specifying circular principles and guidelines and requirements to facilitate the transition to a more sustainable circular economy including tools and processes to achieve this; covering design to de-construction and end-of-life scenarios in all stages of current and subsequent life cycles.

This applies to new and existing construction works (buildings and civil engineering works), including their products, materials and components. The Subcommittee deals both with technical issues on circularity, as well as environmental, economic and social challenges.

This work will take into account the standards of [CEN/TC 350](#) and consider the work of existing committees on subjects that may support the circular economy in the construction sector, such as [ISO/TC 323](#) and [CEN-CLC/JTC 10](#), including initiatives of the European Commission.

In Luxembourg, 9 delegates are registered in CEN/TC 350:

- 3 members of the technical committee,
- 2 members of working group WG 1 - Environmental performance of buildings,
- 3 members of working group WG 3 - Products level,
- 1 member of working group WG 6 - Civil engineering works,
- 2 members of sub-committee SC 1 - Circular economy in the construction sector,
- 4 members of SC 1/WG 1 - Circular economy in the construction sector - Framework, principles and definitions,
- 3 members of working group SC 1/WG 2 - Circular economy in the construction sector - Gap analysis, conclusions and recommendations.



## 2.3. Other relevant technical committees

Many technical standardization committees are working towards sustainable construction, consolidating the actions undertaken by the two committees presented above. The following is a non-exhaustive list, by subject, of several technical committees developing eco-construction-related standards.

### Management environnemental

- [ISO/TC 207](#) - Environmental management,
- [CEN/SS S26](#) - Environmental management.

### Cities and communities

- [ISO/TC 268](#) - Sustainable cities and communities,
- [CEN/TC 465](#) - Sustainable Cities and Communities,
- [IEC/SyC Smart Cities](#) - Electrotechnical aspects of Smart Cities.

### Products and materials

- [ISO/TC 71/SC 8](#) - Environmental management for concrete and concrete structures,
- [CEN/TC 104/WG 19](#) - Concrete and related products- Decarbonisation, resource efficiency and sustainability,
- [CEN/TC 38](#) - Durability of wood and wood-based products,
- [CEN/CLC/JTC 10](#) - Material efficiency aspects for products in scope of Ecodesign legislation.

### Energy performance

- [ISO/TC 163](#) - Thermal performance and energy use in the built environment,
- [CEN/TC 89](#) - Thermal performance of buildings and building components,
- [CEN/TC 371](#) - Energy performance of buildings,
- [CEN/CLC/JTC 14](#) - Energy management and energy efficiency in the framework of energy transition,
- [CEN/TC 228](#) - Heating systems and water based cooling systems in buildings.

### Renewable energies

- [ISO/TC 180](#) - Solar energy,
- [CEN/TC 312](#) - Thermal solar systems and components,
- [IEC/TC 82](#) - Solar photovoltaic energy systems,
- [CLC/TC 82](#) - Solar photovoltaic energy systems,
- [IEC/TC 117](#) - Solar thermal electric plants,
- [CLC/SR 117](#) - Solar thermal electric plants.

### Living environment

- [ISO/TC 205](#) - Building environment design,
- [ISO/TC 59/SC 16](#) - Accessibility and usability of the built environment,
- [CEN/CLC/JTC 11](#) - Accessibility in the built environment,
- [ISO/TC 274](#) - Light and lighting,
- [CEN/TC 169](#) - Light and lighting.

## 2.3.1. Environmental management

### ➔ ISO/TC 207 “Environmental management”

#### Key numbers

- **68** published standards including **3** under the direct responsibility of the technical committee
- **21** current projects



#### Scope

Standardization in the field of environmental management to address environmental and climate impacts, including related social and economic aspects, in support of sustainable development.

Excluded: test methods of pollutants, setting limit values and levels of environmental performance, and standardization of products.

#### Structure

Technical subcommittees		Standards	Projects
SC 1	Environmental management systems	<u>12</u>	<u>6</u>
SC 2	Environmental auditing and related environmental investigations	<u>3</u>	<u>2</u>
SC 3	Environmental labelling	<u>8</u>	<u>3</u>
SC 4	Environmental performance evaluation	<u>9</u>	<u>1</u>
SC 5	Life cycle assessment	<u>16</u>	<u>5</u>
SC 7	Greenhouse gas and climate change management and related activities	<u>17</u>	<u>4</u>
Working groups			
DCCG	Developing Countries Coordination Group		
SLG	Strategic Leadership Group		
STTF	Spanish translation task force		
TCG	Terminology Coordination Group		
TF 1	Communications		
TG 1	Sustainable Finance Coordination		
TG 2	Circular economy coordination		

### ➔ CEN/SS S26 “Environmental management”

#### Key numbers

- **37** published standards
- **7** current projects



**Note:** This technical committee takes over some of the ISO/TC 207 standards and transposes them to the European level.

