CEN and/or CLC Workshop 'Building information modelling – Integration of architectural design intentions for creating social values'

Workshop description form

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

PART A – Workshop SUMMARY

1	WS details		
1.1.	**Organization**	☒ CEN ☐ CENELEC ☐ Joint with ☐ CEN lead ☐ CENELEC lead	
1.2.	**Title**	CEN WS 'Building information modelling – Integration of social aspects in construction' (select CEN or CLC or leave CEN/CLC in case of joint WS)	
1.3.	**Scope**	The specification will define design intentions for creating social values ("social intentions") for digitalization and automated BIM-based analysis. This is distinct and complementary to tailored metrics and frameworks that assess specific social values (e.g. privacy, spaciousness, etc.), which are linked to BIM-based social intentions as social value-specific means of verification. The scope of this document covers both existing buildings and newly constructed buildings. The specification will describe a generic data model for representing social intentions, the social intention capture process (from elicitation to implementation), the integration of social intentions natively into BIM models and the specification of BIM-based social intention analyses and queries. The target group of this document are primarily architects, building designers, building practitioners, building managers and researchers working in the field of BIM.	
1.4.	**Does this WS stem from an EU Research project?**	☒ YES Name of the project: PROBONO - The Integrator-centric approach for realizing innovative energy efficient buildings in connected sustainable green neighbourhoods ☐ Grant number: 101037075 End date 31.12.2026 NO	
1.5.	**Financial support**	☒ EU Research project ☐ EC/EFTA Grant reference: Type here ☐ Other Specify, if needed: Type here	
1.6.	**WS Proposer/Proposed Chair** **WS proposer**	Name: Organization: Postal address: Email: Phone: Webpage: Contact person (name and email):	Carl Schultz Aarhus University Finlandsgade 22, 8200 Aarhus N, Denmark cschultz@ece.au.dk +49 157 705 61525 pure.au.dk/portal/en/persons/cschultz@ece.au.dk Carl Schultz, cschultz@ece.au.dk
1.7.	**WS Secretariat**	Organization: Postal address: Email: Phone: Webpage: WS Secretary name: Email: Phone:	Deutsches Institut für Normung e. V. Burggrafenstraße 6, 10787 Berlin, Germany Type here Type here www.din.de Dr. Madlen Schmudde madlen.schmudde@din.de +49 30 2601-2763

1.8.	**CEN and CENELEC Management Centre (CCMC) contact**	Organization: Postal address: Webpage: CCMC Project Manager name: Email: Phone:	CEN and CENELEC Rue de la Science 23B - 1040 Brussels, Belgium https://www.cencenelec.eu/Pages/default.aspx Type here Type here Type here
1.9.	**Tentative date and place of the Kick-off Meeting**	Date: Monday, 28 April 2025	Place: virtual
1.10.	**Does the proposed Workshop fall within the scope of existing CEN and/or CENELEC Technical Bodies?[1]**	☒ ☐	YES Specify: CEN/TC 442 - Building Information Modelling (BIM) NO
1.11.	**Are there other Technical Bodies or Joint Advisory and Coordination Groups potentially interested in the Workshop? ?[2]**	☒ ☐	YES Specify: CEN/TC 465 - Sustainable Cities and Communities, CEN/TC 371 - Energy performance of buildings, CEN/TC 350 - Sustainability of construction works, CEN/TC 247 - Building Automation, Controls and Building Management NO
1.12.	**Are the following aspects affected?**	Safety matters Management system aspects Conformity assessment aspects Security matters	YES[3] ☐ NO[7] ☒ YES[4] ☐ NO ☒ YES[5] ☐ NO ☒ YES[6] ☐ NO[8] ☒
		Add information/explanations if Management System aspects and Conformity Assessment aspects are affected: Type here	
2	**WS Deliverables**		
2.1.	**CWA #1**		
2.1.1	**Title**	☒ ☐	Same as WS title (1.2) Other: Type here
2.1.2	**Scope**		The specification will define design intentions for creating social values ("social intentions") for digitalization and automated BIM-based analysis. This is distinct and complementary to tailored metrics and frameworks that assess specific social values (e.g. privacy, spaciousness, etc.), which are linked to BIM-based social intentions as social value-specific means of verification. The scope of this document covers both existing buildings and newly constructed buildings. The specification will describe a generic data model for representing social intentions, the social intention capture process (from elicitation to

[1] 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).

