

UNE

Normalización
Española

CEEC General Assembly

Madrid, 2025-05-09



Conseil Européen des Economistes
de la Construction

The European Council
of Construction Economists

Standards applicable to the global warming potential of buildings according to the new EPBD

Aitor Aragón Basabe

Responsible for sustainability in construction and BIM

- **Spanish National Standardization Body** since 1986 (formerly known as AENOR)
- Represents Spain in the international standardisation organizations



- Nonprofit private association, with around 500 national members: industrial associations, research bodies, public administrations, etc.



- MSc Civil Engineer
- **UNE**: responsible for **BIM** and **sustainability in construction**
- Secretariat of the CEN-WGs:
 - digitalization of information of construction products
 - digital twins applied to the built environment
 - operational energy efficiency of buildings
 - sustainability assessment of civil engineering works
- Participation in research projects (H2020 or *Horizon Europe*) and in the feasibility study of the DPP system for construction products
- And before:
 - AENOR: product certification (mainly EPDs)
 - Vianova Systems: software development



The **European Committee for Standardization (CEN)** is:

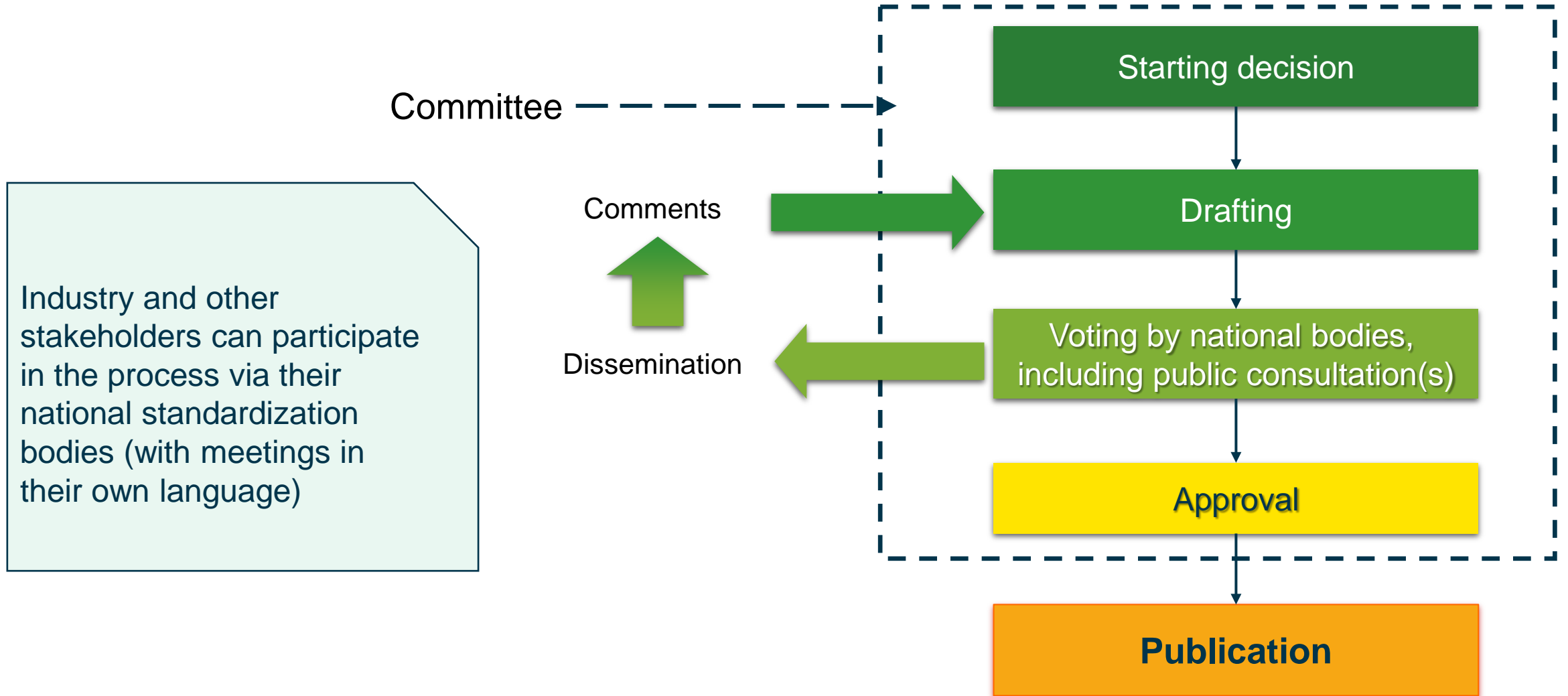
- an association that brings together the National Standardization Bodies of **34 European countries**
- one of three European Standardization Organizations (together with **CENELEC** and **ETSI**) that have been **officially recognized** by the European Union and by EFTA as being **responsible for developing and defining voluntary standards at European level**



A document, **established by consensus** and **approved by a recognized body**, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context

[EN 45020 Standardization and related activities. General vocabulary]







UNE-EN ISO/IEC 17025:2017 Requisitos generales para la competencia de los laboratorios de ensayo y calibración



NF EN ISO/IEC 17025:2017 Exigences générales concernant la compétence des laboratoires d'étalonnages et d'essais



BS EN ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories



NP EN ISO/IEC 17025:2018 Requisitos gerais de competência para laboratórios de ensaio e calibração

**EPBD *recast* and
GWP**

- The building sector must improve its efficiency in order to reduce its contribution to greenhouse gas (GHG) emissions. The sector accounts for 37% of global CO₂ eq emitted.
- The EU has a final energy consumption reduction target of 11.7% by 2030 (based on the 2020 reference scenario).
- Energy efficiency is a priority, not only to reduce emissions. In 2022, more than 41 million Europeans (9.1% of the population) could not keep their homes adequately warm, according to the European Parliament [[REF](#)]