## 2.3.2. Cities and communities

### → ISO/TC 268 “Sustainable cities and communities”

#### Key numbers

- **45** published standards including **13** under the direct responsibility of the technical committee
- **20** current projects including **10** under the direct responsibility of the technical committee



#### Scope

Standardization in the field of Sustainable Cities and Communities will include the development of requirements, frameworks, guidance and supporting techniques and tools related to the achievement of sustainable development considering smartness and resilience, to help all Cities and Communities and their interested parties in both rural and urban areas become more sustainable.

**Note:** ISO/TC 268 will contribute to the UN Sustainable Development Goals through its standardization work.

The proposed series of International Standards will encourage the development and implementation of holistic and integrated approaches to sustainable development and sustainability.

#### Structure

Technical subcommittees		Standards	Projects
SC 1	Smart community infrastructures	<u>16</u>	<u>8</u>
SC 2	Sustainable cities and communities - Sustainable mobility and transportation	<u>17</u>	<u>2</u>
Working groups			
CAG 1	Chair’s Advisory Group		
TG 1	Awareness-raising, communication and promotion		
TG 2	Collection of cities good practices and needs		
TG 3	Supporting the strategic positioning of ISO/TC 268		
WG 1	Management System Standards		
WG 2	City indicators		
WG 3	City anatomy and sustainability terms		
WG 4	Smart processes and operating models for sustainable communities		

### → CEN/TC 465 “Sustainable Cities and Communities”

#### Key numbers

- **1** published standard
- **3** current projects



## Scope

Standardization in the field of Sustainable Cities and Communities, covering the development of requirements, frameworks, guidance and supporting tools and techniques. The proposed standardization plan will be developed to assist cities and community decision making, and support their implementation of sustainability and sustainable development. Standardization will focus on the development of a holistic and integrated approach in response to the needs of European Cities and Communities in both rural and urban areas.

It is proposed that the standardization activities focus on:

- The purposes of urban sustainable development as defined by ISO 37101 related to Sustainable Cities and Communities, namely resilience, attractiveness, well-being, social cohesion, preservation and improvement of environment, responsible resource use, aligned with the main pillars of sustainable development (economic, environmental and social),
- All innovative approaches to solution and service delivery, designed for use by all Cities and Communities, Citizens and their interested parties as a means of achieving the sustainability of urban and rural development, with the aim of continuously improving solutions and services, and rural development, with the aim of continuously improving solutions and services.

## Structure

Working groups	
WG 1	Nature-Based Solutions
WG 2	Services to citizens

## ➔ IEC/SyC Smart Cities “Electrotechnical aspects of Smart Cities”

### Key numbers

- 9 published standards
- 17 current projects



### Scope

To foster the development of standards in the field of electrotechnology to help with the integration, interoperability and effectiveness of city systems.

**Note 1:** This will be done:

- By promoting the collaboration and systems thinking between IEC/TCs, the SyC and other SDOs in relation to City systems standards,
- By undertaking systems analysis to understand the needs for standards and assess new work item proposals (NWIPs) related to city systems,
- By developing systems standards where needed and by providing recommendations to existing SyCs, TCs/SCs and other SDOs.

**Note 2:** Overall common city goals include, for example, sustainable development, efficiency, resilience, safety and support for citizens’ engagement and participation. However, an individual city will follow its own approach.

**Note 3:** “Cities” refers to any geographically located population.

## Structure

Working groups	
WG 1	Terminology
WG 2	Market Relationship
WG 3	Reference Architecture
Joint working groups	
JWG 14	Smart Cities Reference Architecture linked to ISO/TC 268
JWG 16	City Information Modelling and Urban Digital Twins linked to ISO/IEC JTC 1
Maintenance teams	
MT 15	Maintenance of IEC 63152 - City Service Continuity against disasters, the role of the electrical supply
Joint project teams	
JPT 3	IEV part on terminology relating to systems, smart and digital Managed by TC 1
Ad-hoc groups	
ahG 6	Developing good working practice in the Governance Framework
ahG 8	Strategy
ahG 9	Sustainable Digital Transformation of the Urban Landscape
ahG 13	Decarbonization aspects of smart cities
Joint ad-hoc groups	
JAHG 5	Interdependencies between ICT and Electrotechnology in Smart Cities linked to ISO/IEC JTC 1
Chair's advisory groups	
CAG 1	Chair's Advisory Group
Advisory groups	
AG 12	City Observatory & Research Advisory Group (CORAG)
AG 11	Communications, Outreach, Promotion & Advocacy based Strategy Advisory Group (COPAG)
AG 10	Cooperation
Open forum	
OF 1	Open Forum 1 - Smart Cities Events

### 2.3.3. Products and materials

#### ➔ ISO/TC 71/SC 8 “Environmental management for concrete and concrete structures”

##### Key numbers

- 6 published standards
- 3 current projects



##### Scope

Standardization in the field of environmental management for both new and existing concrete and concrete structures including:

- General framework, principles and requirements for considerations of environmental aspects into concrete and concrete structures,
- Preparation of inventory data and system boundaries,
- Environmental evaluation of concrete production, execution, maintenance, demolition and reuse of concrete structures, and recycling of concrete,
- Environmental labels and declarations of concrete and concrete structures,
- Environmental design of concrete structures.