[2] 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.

[3] Work on the proposed CEN and/or CENELEC Workshop shall not be initiated.

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

[5] CEN-CENELEC Internal Regulations - Part 3, Clause 33 applies.

[6] For projects dealing with security matters the security risk analysis provided in Annex I shall be carried out.

[7] See Note 2 in CEN-CENELEC Guide 29, Clause 3.

[8] See Note 2 in CEN-CENELEC Guide 29, Clause 3.

			implementation), the integration of social intentions natively into BIM models and the specification of BIM-based social intention analyses and queries. The target group of this document are primarily architects, building designers, building practitioners, building managers and researchers working in the field of BIM.
2.1.3	**Does the proposed CWA conflict with a published EN**	☐ ☒	YES Specify: Type here NO In case the answer is 'yes', the development of the CWA shall be stopped

PART B – Project Plan

Abstract

The purpose of the CWA is to develop and promote the explicit documentation of architectural design intentions for creating social values in buildings (which is referred to as “social intentions”) through a direct integration in Building Information Modelling (BIM) models. As-designed social values are critical to the proper functioning of buildings, and include human-centred subjective experiences of occupants such as a sense of orientation, belonging, accessibility, awareness, privacy, heritage, spaciousness, facilitating certain affordances, facilitating appropriate social interactions, and so on. However, there is no established, standardised approach for conceptualising, describing and documenting social intentions (i.e. particular design intentions made to create a social value), and they are thus routinely lost during the design process and are inaccessible to a wide range of key stakeholders. Furthermore, the purpose of the CWA is to clarify the conceptual distinction between social intentions *in general* and frameworks with metrics that are tailored to *specific* social values (e.g. frameworks for assessing and measuring the degree of privacy, wellbeing, comfort, pleasantness etc.), and how these two aspects complement each other. This includes the role of such metrics and *simulations* as means of verifying specific social values, in contrast to our focus on capturing, documenting, digitalising, and analysing social intentions at a more general level.

The CWA is needed to bring experts from a variety of areas together to establish a common conceptual framework, analysis framework, and terminology that aligns with existing standards in BIM and social values, and to control and validate the proposed standardisation as it develops. The specification will describe a generic data model for representing social intentions, the social intention capture process (from elicitation to implementation), the integration of social intentions natively into BIM models and the specification of BIM-based social intention analyses and queries. The future benefit is to promote the proper and accurate documentation of as-designed social values directly in BIM models, increasing their visibility to a wider range of stakeholders by enabling novel ways of automatically querying and analysing BIM-based as-design social values.

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 on **2025-04-28**.

2 Workshop proposer and potential Workshop participants

2.1 Workshop proposer

Person (and organization) 1:

Carl Schultz, Associate Professor, Department of Electrical and Computer Engineering, Aarhus University

Short description and interest in the subject:

For almost two decades, Carl Schultz has undertaken research on advanced tools and methods for declarative spatial reasoning in the context of Software Engineering and Knowledge Engineering, particularly Functional and Constraint Logic Programming.

A major application area for his research has been the development of decision support software tools in architectural design and construction planning that model and analyse qualitative, human-centred aspects in the context of Building Information Modelling (BIM) and open BIM standards (e.g. Industry Foundation Classes, IFC). Focus areas includes construction site safety, renovation design exploration, and enhancing occupant experience. This standard on digitalising as-designed social intentions directly builds on, and will advance, his research results in these areas.

