

# CEN and/or CLC Workshop “Carbon bill of the refurbishment of buildings”

## Workshop description form

- PART A – Workshop Summary
- PART B – Project Plan

## PART A – Workshop SUMMARY

<b>1</b>	<b>WS details</b>	
1.1.	<b>Organization</b>	<input checked="" type="checkbox"/> CEN <input type="checkbox"/> CENELEC <input type="checkbox"/> Joint with <input type="checkbox"/> CEN lead <input type="checkbox"/> CENELEC lead
1.2.	<b>Title</b>	CEN/CLC/WS Guidelines to establish the carbon bill of the refurbishment of buildings  (select CEN or CLC or leave CEN/CLC in case of joint WS)
1.3.	<b>Scope</b>	Calculation of the carbon bill (CB) of the refurbishment of a building
1.4.	<b>Does this WS stem from an EU Research project?</b>	<input checked="" type="checkbox"/> YES Name of the project: CHRONICLE Grant number: 101069722 End date December 2025  <input type="checkbox"/> NO
1.5.	<b>Financial support</b>	<input checked="" type="checkbox"/> EU Research project <input type="checkbox"/> EC/EFTA Grant reference: Type here <input type="checkbox"/> Other Specify, if needed: Type here
1.6.	<b>WS Proposer/Proposed Chair</b>	Name: Miguel Gómez Organization: CIRCE Research Center Postal address: Av. Ranillas, 3D, 1°, 50018 Zaragoza(Spain) Email: migomez@fcirce.es Webpage: https://www.fcirce.es
1.7.	<b>WS Secretariat</b>	Organization: Spanish Association for Standardization Postal address: Génova street 6, 28004 Madrid (Spain) Email: info@une.org Webpage: www.une.org WS Secretary name: Aitor Aragón Email: aaragonb@une.org
1.8.	<b>CEN and CENELEC Management Centre (CCMC) contact</b>	Organization: CEN and CENELEC Postal address: Rue de la Science 23B - 1040 Brussels, Belgium Webpage: <a href="https://www.cencenelec.eu/Pages/default.aspx">https://www.cencenelec.eu/Pages/default.aspx</a> CCMC Project Manager name: Claire Van Thielen Email: cvanthielen@cencenelec.eu Phone: +3225500831 +32478793545
1.9.	<b>Tentative date and place of the Kick-off Meeting</b>	Date: 31 March 2025  Place: Online

1.10.	<b>Does the proposed Workshop fall within the scope of existing CEN and/or CENELEC Technical Bodies?<sup>1</sup></b>	<input checked="" type="checkbox"/>	YES Specify: CEN/TC 350	<input type="checkbox"/>	NO
1.11.	<b>Are there other Technical Bodies or Joint Advisory and Coordination Groups potentially interested in the Workshop? <sup>2</sup></b>	<input checked="" type="checkbox"/>	YES Specify: CEN/TC 371	<input type="checkbox"/>	NO
1.12.	<b>Are the following aspects affected?</b>	Safety matters YES <sup>3</sup> <input type="checkbox"/> NO <input checked="" type="checkbox"/> Management system aspects YES <sup>4</sup> <input type="checkbox"/> 7 <input checked="" type="checkbox"/> Conformity assessment aspects YES <sup>5</sup> <input type="checkbox"/> NO <input checked="" type="checkbox"/> Security matters YES <sup>6</sup> <input type="checkbox"/> NO <input checked="" type="checkbox"/> NO <input type="checkbox"/> 8		Add information/explanations if Management System aspects and Conformity Assessment aspects are affected: Type here	
<b>2 WS Deliverables</b>					
2.1.	<b>CWA #1</b>				
2.1.1	<b>Title</b>	<input checked="" type="checkbox"/>	Same as WS title (1.2)	<input type="checkbox"/>	Other: Type here
2.1.2	<b>Scope</b>	This document defines the carbon bill (CB) of the refurbishment of a building based on the global warming potential assessed according to EN 15978 and the price of carbon in Europe.			
2.1.3	<b>Does the proposed CWA conflict with a published EN</b>	<input type="checkbox"/>	YES Specify: Type here	<input checked="" type="checkbox"/>	NO <b>In case the answer is 'yes', the development of the CWA shall be stopped</b>

<sup>1</sup> Part A and Part B of this form shall be sent by the WS secretary to the secretary of the Technical Bodies identified in this section to inform them about the creation of the WS and register any possible objection within 30 days (45 during the holiday period).