- 85% of EU buildings were built before 2000 and amongst those, 75% have a poor energy performance [[REF](#)]
- Energy efficiency is a priority, not only to reduce emissions. In 2022, more than 41 million Europeans (9.1% of the population) could not keep their homes adequately warm, according to the European Parliament [[REF](#)]

To improve the energy performance in the EU, two Directives have been published:

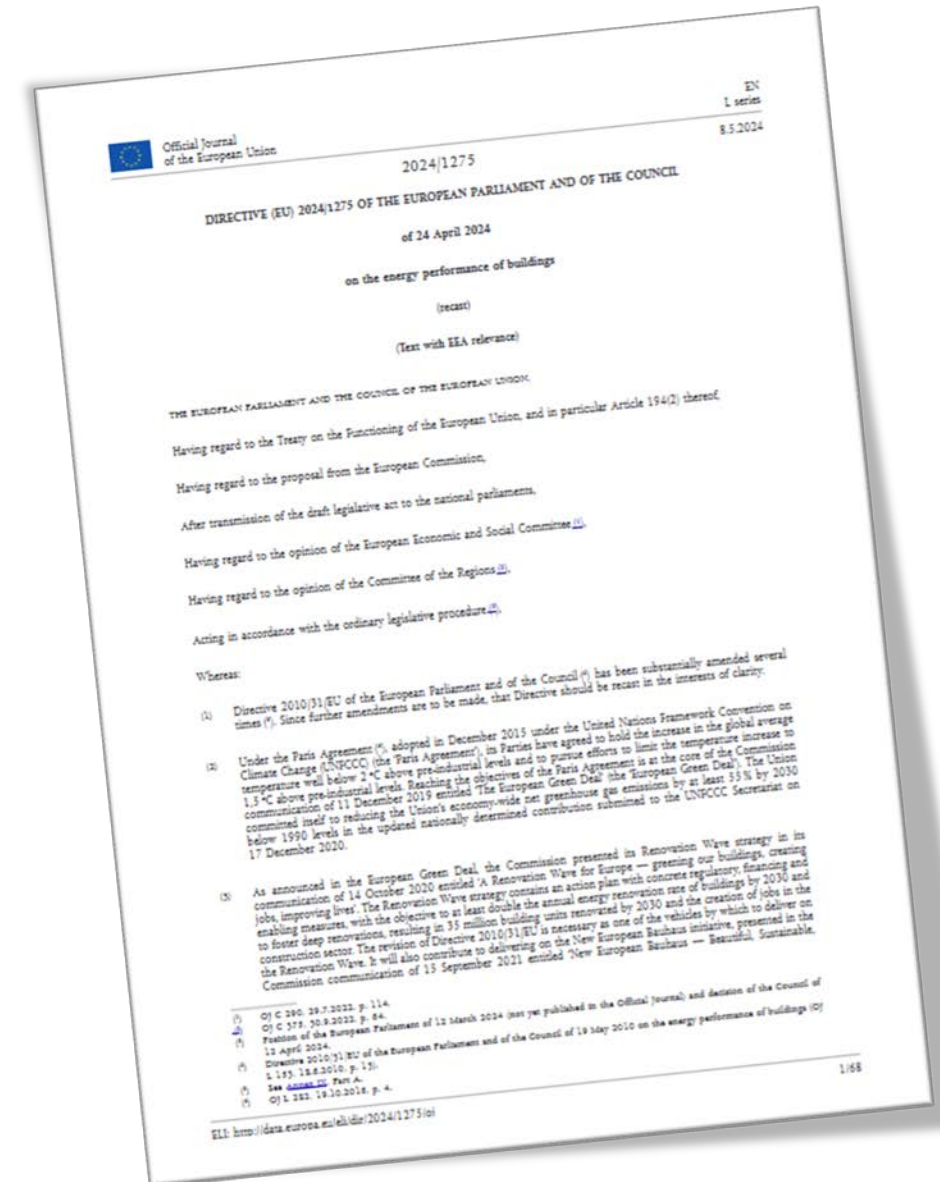
- The revised [Energy Performance of Buildings Directive \(EU/2024/1275\)](#)
- The revised [Energy Efficiency Directive \(EU/2023/1791\)](#)

These Directives will:

- achieve a highly energy efficient and decarbonized building stock by 2050
- create a stable environment for **investment decisions**
- enable consumers and businesses to make **more informed choices to save energy and money**

Published in the OJEU in May 2024, the new EPBD has, among its overarching goals:

1. to achieve a highly energy-efficient and decarbonized building stock in the EU by 2050; and
2. to reduce energy poverty and improve indoor environmental quality.