##### Structure

Working groups	
WG 1	General principles
WG 2	System boundary and inventory data
WG 6	Execution of concrete structures
WG 7	Production of concrete constituents and concrete
WG 8	End of life phase of concrete and concrete structures
WG 9	Determination of carbon dioxide sequestered in concrete and concrete constituents

#### ➔ CEN/TC 104/WG 19 “Concrete and related products - Decarbonisation, resource efficiency and sustainability”

##### Key numbers

- 0 published standard
- 2 current projects



**Note:** This working group is part of technical committee [CEN/TC 104](#) - Concrete and concrete-related products.

Sustainable building with concrete	
(WI=00104456)	Part 1 - Practical guidance
(WI=00104455)	Part 2 - Further potential for optimisation

➔ **CEN/TC 38 “Durability of wood and wood-based products”**

**Key numbers**

- **56** published standards
- **18** current projects



**Scope**

Standardization of natural or conferred durability of wood and wood-based products against biological agents and their characteristics associated with exposure.

**Structure**

Working groups	
WG 21	Durability - Classification (use classes-natural durability)
WG 22	Performance - Assessment and specifications (treated wood - wood preservatives)
WG 23	Fungal testing (basidiomycetes-microfungi)
WG 24	Insect testing (beetles - termites)
WG 25	External Factors and Preconditioning
WG 26	Physical/chemical factors (analytical methods)
WG 27	Exposure Aspects
WG 28	Performance classification

➔ **CEN/CLC/JTC 10 “Material efficiency aspects for products in scope of Ecodesign legislation”**

**Key numbers**

- **9** published standards
- **1** current project



**Scope**

Material efficiency aspects for products in scope of the Ecodesign Directive 2009/125/EC and its future revisions. Producing generic and horizontal CEN-CENELEC publications covering aspects such as assessment methods, design rules, dematerialization, digitalization and transfer of information on a variety of material efficiency topics, in particular (but not limited to):

- Extending product lifetime,
- Ability to reuse components or recycle materials\* from products at End-of-Life,
- Use of reused components and/or recycled materials\* in products.

\* Includes coverage of the European Commission defined list of Critical Raw Materials (CRM).



## Structure

Working groups	
WG 1	Terminology
WG 2	Durability
WG 3	Ability to repair, reuse and upgrade energy-related products
WG 4	Ability to remanufacture and method for determining the proportion of reused components in products
WG 5	Ability to recycle and recover energy-related products, recycled material content of energy-related products
WG 6	Documentation and/or marking regarding information relating to material efficiency of the product
WG 7	Chair's Advisory Group
WG 8	Circular Design

### 2.3.4. Energy performance

#### → ISO/TC 163 "Thermal performance and energy use in the built environment"

##### Key numbers

- **152** published standards including **15** under the direct responsibility of the technical committee
- **15** current projects



##### Scope

Standardization in the field of building and civil engineering works:

- Of thermal and hygrothermal performance of materials, products, components, elements and systems, including complete buildings, both new and existing, and their interaction with technical building systems,
- Of thermal insulation materials, products and systems for building and industrial applications, including insulation of installed equipment in buildings,

Covering and including:

- Test and calculation methods for heat and moisture transfer, temperature and moisture conditions,
- Test and calculation methods for energy use in buildings, including the industrial built environment,
- Test and calculation methods for heating and cooling loads in buildings,
- Test and calculation methods for daylighting, ventilation and air infiltration,
- In-situ test methods for thermal, hygrothermal and energy performance of buildings and building components, input data for calculations, including climatic data,
- Specifications for thermal insulation materials, products and systems with related test methods and conformity criteria,
- Terminology,
- General review and coordination of work on thermal and hygrothermal performance within ISO.

Excluded:

- Building environment design (ISO/TC 205),
- Methods of testing and rating the performance of building environmental equipment for application in the design of new buildings and retrofits (ISO/ TC 205),
- Design methods and criteria for daylighting, ventilation and air infiltration (ISO/TC 205).