<sup>2</sup> Part A and Part B of this form should be sent by the WS secretary to the Bodies identified in this section to inform them about the creation of the WS.

<sup>3</sup> Work on the proposed CEN and/or CENELEC Workshop shall not be initiated.

<sup>4</sup> The CEN and/or CENELEC Workshop proposal shall be submitted to the CEN/CENELEC BT(s) for decision.

<sup>5</sup> CEN-CENELEC Internal Regulations - Part 3, Clause 33 applies.

<sup>6</sup> For projects dealing with security matters the security risk analysis provided in Annex I shall be carried out.

<sup>7</sup> See Note 2 in CEN-CENELEC Guide 29, Clause 3.

<sup>8</sup> See Note 2 in CEN-CENELEC Guide 29, Clause 3.

## Abstract

This document defines the carbon bill (CB) of the refurbishment of a building based on the global warming potential assessed according to EN 15978 and the price of carbon in Europe. The CB of a refurbishment is calculated comparing the situation of the refurbished building and the situation without the refurbishment.

This document is based on CHRONICLE's deliverable 2.2, "dynamic Level(s) approach for building and LC performance assessment" [2] and deliverable 4.3 "tool suite for WLC assessment and climate neutral building renovation planning" [3]. It also considers other documents from the project, e.g. [4]. CHRONICLE (Grant Agreement 101069722) is an EU-funded research and innovation project which digitalizes building information and promotes the use of dynamic logbooks for future value-driven services. It aims to improve building performance to increase energy efficiency, comfort and well-being.

## 1 Status of the project plan

**Draft project plan** for public commenting (Version 1.0)

This draft project plan is intended to inform the public of a new Workshop. Any interested party can take part in this Workshop and/or comment on this draft project plan by sending an email to the WS secretary.

All those who have applied for participation or have commented on the project plan by the deadline will be invited to the kick-off meeting of the Workshop in March.

## 2 Workshop proposer and potential Workshop participants

### 2.1 Workshop proposer

The workshop is proposed by the EU-funded research project Chronicle (GA 101069722). More information: <https://www.chronicle-project.eu/>

Proposed Chair: Miguel Gómez. Technical Project Manager at CIRCE Research Center

Proposed Secretariat: Aitor Aragón. Project Officer at UNE (Spanish Association for Standardization).

The technical partners working in the development of Chronicle will participate in the Workshop. The full list of partners, including pilot sites, is included below:

- CIRCE (coordinator) [www.fcirce.es](http://www.fcirce.es)
- Hypertech Sustainability Research & Technology Center (HSRT) [www.hsrt.gr](http://www.hsrt.gr)
- Kaunas University Of Technology (KTU) [www.ktu.edu](http://www.ktu.edu)
- QUE Technologies [www.que-tech.com](http://www.que-tech.com)
- R2M Solution Spain SL. (R2M) [www.r2msolution.es](http://www.r2msolution.es)
- R2M Solution (R2I) [www.r2msolution.com](http://www.r2msolution.com)
- Neogrid Technologies [www.neogrid.dk](http://www.neogrid.dk)
- Integrated Environmental Solutions (IES) [www.iesve.com](http://www.iesve.com)

- Pragma <https://www1.pragma-iot.com>
- RINA [www.rina.org](http://www.rina.org)
- Hive Power [www.hivepower.tech](http://www.hivepower.tech)
- Smart Innovation Norway (SIN) [www.smartinnovationnorway.com](http://www.smartinnovationnorway.com)
- European Green Cities (EGC) [www.europeangreencities.com](http://www.europeangreencities.com)
- Spanish Association for Standardization (UNE) [www.une.org](http://www.une.org)
- Azienda Elettrica di Massagno (AEM)
- FællesBo [www.faellesbo.dk](http://www.faellesbo.dk)
- MYTILINEOS [www.mytilineos.gr](http://www.mytilineos.gr)
- Ó Cualann [www.ocualann.ie](http://www.ocualann.ie)
- Zaragoza Vivienda [www.zaragozavivienda.es](http://www.zaragozavivienda.es)

## 2.2 Potential participants

This CWA will be developed in a Workshop (temporary body) that is open to any interested party. The participation of the following persons/organizations would be helpful and is desired. It is recommended that:

- Building owners or managers
- Environmental or sustainability consultants
- Designers (architects, engineers, etc.)

take part in the development of this CWA.