- All **new** buildings must be **zero-emission (ZEB)** by 2030 and, some of them, event earlier: by 2028
- For **residential buildings**, each Member State will adopt its own national trajectory to reduce their average primary energy use by 16% by 2030 and 20-22% by 2035. National measures must ensure that a minimum of 55% of the decrease in average primary energy use is achieved through the renovation of the worst-performing buildings
- For **non-residential buildings**, minimum energy performance standards will be introduced over time. The objective is to renovate the 16% of buildings with the worst energy performance by 2030, and the 26% by 2033

- The global warming potential (GWP) calculates the building's overall contribution to emissions that lead to climate change during its whole life cycle
- By 1 January 2027, Member States are required to establish a *roadmap* that sets limit values on the total cumulative life-cycle GWP of all new buildings. They must also set targets for new buildings from 2030
- GWP data can be stored in the *digital building logbook*, a common repository for all relevant building data

- The calculation is based on the European standard [EN 15978 Sustainability of construction works - Assessment of environmental performance of buildings - Calculation method](#)

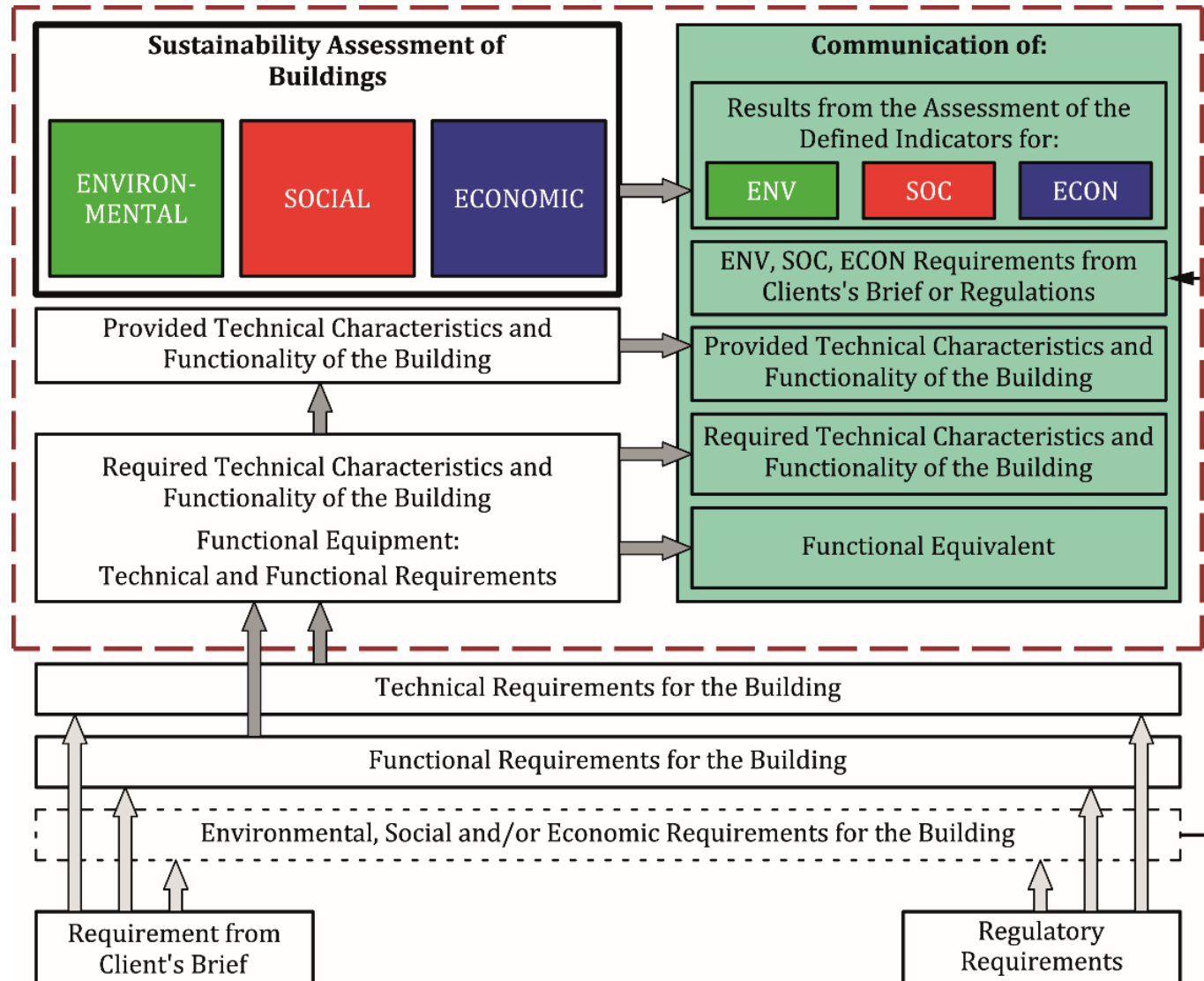
ANNEX III

Calculation of life-cycle GWP of new buildings pursuant to Article 7(2)