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:

- Architecture firms that are working with BIM models, that seek to make promote and enhance the visibility and traceability of as-designed social values in delivered designs
- Practicing architects that seek new ways of documenting and communicating their design intentions about social values to clients
- Building managers as clients who would like better insight, documentation, visibility and informative analysis of social values in their buildings
- Researchers working in the field of BIM-based building informatics
- BIM standard development organisations
- Organisations involved in Construction 4.0 and the digitalization of building and construction sector
- Green building certification organisations that would like more tangible ways of assessing subjective social values (e.g. sense of heritage, presence of artwork to boost social qualities, etc.)

take part in the development of this CWA.

3 Workshop objectives and scope

3.1 Workshop background

Human-centred social values in the built environment tend to involve highly subjective terms, such as curiosity, comfort, sense of belonging etc. For example, consider the following two (real) design intentions for creating social values in a library at Aarhus University:

"The spotlight is directed at the wall above the stairwell to create a sense of curiosity, encouraging students to explore the lower levels of the library."

"The quiet reading area is positioned away from the main entrance stairway to minimise noise distractions, and oriented to face away from the main entrance stairway to minimise visual distractions."

Such social values are critical to the proper functioning of buildings.

Owing to the subjective, qualitative character of such social values, there have been myriad effective initiatives within the research community at providing workable definitions and metrics for these diverse subjective terms, e.g. “When does a person feel curious?”; “What is the definition of curiosity?”. While such frameworks are both powerful and necessary, each such framework is tailored to a *specific* social value with a specific application scope (e.g. culture, time period, geographic region, occupant profile, etc.). Thus, relying on the existence of an appropriate social value framework significantly limits the analysis and documentation that can be applied with respect to human-centred aspects of buildings.

On the other hand, at a more abstract level, one can make the following observation: architects design and arrange products in buildings, which are experienced by occupants (via sight, hearing, touch, movement, affordances etc.), with the intention of creating a particular social value (among other design goals). By documenting design intentions at this more abstract level, we make the *intended social value* readily visible to a wider range of stakeholders and enable new kinds of analyses. For example, given the digital representation of a building in the form of a *Building Information Modelling* (BIM) model, that includes as-designed social intentions, one can ask:

- What social values are intended by design, and where are occupants intended to experience them?
- Which products have been designed to create accessibility, privacy, etc.?
- If the following change is made to the design of a building, which intended social values (if any) are potentially impacted, undermined or destroyed?
- Given the following route through the building, what is the sequence of intended social values?
- What percentage of the navigable floorplan area is covered by at least one intended social value?

Such queries and analyses can be conducted even when there is no formal definition of the social value itself. Moreover, when appropriate specialised social value frameworks and simulation tools do exist (e.g. privacy metrics, spaciousness metrics, agent-based simulators for predicting the movement of wheelchair users, spatial quality indicators, etc.) then these can be seamlessly linked to, and applied, as a means of verification and more refined analysis.

In this CWA the focus is on accurately and effectively capturing an architect’s “design arguments”, i.e. the design decisions about how certain products are arranged (e.g. directing a spotlight above a stairwell), and the subsequent “logic” of occupant experience (e.g. seeing the light beam on the wall) and the intended social value (e.g. this will create curiosity). These design arguments are then “injected” into the BIM model natively, i.e. in a way that is fully compliant with existing BIM standards such as IFC.

With respect to the social value capture process, a key challenge is prescribing how to engage with architects to elicit social intentions. This needs to be based on best practices from qualitative research. Moreover, the process needs to be prescribed in a way that is general enough to be adapted to diverse building projects, while still being able to be undertaken by practitioners that do not have extensive background skills in qualitative research.

4 Workshop programme

4.1 General

The kick-off meeting is planned to take place on 28th April 2025 as a virtual meeting. A draft for public commenting will be published for 30 days.

A total of 6 Workshop meetings (kick-off meeting and Workshop meetings) and web conferences will be held, during which the content of the CWA(s) will be presented, discussed and approved.