## 3 Workshop objectives and scope

### 3.1 Workshop background

Buildings play a significant role in global greenhouse gas (GHG) emissions, accounting for approximately 40.3% of total energy consumption and 34.4% of CO<sub>2</sub> emissions in the European Union (EU) alone. Therefore, the built environment is a critical sector for achieving the carbon neutrality goals established by the EU for 2050.

The revised EPBD aims to ensure that the building sector contributes to the overarching goal of reducing net greenhouse gas emissions by at least 55% by 2030. One of the overarching objectives is the decarbonization of EU's building stock, reducing the energy demand and promoting the use of renewable energy sources.

The revised EPBD introduces measures to address embodied GHG emissions, associated with production, transportation, construction, and disposal of building materials. The GWP will be calculated according to the European standard EN 15978. It is essential to base informed material and design choices on a comprehensive evaluation of the building's full lifecycle impacts. In this regard, CEN/TC 350 have developed standards for life cycle assessment of construction assets, including buildings, based on data from products and the processes required for the installation and construction, operation (including maintenance), and the end-of-life stage.

This document is based on CHRONICLE's deliverable 2.2, "dynamic Level(s) approach for building and LC performance assessment" [2] and deliverable 4.3 "tool suite for WLC assessment and climate neutral building renovation planning" [3]. It also considers other documents from the project, e.g. [4]. CHRONICLE (Grant Agreement 101069722) is an EU-funded research and innovation project which digitalizes building information

and promotes the use of dynamic logbooks for future value-driven services. It aims to improve building performance to increase energy efficiency, comfort and well-being. The approach defined in the project has been tested in pilots located in five countries: Denmark, Greece, Ireland, Spain and Switzerland. Task 6.6 deals with standardization and has been collaborating in the standardization of operational energy performance assessments in CEN/TC 371/WG 5. In addition, it has been working in the definition of a digital twin to be used for building assessment purposes.

This document proposes the calculation of the carbon bill of buildings based on the GWP defined in EN 15978 and the price for emissions allowances in Europe. Based on calculation, the carbon bill of the refurbishment is defined as the difference between the carbon bill of the existing building and the carbon bill after the renovation, both with a lifecycle perspective. This document can be used to support the “polluter pays” principle from a “positive” perspective, encouraging renovations that reduce the carbon footprint over the life cycle of a building.

The methodology should not be considered a sustainability or environmental assessment, as it only covers GHG emissions. Other impact categories and indicators related to water quality or circularity must be included in any comprehensive assessment. Environmental assessments of buildings shall be based on EN 15978.

## 4 Workshop programme

### 4.1 General

The kick-off meeting is planned to take place on February as a virtual meeting. A first draft will be sent before the KoM to allow comments from participants. A draft for public commenting will be published for 30 days.

A total of 3 Workshop meetings and web conferences will be held, during which the content of the CWA(s) will be presented, discussed and approved. Unless otherwise decided in the KoM, all meetings will be virtual.

The working language (language of meetings, minutes, etc.) of the WS will be English. The CWA will be written in English.

### 4.2 Workshop schedule

A tentative timeline is described in the Figure below.

#### Legend

- K Kick-off
- M Workshop meeting
- V Virtual Workshop meeting
- A Adoption of CWA
- P Publication of CWA
- D Online distribution of CWA

**Table 1: Workshop schedule (preliminary)**

CEN/CENELEC Workshop	M01	M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	...
<b>Initiation</b>													
1. Workshop description form submission and TC response													
2. Open commenting period on draft project plan (mandatory)													
<b>Operation</b>													
3. Kick-off meeting													
4. CWA(s) development													
5. Open commenting period on draft CWA(s) (optional)													
6. CWA(s) finalized and approved by Workshop participants													
<b>Publication</b>													
7. CWA(s) publication													
<b>Dissemination (see 6)</b>													
<b>Milestones</b>			K	V	V	M	V				M/A		P D

## 5 Resource planning

There is **no** fee for registration of participation in the Workshop, as it will be financed within the framework of the research project Chronicle. However, all costs related to the participation of interested parties in the Workshop's activities (e.g. travels) have to be borne by themselves.