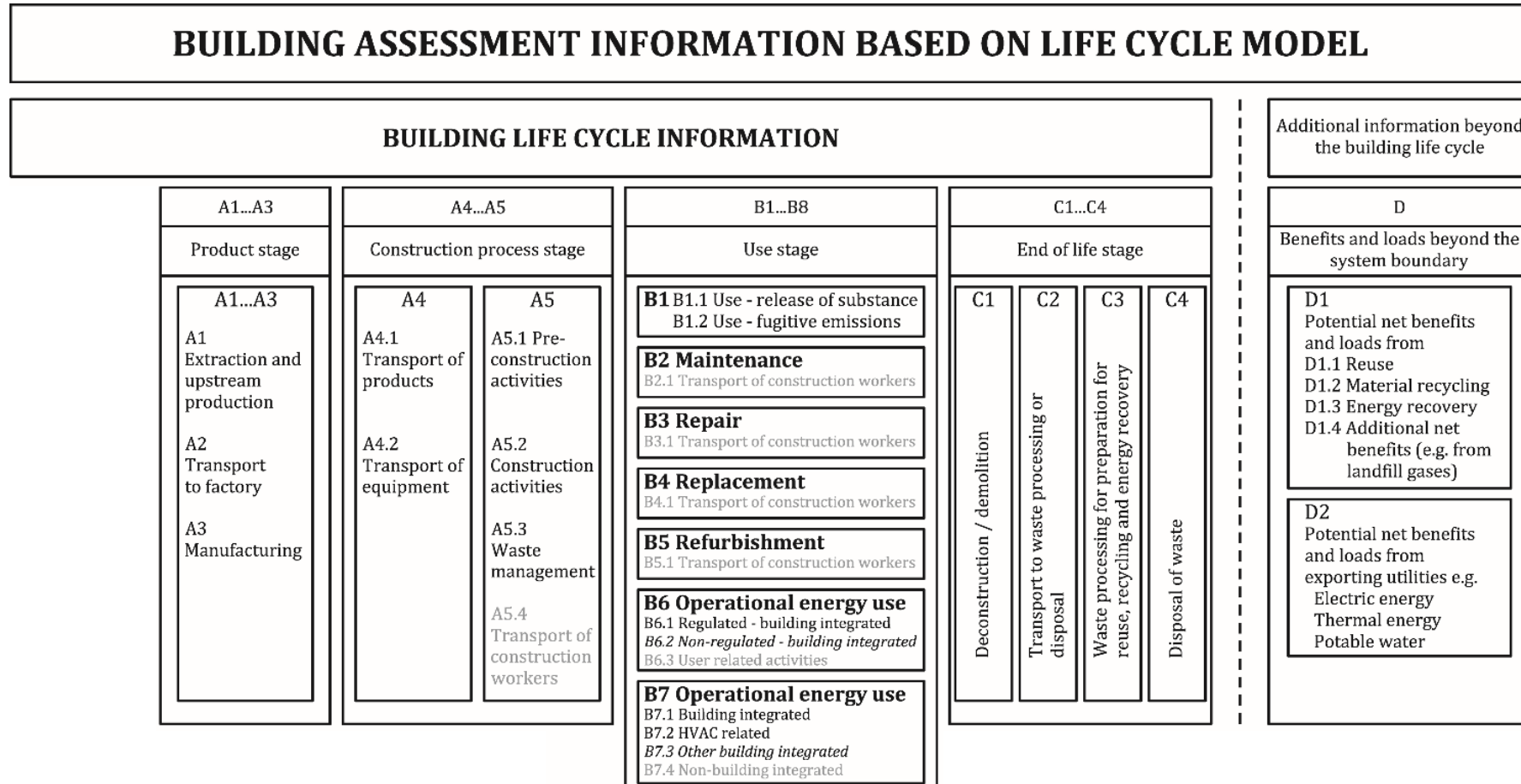
For the calculation of the life-cycle GWP of new buildings pursuant to Article 7(2), the total life-cycle GWP is communicated as a numeric indicator for each life-cycle stage expressed as kgCO₂eq/(m²) (of useful floor area) calculated over a reference study period of 50 years. **The data selection, scenario definition and calculations shall be carried out in accordance with EN 15978** (EN 15978:2011 Sustainability of construction works. Assessment of environmental performance of buildings. Calculation method) and taking into account any subsequent standard relating to the sustainability of construction works and the calculation method for the assessment of environmental performance of buildings. The scope of building elements and technical equipment is as defined in the Level(s) common EU framework for indicator 1.2. Where a national calculation tool or method exists, or is required for making disclosures or for obtaining building permits, that tool or method may be used to provide the required disclosure. Other calculation tools or methods may be used if they fulfil the minimum criteria established by the Level(s) common EU framework. Data regarding specific construction products calculated in accordance with Regulation (EU) No 305/2011 of the European Parliament and of the Council ⁽¹⁾ shall be used when available.

UNE

**EN 15978 and
CEN/TC 350
standards**



Framework level	<i>Sustainability Assessment of Construction Works</i>			<i>Technical characteristics</i>	<i>Functionality</i>
	EN 15643:2021 Sustainability of Construction Works – Framework for Assessment of Buildings and Civil Engineering Works			<i>Service Life Planning - Principles</i> ISO 15686-1	
Works level	EN 15978:2025 Assessment of Environmental Performance of Buildings	EN 16309:2014 Assessment of Social Performance of Buildings	EN 16627:2015 Assessment of Economic Performance of Buildings	<i>EN ISO 52000-1</i> <i>Energy Performance of Buildings</i>	
	EN 17680:2023 Evaluation of the Potential for Sustainable Refurbishment of Buildings				
	EN 17472:2022 Sustainability Assessment of Civil Engineering Works			<i>Service Life Prediction Procedures</i> ISO 15686-2,	
	EN 15941:2024 Data Quality for Construction Works and Products				
Product level	EN 15804+A2:2019 Environmental Product Declarations - Core Rules			<i>Feedback from Practice</i> ISO 15686-7, <i>Reference Service Life & Service Life Estimation</i> ISO 15686-8	
	EN 17672:2022 Rules for B-to-C Communication				
	EN 15942:2021 Rules for B-to-B Communication				
	EN ISO 22057:2022 Data Templates for EPDs in BIM				



But, what are EPDs?

- EPDs are a tool to communicate environmental life cycle-based indicators
- EN 15804 defines common rules for EPDs of construction products and services



ISO 14020 General principles

ISO 14024 Ecolabels (Type I)

ISO 14025 EPDs (Type III)

CONSEJO GENERAL DE COLEGIOS OFICIALES DE MEDICOS DE ESPAÑA
Derechos autorizados: 343 EUROS IVA INCLUIDO

Clase 1.ª Ordinaria Serie K Nº 8653596

CERTIFICADO MEDICO OFICIAL

Colegio de Madrid

D. _____ en Medicina y Cirugía, colegiado en el número _____ y con el ejercicio profesional en _____, con

CERTIFICO: Que _____ **O.M.C.** _____

“apto para buceo”

Y para que así conste donde convenga, y a instancia de _____ expido el presente Certificado en _____ de _____ de _____ de dos mil _____

NOTA: Ningún Certificado Médico será válido si no va extendido en este impreso, editado por el Consejo General de Colegios Oficiales de Médicos de España, debiendo, además, llevar estampado el sello del Colegio Médico Provincial en que este Certificado sea extendido.