Covering also:

Standardization of the holistic assessment of the energy performance of new and existing buildings as well as building retrofits, in close collaboration with ISO/TC 205 by means of the ISO/TC163/WG4 Joint working group TC 163 & TC 205 Energy performance using holistic approach, including:

- Terms and definitions,
- System boundaries for buildings and technical systems,
- Assessment of the overall energy performance of buildings, taking into account:
  - The energy performance of building elements,
  - Building related systems (heating, cooling, domestic hot water, ventilation, lighting, system controls, transport, and other energy related systems),
  - Indoor and outdoor conditions,
  - Local energy production (on site and at district level),
  - (Use of) energy sources (including renewable),
  - Building commissioning,
  - Assessment of overall energy efficiency,
  - Means of expressing the energy performance and energy performance certification of buildings.

### Structure

Technical subcommittees		Standards	Projects
SC 1	Test and measurement methods	<u>76</u>	<u>4</u>
SC 2	Calculation methods	<u>40</u>	<u>3</u>
SC 3	Thermal insulation products, components and systems	<u>21</u>	<u>8</u>
Working groups			
WG 4	Joint ISO/TC 163 - ISO/TC 205 WG: Energy performance of buildings using holistic approach		

### ➔ CEN/TC 89 “Thermal performance of buildings and building components”

#### Key numbers

- **78** published standards
- **19** current projects



#### Scope

Standardization in the field of energy performance of buildings, including particularly energy transfer through building components and thermal insulation of installed equipment in buildings, covering:

- Rules for expressing relevant thermal properties and requirements,
- Calculation and test methods,
- Input data, including climatic data,
- Effects of moisture.

## Structure

Working groups	
WG 7	Thermal properties of doors and windows
WG 8	Thermal test methods
WG 10	Moisture
WG 13	In-situ thermal performance of construction products, building elements and structures
WG 14	Determination of thermal resistance at elevated temperatures using the guarded hot plate method
WG 15	Durability of adhesives for airtight layers

## → CEN/TC 371 “Energy performance of buildings”

### Key numbers

- **5** published standards
- **3** current projects



### Scope

CEN/TC 371 ‘Energy performance of buildings’ is concerned with standardization related to the energy performance of buildings (EPB). The TC ensures the development, alignment and maintenance of a coherent set of standards for the determination of the EPB. It does so by:

- Developing standards at overarching EPB level,
- Coordinating the activities of related and specialized TCs that are responsible for the development of EPB standards within their scope, thereby ensuring harmonisation.

CEN/TC 371 produces and maintains documents providing guidance and requirements to be met by EPB standards.

#### 1. Developing standards at the overarching EPB level:

The scope of EPB consists of the interrelated energy effects of indoor environmental quality, outdoor climate, thermal properties, heating and cooling systems, domestic hot water, ventilation, lighting, (de)humidification, building automation and control, energy sources and connected energy grid, and related environmental and economic impacts, and not of these topics themselves. CEN/TC 371 focuses on systems’ standards limited to buildings and the direct environment of the building if it affects the energy performance of that building. Product standards and non-EPB parameters are not part of its scope.

#### 2. Coordinating the activities of related and specialized TCs:

The following specialised TCs are responsible for the development of the specialized standards that together, using a holistic or systematic approach, make up the set of EPB standards. These TCs have the responsibility for subjects on technical issues that belong exclusively to them even if it is an EPB standard. Requirements for indoor environmental quality (IEQ) parameters are fully within the responsibility of the related and specialized CEN/TCs and are not within the scope of this committee. CEN/TC 371 and the TC’s listed below shall refer to each other’s documents to prevent overlap:

- CEN/TC 89 ‘Thermal performance of buildings and building components’,
- CEN/TC 156 ‘Ventilation for buildings’,
- CEN/TC 169 ‘Light and lighting’,
- CEN/TC 228 ‘Heating systems and water based cooling systems in buildings’,
- CEN/TC 247 ‘Building automation, control and building management’,

**Structure**

Working groups	
WG 1	EPBD Standards group
WG 2	EPB CAG
WG 3	Development of EN 16798-1-1
WG 4	Development of EN 16798-1-2
WG 5	Operational rating of energy performance of buildings

→ **CEN/CLC/JTC 14 “Energy management and energy efficiency in the framework of energy transition”**

**Key numbers**

- 14 published standards
- 3 current projects



**Scope**

Standardization in the field of energy management within the energy transition framework in close coordination with CEN/CENELEC sectorial strategy including, but not limited to, subjects such as:

- Energy management systems,
- Energy audits,
- Energy efficiency and energy performance improvement,
- Energy and savings calculation methodologies,
- Energy efficiency improvement financing (For example: Valuation of Energy Related Investments, Energy Performance Contracting minimum requirements, etc.),
- Energy services providers,
- Energy measurement and monitoring,
- Role of enabling technologies and RES within the energy management and energy efficiency framework.