## 6 Workshop structure and rules of cooperation

### 6.1 Participation in the Workshop

The Workshop will be constituted during the kick-off meeting. By approving this project plan, the interested parties declare their willingness to participate in the Workshop and will be formally named as Workshop participants, with the associated rights and duties. Participants at the kick-off meeting who do not approve the project plan are not given the status of a Workshop participant and are thus excluded from further decisions made during the kick-off meeting and from any other decisions regarding the Workshop.

As a rule, the request to participate in the Workshop is closed once it is constituted. The current Workshop participants shall decide whether any additional members will be accepted or not.

Any new participant in the Workshop at a later date is decided on by the participants making up the Workshop at that time. It is particularly important to consider these aspects:

- a. expansion would be conducive to shortening the duration of the Workshop or to avoiding or averting an impending delay in the planned duration of the Workshop;
- b. the expansion would not result in the Workshop taking longer to complete;
- c. the new Workshop participant would not address any new or complementary issues beyond the scope defined and approved in the project plan;
- d. the new Workshop participant would bring complementary expertise into the Workshop in order to incorporate the latest scientific findings and state-of-the-art knowledge;
- e. the new Workshop participant would actively participate in the drafting of the manuscript by submitting concrete, not abstract, proposals and contributions;
- f. the new Workshop participant would ensure wider application of the CWA.

All Workshop participants who approved the publication of the CWA or its draft will be named as authors in the European Foreword, including the organizations which they represent. All Workshop participants who did not approve the publication of the CWA will not be named in the European Foreword.

### 6.2 Workshop responsibilities

The Workshop Chair is responsible for content management and consensus building. The Workshop Chair is supported by the Workshop Vice-Chair (if any) and the responsible Workshop secretariat, whereby the Workshop secretariat will always remain neutral regarding the content of the CWA(s). Furthermore, the Workshop secretariat shall ensure that CEN-CENELEC's rules of procedure, rules of presentation, and the principles governing the publication of CWA(s) have been observed. Should a Workshop Chair no longer be able to carry out her/his duties, the Workshop secretariat shall initiate the election of a new Workshop Chair. The list below covers the main tasks of the Workshop Chair. It is not intended to be exhaustive.



- Content related contact point for the Workshop
- Presides at Workshop meetings
- Ensures that the development of the CWA respects the principles and content of the adopted project plan
- Manages the consensus building process, assesses when the Workshop participants have reached agreement on the final CWA, on the basis of the comments received
- Ensures due information exchange with the Workshop secretariat
- Represents the Workshop and its results to exterior

The Workshop secretariat, provided by a CEN and/or CENELEC Member, is responsible for organizing and leading the kick-off meeting, in consultation with the Workshop proposer. Further Workshop meetings and/or web conferences shall be organized by the Workshop secretariat in consultation with the Workshop Chair. The list below covers the main tasks of the Workshop secretariat. It is not intended to be exhaustive.

- Administrative and organizational contact point for the Workshop
- Ensures that the development of the CWA respects the principles and content of the adopted project plan and of the requirements of the CEN-CENELEC Guide 29
- Formally registers Workshop participants and maintains record of participating organizations and individuals
- Offers infrastructure and manages documents and their distribution through an electronic platform
- Prepares agenda and distributes information on meetings and meeting minutes as well as follow-up actions of the Workshop
- Initiates and manages CWA approval process upon decision by the Workshop Chair
- Interfaces with CEN-CENELEC Management Centre (CCMC) and Workshop Chair regarding strategic directions, problems arising, and external relationships
- Advises on CEN-CENELEC rules and brings any major problems encountered (if any) in the development of the CWA to the attention of CEN-CENELEC Management Centre (CCMC)
- Administrates the connection with relevant CEN or CENELEC/TCs