PARAMETRO	RESULTADO	UNIDADES	VALORES REF.
HEMATOLOGIA			
HEMATIES	5,38	10E12/L	(4,20 - 5,90)
HEMOGLOBINA	16,3	g/dL	(13,5 - 17,0)
HEMATOCRITO	50,5	%	(40,0 - 45,0)
VOLUMEN CORPUSCULAR MEDIO	93,9	fL	(83,0 - 97,0)
HEMOGLOBINA CORPUSCULAR MEDIA	30,4	pggrm	(27,0 - 32,0)
CONC. HEMOGLOBINA CORP. MEDIA	32,3	g/dL	(30,0 - 35,0)
ANCHURA DISTRIBUCIÓN HMATIES	11,0	%	(10,0 - 14,0)
PLAQUETAS	215	10E9/L	(150 - 400)
LEUCOCITOS			
		10 ³ /µL	%
NEUTROFILOS	2,69	(1,50 - 7,70)	52,2 (30,0 - 70,0)
LINFOCITOS	1,73	(1,00 - 5,00)	33,6 (20,0 - 50,0)
MONOCITOS	0,59	(0,20 - 0,80)	11,6 (2,2 - 12,0)
EOSINOFILOS	0,10	(0,00 - 0,50)	1,9 (0,1 - 7,6)
BAFOFILOS	0,03	(0,00 - 0,20)	0,6 (0,1 - 2,0)
VELOCIDAD SEDIMENTACIÓN GL.		6 mm.	(0 - 10)
BIOQUIMICA SÉRICA			
GLUCOSA	201	mg/dL	(76 - 110)
UREA	41	mg/dL	(10 - 50)
CREATININA	0,89	mg/dL	(0,40 - 1,20)
ACIDO URICO	5,17	mg/dL	(3,40 - 7,00)
ASPARTATO AMINOTRANSFERASA	23	U/L	(5 - 37)
ALANINA AMINOTRANSFERASA	34	U/L	(5 - 40)
GAMMA GLUTAMILTRANSFERASA	16	U/L	(11 - 50)
BILIRUBINA TOTAL	0,79	mg/dL	(0,20 - 1,00)
COLESTEROL TOTAL	166	mg/dL	(150 - 200)
COLESTEROL HDL	55	mg/dL	(35 - 75)
COLESTEROL LDL	97	mg/dL	(80 - 130)
TRIGLICERIDOS	62	mg/dL	(50 - 200)
HIERRO	96,4	µg/dL	(40,0 - 150,0)

GlobalEPD
A VERIFIED ENVIRONMENTAL DECLARATION

Declaración Ambiental de Producto

ISO 14025:2010
EN 15804:2012+A1:2014

HISPALYT
CERAMICA PARA CONSTRUIR

AENOR

Tejas cerámicas según la Norma UNE-EN 1304

Fecha de emisión: 2017-06-12
Fecha de expiración: 2022-06-11
Código GlobalEPD: 006-001

Asociación Española de Fabricantes de Ladrillos y Tejas de Arcilla Cocida (HISPALYT)



- climate change effects: total, fossil fuels, biogenic, land use and land use change;
- ozone depletion;
- acidification potential;
- Eutrophication: aquatic freshwater, marine and terrestrial
- photochemical ozone;
- abiotic depletion: minerals & metals, fossil fuels;
- water use;
- particulate matter;
- ionising radiation, human health;
- eco-toxicity, freshwater;
- human toxicity, cancer;
- human toxicity, non-cancer;
- land use related impacts.