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

Table 1: Workshop schedule (preliminary)

CEN/CENELEC Workshop	Feb 2025	Mar 2025	Apr 2025	Mai 2025	Jun 2025	Jul 2025	Aug 2025	Sep 2025	Oct 2025	Nov 2025	Dec 2025	Jan 2026
Initiation												
1. Workshop description form submission and TC response												
2. Open commenting period on draft project plan (mandatory)												
Operation												
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												
Publication												
7. CWA(s) publication												
Dissemination (see 6)												
Milestones			K	V	V		V	V			V/A	P D

Legend

K Kick-off

M Workshop meeting

V Virtual Workshop meeting

A Adoption of CWA

P Publication of CWA

D Online distribution of CWA

4.3 Work already delivered by the Workshop

Besides the set clauses of a standard, the proposed CWA will probably include the following clauses:

- Data Model of Social Intentions
  - Overview of causal model
  - Product level
  - Domain level
  - Goal level
- Social value capture process
  - Overview of process
  - Elicitation
  - Organisation
  - Formalisation
  - Implementation
- ProBIM: integrating social intentions into BIM models
  - Overview of approach (ProBIM meta-standard)
  - Structural layer
  - Spatial integration layer
  - Predicate-Function definition layer
- ProBIM Analysis
  - Defining logical faults in social intentions
  - BIM-based social value KPIs
  - BIM-based social value standard queries
- Case Studies, Examples
- Development roadmap

5 Resource planning

The Workshop will be financed within the framework of the European Union's Horizon 2020 research and innovation program funded project PROBONO, Grant Agreement No. 101037075. All costs related to the participation of interested parties in the Workshop's activities have to be borne by themselves. The PROBONO project aims to reach an agreement with CEN CENELEC Management Centre to make the CWA freely downloadable from the CEN Website. The copyright of the final CEN Workshop Agreement will be at CEN. The final document will include the following paragraph: "Results incorporated in this CEN Workshop Agreement received funding from the European Union's HORIZON 2020 research and innovation programme under grant agreement number 101037075 (PROBONO)".