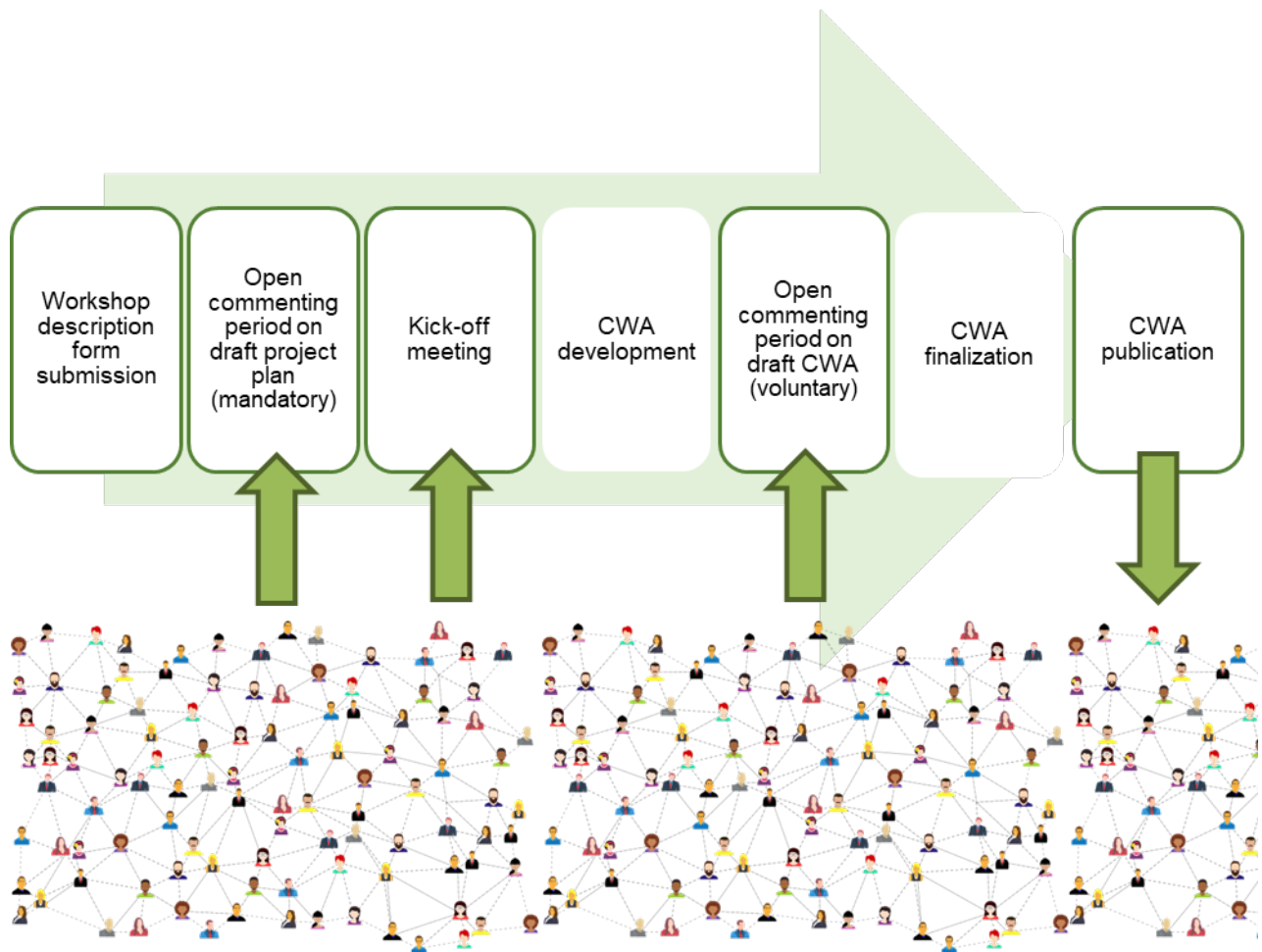
### **6.3 Decision making process**

The CEN and/or CENELEC Workshop Chair is responsible for ensuring that the development of the CWA follows the principles and content of the project plan described in this document and the requirements of CEN-CENELEC Guide 29. The CEN and/or CENELEC Workshop Chair may take decisions on the conduct of the CEN and/or CENELEC Workshop on the basis of the comments expressed by the participants and of CEN-CENELEC Guide 29.

Decisions shall be taken based on consensus of the WS participants.

## **7 Dissemination and participation strategy**

Potential participants identified in section 2.2 and potential interested stakeholders identified in Part A should be informed of the open commenting phase, if any, and of the publication of the CWA.



In addition to the CCMC website, the final CWA might be advertised on:

- sector specific newsletter
- social media, such as
  - Facebook
  - Instagram
  - LinkedIn
  - X
- Research Gate
- EC Newsroom
- Others