Source of data:
Digital DoPC of the
new CPR and ESPR

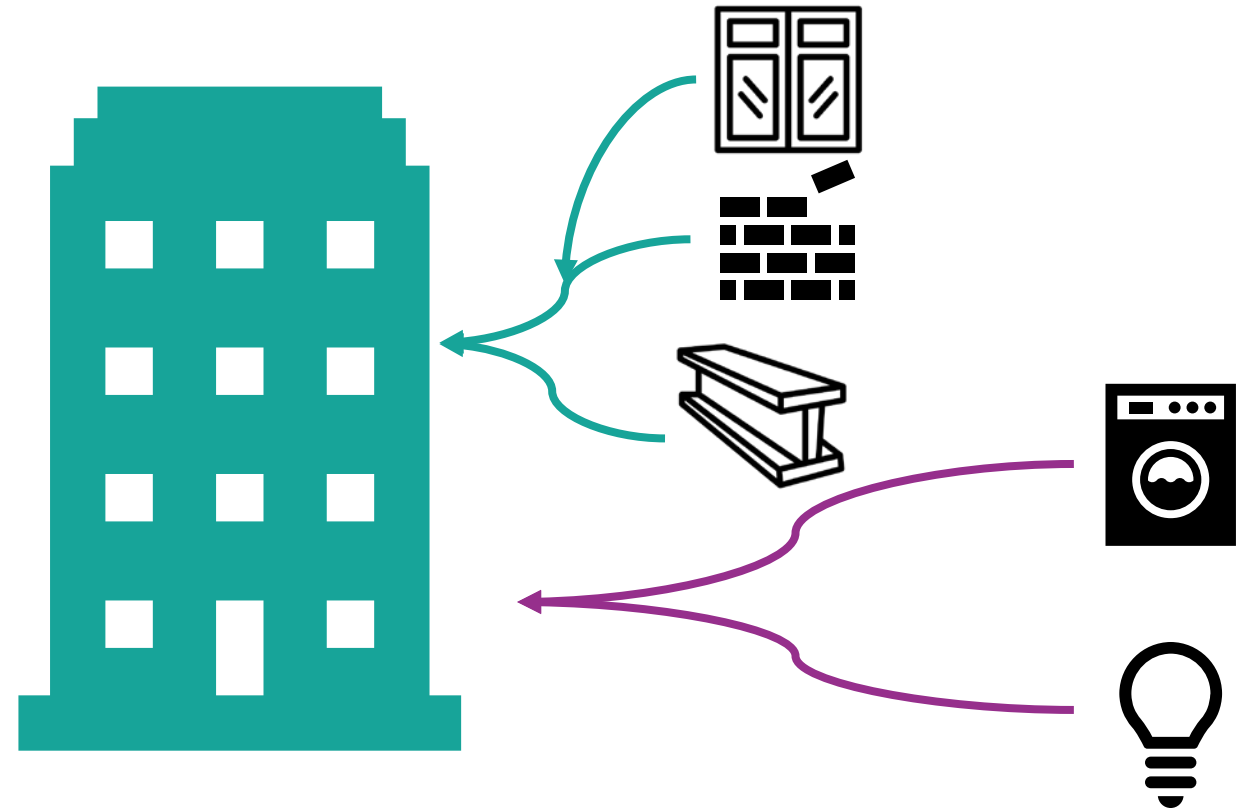
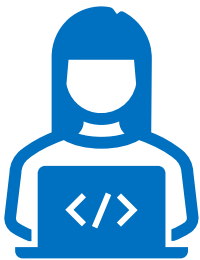
The new CPR defines *harmonised rules for the placing and making available on the market of construction products (...)* by establishing:

- a) *harmonised rules on how to express the **environmental** and safety performance of construction products in relation to their essential characteristics, **including on life cycle assessment**;*
- b) ***environmental**, functional and safety product requirements for construction products.*

Article 1.1 of the new CPR

- Manufacturers will include the EPD data with the performance they must declare to issue
- This environmental information will be calculated with CEN/TC 350 standards (revised according to the requirements defined by the Commission)
- This environmental information includes the GWP, to be used for the calculations according to the EPBD

It is not feasible to
Handle hundreds of
indicators of hundreds of
products in separate *pdf*





Supply of the declaration of performance and conformity

The manufacturer shall supply by electronic means a copy of the declaration of performance and conformity of each product which is made available on the market, unless the declaration is included in a product passport (...)

[Regulation EU 2024/3110, new CPR. Article 16.1]