Taking into account the horizontal role of JTC 14 and in order to avoid overlap with the scopes of other TCs, the following fields are excluded from the scope:

- Specific technologies or systems activities within the scope of other CEN, CENELEC or Joint CEN-CENELEC TCs,
- Environmental issues.

**Structure**

Working groups	
WG 4	Energy financial aspects
WG 5	Guarantees of Origin related to energy

## ➔ CEN/TC 228 “Heating systems and water-based cooling systems in buildings”

### Key numbers

- 48 published standards
- 8 current projects



### Scope

Standardisation of functional requirements for all types of heating systems, including domestic hot water production, water-based cooling emission and distribution systems in buildings and power generation systems in the direct environment of the building. Furthermore standardisation in relation to energy performance of buildings.

The work includes:

- General performance requirements for heating systems,
- General requirements for the design of heating systems, water-based cooling systems, and power generation systems;
- Requirements for installation and commissioning, including system tests on the heating and water-based cooling system as a whole;
- Requirements for preparation of instructions for operation, maintenance and use of heating and water-based cooling systems;
- Requirements for inspection of heating systems;
- Methods for calculation of design heat loads, as basis for sizing of heating equipment;
- Methods for calculation of energy use of heating systems, water-based cooling systems, and power generation systems in the direct environment of the building (e.g. wind power, thermo solar, and photovoltaic), including energy economy and environmental impact, as a basis for supporting energy performance criteria and/or energy certification of heating systems, water-based cooling systems and power generation systems on building or building unit level;
- Assessment of energy performance of district heating and cooling systems;
- Co-operation with other CEN/TCs (such as CEN/TC 156) responsible for related systems and products in order to establish a common terminology and a common set of technical parameters that can be used for both product declaration and design information.

The wind turbines handled by CEN/TC 228 are small plants as they may occur in domestic production and use of electricity in connection with buildings. The same applies to photovoltaic, CEN/TC 228 describes a process by which electrical energy, which is produced by building integrated or additive photovoltaic systems in the direct environment of the building, is determined.

Not covered are:

- Requirements on products such as heating and cooling units, wind power units and photovoltaic units are the responsibility of dedicated technical committees (such as CEN/TC 57, CEN/TC 109, CEN/TC 113, CEN/TC 130, CEN/TC 182, CEN/TC 312 CLC/TC 82 and CLC/TC 88),
- Cooling generation systems (covered by CEN/TC 156),
- Calculation of cooling load (covered by CEN/TC 156).

### Structure

Working groups	
WG 1	General performance requirements of heating systems and sub-systems in buildings
WG 4	Calculation methods and system performance and evaluation

### 2.3.5. Renewable energies

#### → ISO/TC 180 “Solar energy”

##### Key numbers

- 21 published standards including 10 under the direct responsibility of the technical committee
- 4 current projects of which 1 is under the direct responsibility of the comitee



##### Scope

Standardization in the field of solar energy utilization in space and water heating, cooling, industrial process heating, and air conditioning. This includes developing standards on the instrumentation and procedures used for measuring solar energy and solar measurement.

##### Structure

Technical subcommittees		Standards	Projects
SC 1	Climate - Measurement and data	<u>6</u>	<u>2</u>
SC 4	Systems - Thermal performance, reliability and durability	<u>5</u>	<u>1</u>
Working groups			
AHG 1	Measurement of CO2		
WG 3	Collector components and materials		
WG 4	Solar collectors		

#### → CEN/TC 312 “Thermal solar systems and components”

##### Key numbers

- 14 published standards
- 2 current projects



##### Scope

Preparation of European Standards to cover terminology, general requirements, characteristics, test methods, conformity evaluation and labelling of thermal solar systems and components.

##### Structure

Working groups	
WG 1	Solar collectors
WG 3	Solar thermal systems

## → IEC/TC 82 “Solar photovoltaic energy systems”

### Key numbers

- **200** published standards
- **64** current projects



### Scope

To prepare international standards for systems of photovoltaic conversion of solar energy into electrical energy and for all the elements in the entire photovoltaic energy system. In this context, the concept “photovoltaic energy system” includes the entire field from light input to a photovoltaic cell to and including the interface with the electrical system(s) to which energy is supplied.

**Note:** It is recognized that there is some common interest between [IEC/TC 47](#) and [IEC/TC 82](#), therefore these two committees shall maintain liaison.