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

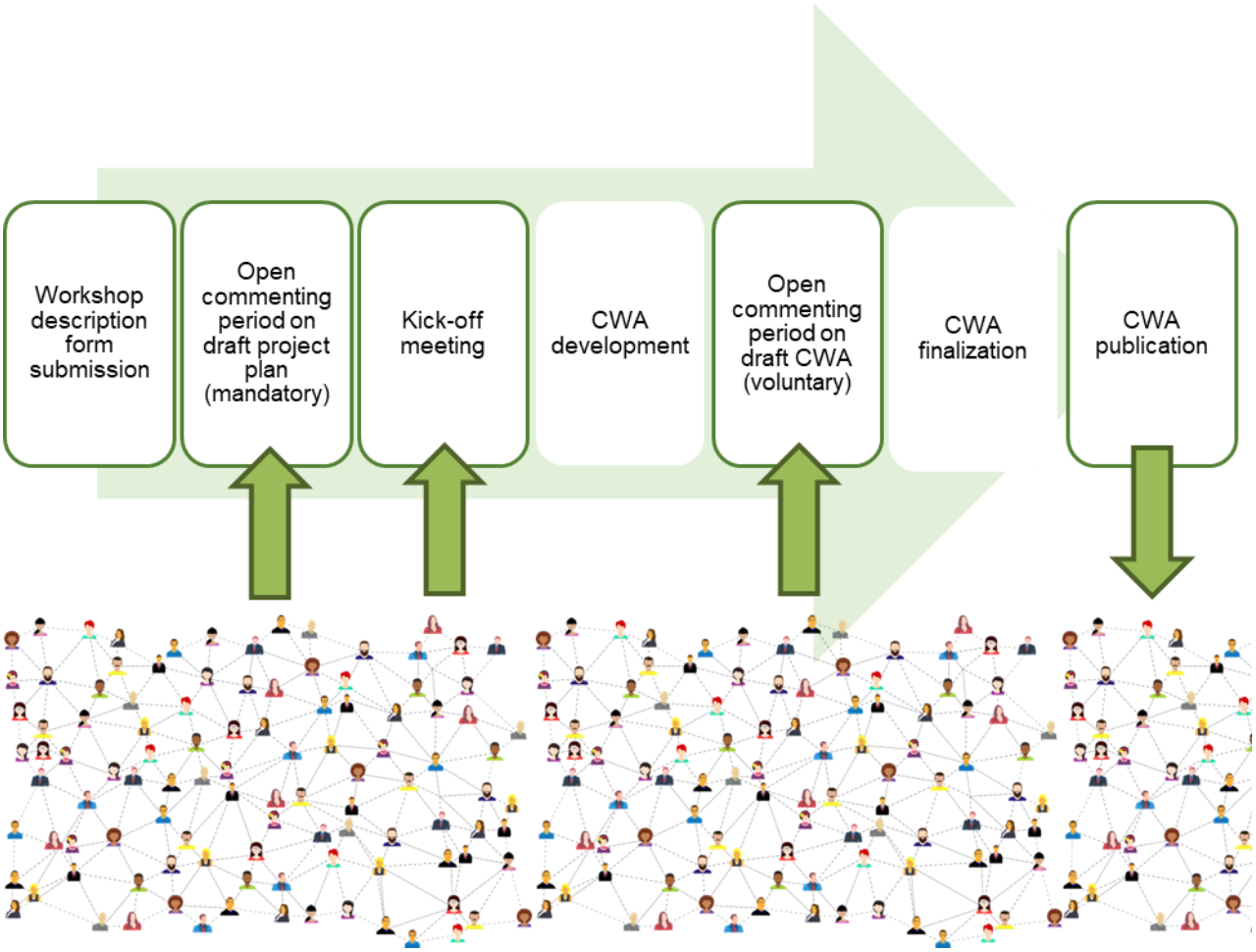
The Workshop secretariat, provided by a CEN and/or CENELEC Member, is responsible for organizing and leading the kick-off meeting, in consultation with the Workshop proposer. Further Workshop meetings and/or web conferences shall be organized by the Workshop secretariat in consultation with the Workshop 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.

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 CWA proposal, the open commenting phase, and of the publication of the CWA.

In addition to the CCMC website, the publishing of the CWA proposal, the open commenting phase and the final CWA might be advertised on:

- PROBONO newsletter
- PROBONOs social media activities
- PROBONO website
- Websites / social media activities of the participating organizations

Annex I – Security risk analysis

This annex shall be completed if section 1.12 of Part A indicates that security aspects are addressed by the Workshop.

I.I General

Security risk analysis is a process of identifying and analyzing the main negative factors that may affect a standardization project's objectives. The following is targeted at secretariats of CEN and/or CENELEC Workshop Agreements (CWA) dealing with security issues. Its purpose is to help them identify and mitigate the risks associated with their project. It is structured around two main security threats that can affect the success of the work: major diverging interests among stakeholders and sensitive information.

I.II Risk analysis on major diverging interest among stakeholders

Diverging interests among stakeholders can impede the process in reaching agreement on the CWA and even lead to failure to deliver the planned CWA. In order to identify and possibly mitigate the risks, the following questions should be reviewed:

– Is the planned CWA expected to have a major impact on the security policy/strategy of the core stakeholders?

– Does the scope of the CWA cover products or services with a clear dual-use purpose (i.e. which can be used for military purposes)?

I.III Risk analysis on sensitive information

– In light of the scope of the CWA, is it likely that it may deal with sensitive information? If so, what is the information sensitivity level?

– Is there a need for a (non-)disclosure agreement?

– Is there any conflict of interest for stakeholders involved in the CEN and/or CENELEC Workshop, regarding especially the use they may make of any information they receive during the development of the CWA?

– What steps should be taken to manage information dissemination and storage (e.g. memory stick, emailing, storage) during the development process of the CWA?