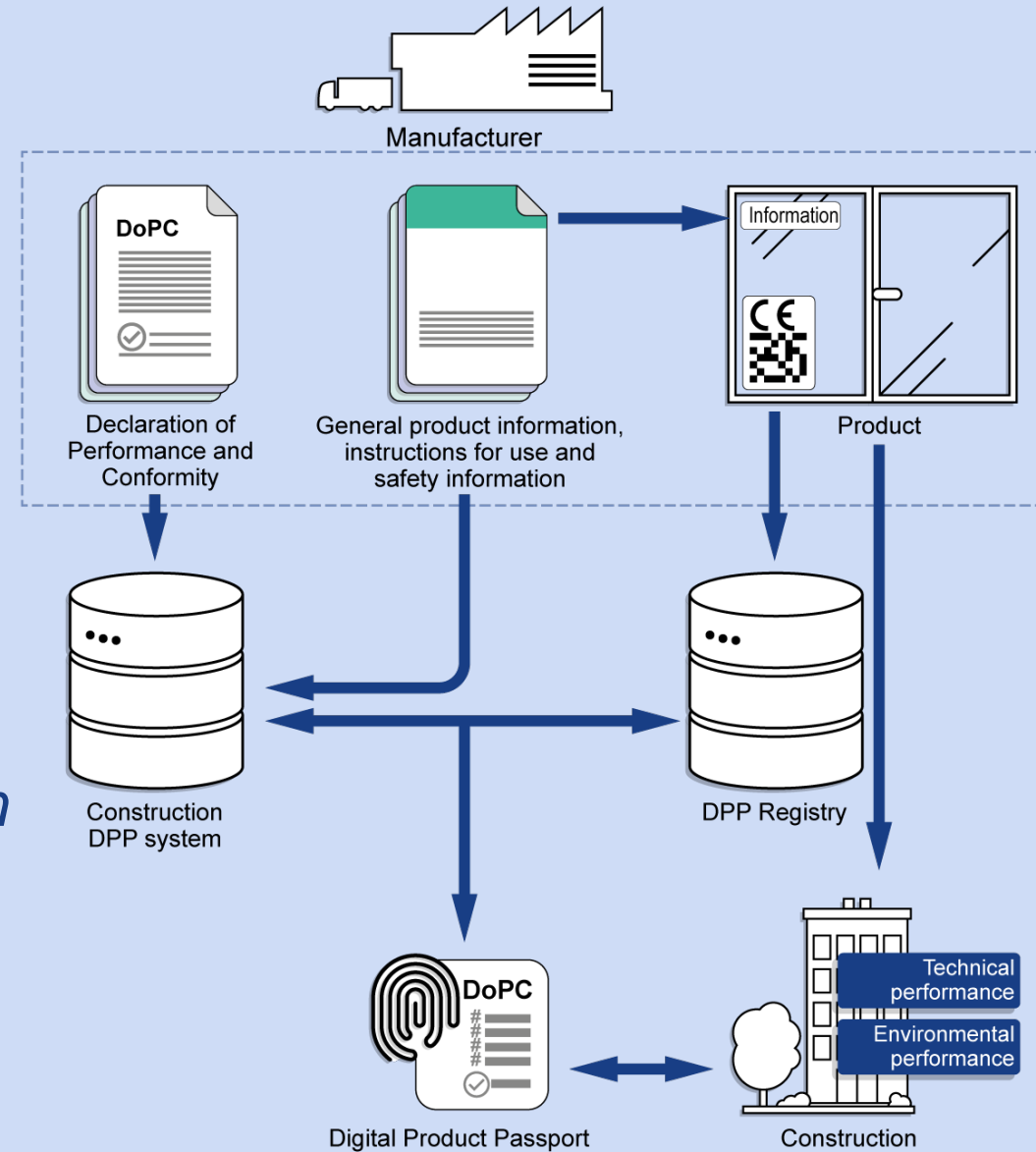


Construction digital product passport system (Article 75)

1. *The Commission shall adopt **delegated acts** (...) to supplement this Regulation by setting up a **construction digital product passport system** (new CPR. Article 75.1)*
2. *The **construction digital product passport system** shall:*
 - (a) *be **compatible** with, **interoperable** with and based upon the product passport established by **Regulation (EU) 2024/1781 [ESPR]**, without compromising **interoperability with BIM*** (new CPR. Article 75.2a)

The CPR-DPP shall be

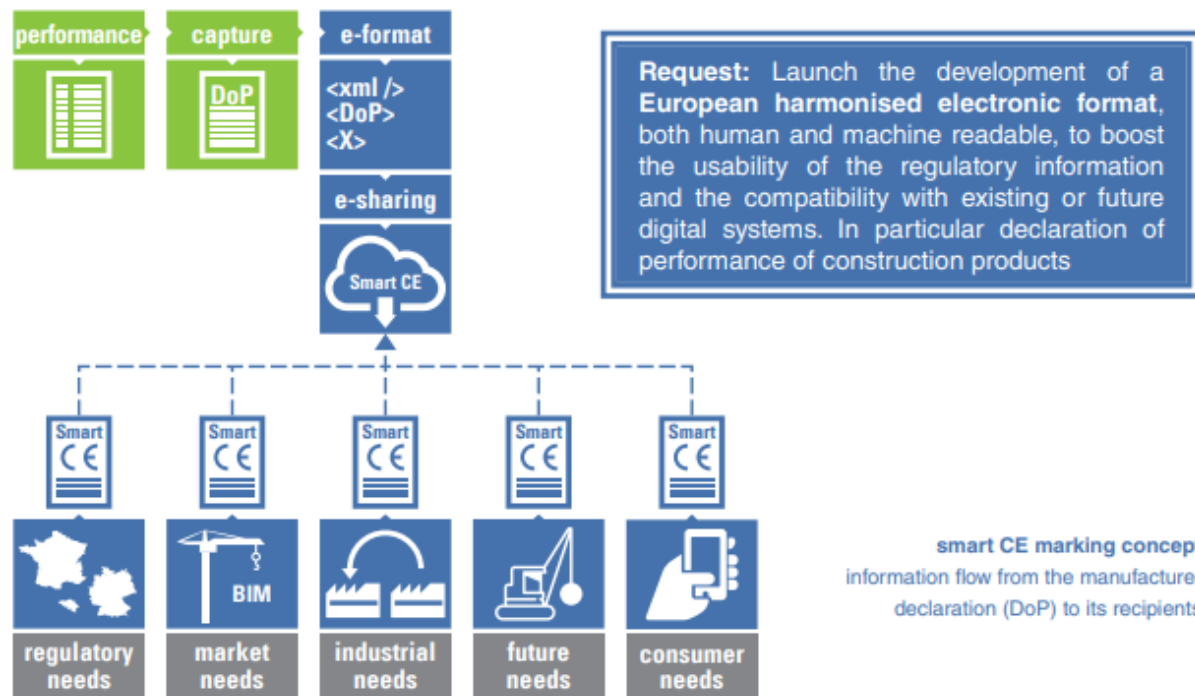
- Based on open **standards**
- Structured and machine-readable
- Searchable
- Interoperable and without *proprietary lock-in*



One of the greatest achievements of the Construction Products Regulation (CPR) is the European common language and formats for the exchange of information of construction products. The regulation guarantees transparency, availability and credibility of the information adding value to the products and services provided to users.

Construction Products Europe believes it is now the time to capitalise this success by making it accessible using digital means, maximising the benefits for a broader spectrum of users. Smart CE marking and electronic tools will enable the users to exploit the data manufacturers provide to the fullest potential and will allow them to develop new uses for this information in B2B and B2C communication in accordance with their needs.

Obeying to the principle of the CPR that information on essential characteristics shall not be expressed in other formats unless it is contained in the declaration of performance¹, the European Commission has the key role in ensuring that the achievements of the common language are translated into digital communication formats.



smart CE marking concept
information flow from the manufacturer
declaration (DoP) to its recipients

ICS 03.120.20; 35.240.67; 91.010.01

English version

Smart CE marking for construction products

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

The formal process followed by the Workshop in the development of this Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN-CENELEC Management Centre can be held accountable for the technical content of this CEN Workshop Agreement or possible conflicts with standards or legislation.

This CEN Workshop Agreement can in no way be held as being an official standard developed by CEN and its Members.