### Structure

Working groups	
WG 1	Glossary
WG 2	Modules, non-concentrating
WG 3	Systems
WG 6	Balance-of-system components
WG 7	Concentrator modules
WG 8	Photovoltaic (PV) cells
WG 9	BOS Components – Support Structures
Project teams	
PT 600	Vehicle Integrated Photovoltaic Systems
Joint working groups	
JWG 1	Renewable energy off grid systems, including access to electricity, rural electrification and hybrid systems linked to <a href="#">IEC/TC 88</a>
JWG 11	Building-Integrated Photovoltaics (BIPV) linked to <a href="#">ISO/TC 160</a>
Advisory groups	
AG 12	Chair’s Advisory Group (CAG)

## → [CLC/TC 82](#) “Solar photovoltaic energy systems”

### Key numbers

- [111](#) published standards
- [41](#) current projects



### Scope

To prepare European Standards for systems and components for the photovoltaic conversion of solar energy into electrical energy and all elements in the entire photovoltaic energy system. The standards will deal with EMC, Machine, CPD, and LVD directives. The [CLC/TC 82](#) will especially develop standards in areas where there are special European concerns. The CLC/TC 82 will cooperate closely with [IEC/TC 82](#) and the national committees. The aim will be to support the accelerated market introduction by harmonization of standards.

### Structure

Groupes de travail	
WG 1	Wafers, cells and modules
WG 2	Bos components and systems

## → [IEC/TC 117](#) “Solar thermal electric plants”

### Key numbers

- [9](#) published standards
- [9](#) current projects



### Scope

To prepare international standards for systems of Solar Thermal Electric (STE) plants for the conversion of solar thermal energy into electrical energy and for all the elements (including all sub-systems and components) in the entire STE energy system.

The standards would cover all of the current different types of systems in the STE field, as follows:

- Parabolic trough,
- Solar tower,
- Linear Fresnel,
- Dish,
- Thermal storage.

The standards would define terminology, design and installation requirements, performance measurement techniques and test methods, safety requirements, and “power quality” issues for each of the above systems.

The standards would also address issues of connectivity and interoperability with the power grid related to connections, bi-directional communicates and centralized control (Smart Grid) and environmental aspects.



## Structure

Project teams	
PT 62862-1-4	Solar thermal electric plants - Part 1-4: Thermal insulation for solar thermal electric plants
PT 62862-1-5	Performance code test for solar thermal electric plants
PT 62862-1-6	Solar thermal electric plants - Part 1-6: Silicone-based heat transfer fluids for the use in line focusing CSP applications
PT 62862-2-2	Solar thermal electric plants - Part 2-2: Thermal energy storage systems - Technical requirements for molten salt used as heat storage and heat transfer medium
PT 62862-3-1	Solar thermal electric plants - Part 3-1: General requirements for the design of parabolic trough solar thermal electric plants
PT 62862-3-4	Solar thermal electric plants - Part 3-4: Code of solar field performance test for parabolic trough solar thermal power plant
PT 62862-3-5	Laboratory reflectance measurement of concentrating solar thermal reflectors
PT 62862-3-6	Accelerated aging tests of silvered-glass reflectors for concentrating solar technologies
PT 62862-4-1	Solar thermal electric plants - Part 4-1: General requirements for the design of solar tower plants
PT 62862-4-2	Heliostat field control system
PT 62862-4-3	Solar thermal electric plants - Part 4-3: Technical requirements and design qualification of heliostats for solar power tower plants
PT 62862-5-2	Solar thermal electric plants - Part 5-2: Linear Fresnel systems - General requirements and test methods for linear Fresnel collectors
Maintenance teams	
MT 1	Terminology
Editing groups	
EG 4	Editing Committee

## → CLC/SR 117 “Solar thermal electric plants”

### Key numbers

1 published standard

1 current project



**Note:** This technical committee is responsible for the adoption of IEC/TC 117 standards at the European level.

## 2.3.6. Living environment

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### → ISO/TC 205 “Building environment design”

#### Key numbers

- **47** published standards
- **13** current projects



#### Scope

Standardization in the design of new buildings and retrofit of existing buildings for acceptable indoor environment and practicable energy conservation and efficiency. Building environment design addresses the technical building systems and related architectural aspects and includes the related design processes, design methods, design outcomes, and design-phase building commissioning. Indoor environment includes air quality and thermal, acoustic, and visual factors.

Covering and including:

- Aspects of sustainability related to indoor environmental quality and energy that can be addressed in the design of buildings and the design of retrofits of existing buildings,
- General principles of building environment design,
- Design of energy-efficient buildings,
- Building automation and control systems in building and retrofit design,
- Indoor air quality in building and retrofit design,
- Indoor thermal environment in the building and retrofit design,
- Indoor acoustical environment in building and retrofit design,
- Indoor visual environment in building and retrofit design,
- Design of heating and cooling systems including radiant,
- Application of methods of testing and rating the performance of building environmental equipment in the design of new buildings and retrofits.