This CEN Workshop Agreement is publicly available as a reference document from the CEN Members National Standard Bodies.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

- The *Declaration of Performance* can only include the performance characteristics in the Mandate / Annex ZA
- However, other information can be declared “separated”

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<Files>
  <IFCfile>
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  <DXFfile>
    <Name></Name>
    <Link></Link>
  </DXFfile>
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Tabla 2 - Lista de características adicionales

<Name>	Propiedad nivel 1 <Name>	Propiedad nivel 2 <Name>	Documento de referencia <ReferenceDocument>	Declaración <Name>	Valor <Value>	Unidad <Unit>	Relación <Relation>	Valores válidos	Comentarios
chromium VI content	chromium VI content	chromium VI content according to EN 196-10:2016	EN_196-10:2016	nominal	input ¹	unitless	pass/fail	pass fail	
		AoC chromium VI content		nominal		unitless		referencia al certificado emitido	

En el caso de productos cubiertos por una Declaración ambiental de producto, la información básica de la misma puede incluirse conforme al **capítulo C.3 de la Norma UNE 41316:2020**. Una vez se publique la **Norma ISO 22057**, que define un formato para BIM de las DAP, se podrá proponer la inclusión de la información sobre prestaciones ambientales conforme a las plantillas de datos definidas en dicha norma internacional.

<Declarations>

>

<!--Additional perf<DeclarationOfPerformance>

<!--DoP Information (Smart CE)-->

</DeclarationOfPerformance>

<AdditionalInformationormance characteristics->

<EPD>

<!--Basic EPD data, with a link to the data structured according to ISO 22057->

</EPD>

<Files>

<!--Link to drawing, technical instructions, etc.-->

</Files>

</AdditionalInformation>

</Declarations>







Smart CE product standards


UNE 80000:2021


 Declaración de prestaciones digital para cementos conforme a la Norma EN 197-1.


 Digital Declaration of Performance for cement according to EN 197-1

 Déclaration des performances numériques pour ciment d'accord EN 197-1

UNE 36916-1:2023

 Declaración de prestaciones digital para productos de acero utilizados en estructuras. Parte 1: Aceros laminados en caliente conforme a la Norma UNE-EN 10025-1:2006.


 Digital declaration of performances for hot rolled structural steel products. Part 1: Hot rolled products according to UNE-EN 10025-1:2006.


 Déclaration numérique de performance pour les produits de construction en acier laminés à chaud. Partie 1: Produits laminés à chaud selon la norme UNE-EN 10025-1:2006.

A standard for precast concrete is under development


UNE 22988:2022


 Declaración de prestaciones digital para productos de piedra natural conforme a la norma EN 12058:2004.


 Digital declaration of performance for natural stone products according to the Standard EN 12058:2004

 Déclaration numérique des performances des produits en pierre naturelle selon la norme EN 12058:2004

UNE 146316-1:2023

 Declaración de prestaciones digital para áridos. Parte 1: Áridos para hormigón, morteros, superficies sometidas al tráfico y capas estructurales conforme a las Normas EN 12620, EN 13139, EN 13043 y EN 13242.

 Digital Declaration of Performance for aggregates. Part 1: Aggregates for concrete, mortars, traffic surfaces and structural layers according to EN 12620, EN 13139, EN 13043 and EN 13242.

 Déclaration des performances numériques pour agrégats. Partie 1: Granulats pour béton, mortiers, surfaces exposées au trafic et couches structurelles d'accord EN 12620, EN 13139, EN 13043 et EN 13242.

Decision 244 taken on 2024-08-08

Subject: CEN/TC 442- Creation of WG 12 Digitalization of construction products performance characteristics

The CEN/TC 442 *Building Information Modelling (BIM)*,

- considering the CEN/CENELEC Internal Regulations - Part 2, clause 3.4.2 and BT Decision C24/2012, which lay down the rules for the appointment and responsibilities of a Working Group Convenor;
- agrees on the creation of **Working Group 12 Digitalization of construction products performance characteristics**;
- agrees on the following scope of WG 12:
 - Develop and propose to TC442 common European standards for digitalization of construction products performance characteristics.
- agrees that the Secretariat of the WG is to be held by Spain (UNE);
- agrees to appoint Espen Schulze as Convenor.

The Working Group will be open to all members and liaisons.

The decision was taken by:

- Creation of WG 12: 13 positive votes/ 1 negative votes/ 9 abstain
- Appointing Convenor Espen Schulze: 13 positive votes/ 0 negative votes/ 10 abstain



CEN/TC 442/WG 9 *kick-off* meeting

The KoM took place on 28 October at the CCMC headquarters in Brussels



- We're currently working on a European standard to define the data structure for the digitalization of performance information of construction products
- We intend to have a *solid* draft for june and the standard finalized before the end of 2026.
- Environmental information will follow the same data structure... but it is more complicated...

ISO 22057



Sustainability in buildings and civil engineering works – Data templates for the use of environmental product declarations (EPDs) for construction products in building information modelling (BIM)

- EN ISO 22057 defines the data templates to transfer environmental LCA-based information from EPDs (according to EN 15804) to BIM
- Some improvements have been identified, including [aspects related with machine-interpretability](#)



1

The EPBD requires the calculation of the GWP of buildings according to EN 15978

2

This calculation will be based on other European standards, e.g. EN 15804 for EPDs

3

Environmental data must be presented in digital formats in accordance with other standards

THANKS
for your
attention



Conseil Européen des Economistes
de la Construction
The European Council
of Construction Economists

CEEC

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Normalización
Española

Aitor Aragón Basabe



aaragonb@une.org



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