Excluded:

- Other ergonomic factors,
- Methods of measurement of air pollutants and thermal, acoustic, and lighting properties,
- Thermal performance and energy use in the built environment (ISO TC 163),
- Methods of testing for performance and rating of building environmental equipment in existing buildings,
- Inspecting or rating existing buildings,
- Construction.

Covering also:

Standardization of the holistic assessment of the energy performance of new and existing buildings as well as building retrofits, in close collaboration with ISO/TC 163 by means of the ISO/TC163/WG4 Joint working group TC 163 & TC 205 Energy performance using a holistic approach, including:

- Terms and definitions,
- System boundaries for buildings and technical systems,

- Assessment of the overall energy performance of buildings, taking into account:
  - The energy performance of building elements,
  - Building-related systems (heating, cooling, domestic hot water, ventilation, lighting, system controls, transport, and other energy-related systems),
  - Indoor and outdoor conditions,
  - Local energy production (on-site and at district level),
  - (Use of) energy sources (including renewable),
  - Building commissioning.
- Assessment of overall energy efficiency,
- Means of expressing the energy performance and energy performance certification of buildings.

## Structure

Working groups	
AG 1	Joint advisory group TC 163 - TC 205 – Coordination of ISO 52000 family
CAG	Chair’s advisory group
JWG 11	Joint ISO/TC 205 - ISO/TC 163 WG: Moisture damage
JWG 12	Joint ISO/TC 205 - ISO/TC 274 WG: Indoor Visual Environment
WG 1	General principles
WG 2	Design of energy-efficient buildings
WG 3	Building Automation and Control System (BACS) Design
WG 7	Integration of nature and biodiversity in building design
WG 8	Radiant heating and cooling systems
WG 9	Heating and cooling systems
WG 10	Commissioning

## ➔ ISO/TC 59/SC 16 “Accessibility and usability of the built environment”

### Key numbers

- 1 published standard
- 1 current project



### Scope

Standardization of accessibility in the built environment to ensure usability for the widest range of people.

## Structure

Working groups	
AHG 1	Accessible environments for children with disabilities
WG 4	Accessibility of immovable cultural heritage

➔ **CEN/CLC/JTC 11 “Accessibility in the built environment”**

**Key numbers**

- 3 published standards
- 1 current project



**Scope**

Development of the standardization deliverables as requested by Mandate/420 Phase II:

- A European Standard (EN) on functional European accessibility requirements,
- A Technical Report (TR1) on technical performance criteria,
- A Technical Report (TR2) on conformity assessment.

➔ **ISO/TC 274 “Light and lighting”**

**Key numbers**

- 12 published standards
- 2 current projects



**Scope**

Standardization in the field of application of lighting in specific cases complementary to the work items of the International Commission on Illumination (CIE) and the coordination of drafts from the CIE, in accordance with the Council Resolution 42/1999 and Council Resolution 10/1989 concerning vision, photometry and colorimetry, involving natural and man-made radiation over the UV, the visible and the IR regions of the spectrum, and application subjects covering all usage of light, indoors and outdoors, energy performance, including environmental, non-visual biological and health effects and lighting related information modelling systems.

**Structure**

Working groups	
CAG	Chair advisory group
JAG	Joint Advisory Group (ISO/TC274 – CIE)
JWG 1	Energy performance of lighting in buildings (joint working group with CIE-JTC 6)
JWG 5	Lighting for work places (joint working group with CIE-JTC 15)
WG1	Revision of EN 17210
WG 2	Commissioning process of lighting systems

## → CEN/TC 169 “Light and lighting”

### Key numbers

- **30** published standards
- **12** current projects



### Scope

CEN/TC 169 is responsible for standards in the field of vision, photometry and colorimetry, involving natural and man-made optical radiation over the UV, the visible and the IR regions of the spectrum, and application subjects covering all usages of light, indoors and outdoors, including environmental, energy and sustainability requirements and aesthetics and nonimage forming biological aspects as well as lighting related information modelling systems.

### Structure

Working groups	
WG 1	Basic terms and criteria
WG 2	Lighting of work places
WG 3	Emergency lighting in buildings
WG 4	Sports lighting
WG 6	Tunnel lighting
WG 7	Photometry
WG 8	Photobiology
WG 9	Energy performance of buildings
WG 11	Daylight
WG 12	Joint Working Group with CEN/TC 226 - Road lighting
WG 13	Non-visual effects of light on human beings
WG 15	Assessment and control of obtrusive light in outdoor spaces

## 2.4. Opportunities in Luxembourg

### 2.4.1. Purchase and consult standards

All national (ILNAS), European (CEN, CENELEC and ETSI) and international (ISO and IEC) standards can be consulted free of charge at ILNAS reading stations. These stations are located on several sites:

- University of Luxembourg (Kirchberg Campus),
- Luxembourg House of Cybersecurity (by appointment),
- Chamber of Skilled Trades and Crafts,
- Lifelong Learning Center,
- ILNAS (by appointment),
- LIST (Belvaux),
- Echternach municipal administration,
- Atert-Lycée Redange,
- Lycée des Arts et Métiers (Limpertsberg).



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ILNAS e-shop

In our "ILNAS e-shop", more than 200,000 standardization documents are available to all interested stakeholders at attractive prices, in electronic format and in 3 languages (French, German and English).

Available for purchase via ILNAS e-shop:

- Over 86,000 European standards (CEN, CENELEC and ETSI),
- Over 76,000 international standards (ISO and IEC),
- Over 50,000 German standards (DIN).



## 2.4.2. Participate in standardization

### ➔ Become a national standards delegate

Any socio-economic stakeholder in Luxembourg with expertise in the field covered can participate in technical standardization. To facilitate access for as many people as possible, participation in the standards development process is free of charge in Luxembourg.

Registration is made using form [ILNAS/OLN/F001a](#) (initial registration) or form [ILNAS/OLN/F001b](#) (supplementary registration). Upon receipt of the completed and signed registration form, it will be submitted to the executive committee of "Standardization" for approval.

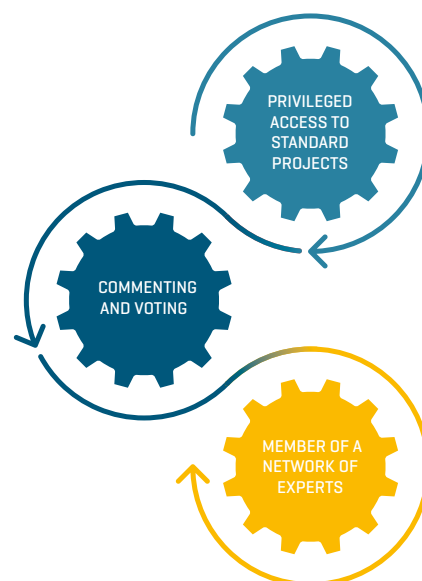
This will allow you to play an active contribution, as a national expert, to the development of national, European, and international standards.

Today, [Luxembourg's national register of standardization delegates](#) includes:

- **291** registered experts,
- **1010** technical committee registrations.

### ➔ The benefits of active participation on a technical committee

- Follow the development of draft standards in real-time,
- Analyze draft standards under development,
- Anticipate future rules and best practices.
- Defend your organization's interests,
- Diffuse and foster its innovations,
- Promote its know-how as a best practice that can serve as a benchmark in its sector.
- Get informed about competitors and their positions,
- Collaborate to defend a common interest,
- Promote your organization and its skills at national, European, and international levels.



### ➔ Participate in a public inquiry on a draft standard

Browsing the ILNAS e-shop (<https://ilnas.services-publics.lu>), it is possible to submit an opinion on a draft standard which is at the public inquiry stage. The access is open to all.



**MAKE STANDARDS YOURS!**

Setting the standards means setting the market.

## Conclusion

Construction is one of the sectors with high potential for growth identified in the “[National Standardization Strategy 2020-2030](#)”. ILNAS actively supports national stakeholders willing to be involved in technical standardization for this specific sector, in line with “[Luxembourg’s policy for the technical standardization of the construction sector 2020-2025](#)”. The main objective of this policy is to foster and strengthen the involvement of national players in standardization work, as well as the use of standards through three flagship projects:

- Promote the technical standardization of the construction sector,
- Strengthen the promotion of technical standardization in the construction sector and the involvement of the market in this process,
- Support and strengthen standardization education and related research activities.

[The standards analysis of the construction sector](#), produced annually by ILNAS, forms the basis for the implementation of this policy. Moreover, the Institute provides interested national stakeholders with various products and services to support the development of technical standardization in the construction sector at the national level.

This sector is one of the most active in terms of national standards development, with several national standardization documents already published (and others currently in the pipeline). ILNAS welcomes any new proposals for the development of national standards that meet a concrete need expressed by the sector’s national stakeholders.

The subject of sustainable construction includes all trades in the sector, without exception. In this context, the professionals involved are faced with several unavoidable challenges to help society move towards sustainable development that respects the planet and its inhabitants while maintaining a high-performance economic environment.

The issue is considerable, and technical standardization is a tool aimed at harmonizing the various solutions proposed at international, European, and national levels. ILNAS, with the support of ANEC GIE, can help you in your technical standardization work, intending to draft the future good practices of sustainable construction.







Please fill out the satisfaction survey.

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