SLOVENSKI STANDARD
SIST CWA 17939:2022

01-december-2022

Kompetenčni standard kakovosti TRAIN4SUSTAIN

TRAIN4SUSTAIN Competence Quality Standard

Ta slovenski standard je istoveten z: **CWA 17939:2022**

ICS:

03.100.30	Vodenje ljudi	Management of human resources

SIST CWA 17939:2022 **en,fr,de**

CEN WORKSHOP AGREEMENT

CWA 17939

October 2022

ICS 03.100.30

English version

TRAIN4SUSTAIN Competence Quality Standard

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 and CENELEC members are the national standards bodies and national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye 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

Foreword

This CEN Workshop Agreement (CW 17939:2022)has been developed in accordance with the CENCENELEC Guide 29 “CEN/CENELEC Workshop Agreements – A rapid prototyping to standardization” and with the relevant provisions of CEN/CENELEC Internal Regulations - Part 2. It was approved by a Workshop of representatives of interested parties on 2022-09-13, the constitution of which was supported by CEN following the public call for participation made on 2021-12-14. However, this CEN Workshop Agreement does not necessarily include all relevant stakeholders.

The final text of this CEN Workshop Agreement was provided to CEN for publication on 2022-10-05.

Results incorporated in this CWA received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 894514 — TRAIN4SUSTAIN — H2020-LC-SC3-2018-2019-2020 / H2020-LC-SC3-EE-2019).

The following organizations and individuals developed and approved this CEN Workshop Agreement:

- Andrea Moro – Chairperson, iiSBE Italia R&D (Italy)
- Luís Bragança – Vice-Chairperson, University of Minho (Portugal)
- Fabio Rossi – Secretary, UNI (Italy)
- Elena Bazzan – iiSBE Italia R&D (Italy)
- Anna Bac – Wroclaw University of Science and Technology (Poland)
- Paola Borgaro – iiSBE Italia R&D (Italy)
- Sergio Bottiglioni – IIPLE (Italy)
- Claudio Capitanio – iiSBE Italia R&D (Italy)
- Mara Corbella – IIPLE (Italy)
- Licia Felicioni – Czech Technical University in Prague (Czech Republic)
- Jorge Fernandes – iiSBE Portugal (Portugal)
- Greg Foliente – University of Melbourne (Australia)
- Jacopo Gresleri – Ordine degli Architetti, Pianificatori, Paesaggisti e Conservatori di Bologna (Italia)
- Miriam Huguet Aguilera – Department of the Vice-Presidency and Digital Policies and Territory Generalitat de Catalunya (Spain)
- İlker Kahraman – Izmir University of Economics (Turkey)
- Kujawsky Woytek – Integrative Solutions Group (Canada)
- Nils Larrson – iiSBE (Canada)
- Antonín Lupišek – Czech Technical University in Prague (Czech Republic)
- Sylvain Mangili – Agence Qualité Construction (France)
- Alessandro Marata – Ordine degli Architetti, Pianificatori, Paesaggisti e Conservatori di Bologna (Italia)
- Gabriella Marranci – Ordine degli Architetti, Pianificatori, Paesaggisti e Conservatori di Bologna (Italia)
- Ricardo Mateus – iiSBE Portugal (Portugal)
- Jakub Onyszkiewicz – Wroclaw University of Science and Technology (Poland)
- Monica Pascual Fabra – Department of the Vice-Presidency and Digital Policies and Territory Generalitat de Catalunya (Spain)
- Peter Gyuris – Geonardo (Hungary)
- Ana Ruisanchez Capelástegui – Department of the Vice-Presidency and Digital Policies and Territory Generalitat de Catalunya (Spain)

- Jan Růžička – Czech Technical University in Prague (Czech Republic)
- Kajetan Sadowski – Wroclaw University of Science and Technology (Poland)
- Maryam Salati – iiSBE Portugal (Portugal)
- Adriana Salles – iiSBE Portugal (Portugal)
- Luisa Sileni – IIPLE (Italy)
- Dan Stefanica – European Heat Pump Association (Belgium)
- Elisabeth Tua Sardà – Department of the Vice-Presidency and Digital Policies and Territory Generalitat de Catalunya (Spain)
- Jakob Uli – Dr Jakob energy research (Germany)
- Unver Umit - Yalova University and Zero Build Institute (Turkey)
- Martin Volf – Czech Technical University in Prague (Czech Republic)

Attention is drawn to the possibility that some elements of this document may be subject to patent rights.

CEN-CENELEC policy on patent rights is described in CEN-CENELEC Guide 8 “Guidelines for Implementation of the Common IPR Policy on Patent”. CEN shall not be held responsible for identifying any or all such patent rights.

Although the Workshop parties have made every effort to ensure the reliability and accuracy of technical and non-technical descriptions, the Workshop is not able to guarantee, explicitly or implicitly, the correctness of this document. Anyone who applies this CEN Workshop Agreement shall be aware that neither the Workshop, nor CEN, can be held liable for damages or losses of any kind whatsoever. The use of this CEN Workshop Agreement does not relieve users of their responsibility for their own actions, and they apply this document at their own risk. The CEN Workshop Agreement should not be construed as legal advice authoritatively endorsed by CEN/CENELEC.

Contents Page

Introduction

The construction sector is one of the main drivers of EU's economy. Despite major efforts in harmonising and standardization of qualification and training procedures across the EU, the competence level of sustainability experts and the underlying training and education contents varies significantly between the Member States. The H2020 TRAIN4SUSTAIN project fostered a common understanding of sustainable competences across Europe developing a Competence Quality Standard (CQS), on which this CWA is based, in sustainable building for facilitating transnational recognition of learning outcomes and competence levels of existing qualifications and vocational trainings. The CQS is a tool to evaluate, scoring and report in a comparable and harmonised way the level of competence, skills and knowledge of white and blue collars in sustainable building. The CQS is a tool useful to stimulate demand for competent construction sector professionals through raising acceptance of sustainability qualifications on the EU construction market. To this end, comparability of qualifications and competences is key for increased transparency and penetration power in the market, avoiding confusion and uncertainty. The TRAIN4SUSTAIN CQS intends to be a tool to facilitate the request of qualified professionals and blue collars by public administrations and private clients and to valorise with a transparent common "reporting" system the competences acquired through training courses and experience on field. The TRAIN4SUSTAIN Competence Quality Standard is built on and expands the "European Qualification Scheme and professional profile description about professions related to NZEB design, maintenance and refurbishment" delivered by the Horizon 2020 project "Prof/Trac"..

1 Scope

This document is a Competence Quality Standard addressed to white and blue collars. It provides the Learning Outcomes, expressed in terms of knowledge and skills, necessary to achieve recommended competence's levels in sustainable building. It is a tool useful to assess and report, in a common transnational format (Skill Passport), the level of competence in relation to reference Work Fields. The Competence Quality Standard can also be used to map qualification schemes and training courses and to transparently report the Learning Outcomes provided to white and blue collars. The Competence Quality Standard is useful to identify competence's gaps and to support in the selection of the most appropriate training courses to fill them. It is a tool useful for public authorities and clients to express measurable competence requirements in tenders and to select the most competent professionals. The document provides guidance about how to validate and certify the assessment of competences.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO/IEC 17024:2012, *Conformity assessment – General requirements for bodies operating certification of persons*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1

Competence Quality Standard (CQS)

standard to identify and describe competencies and their level with a common procedure.

3.2

European Qualification Framework (EQF)

Common European reference framework whose purpose is to make qualifications more readable and understandable across different countries and systems.

[SOURCE: COUNCIL RECOMMENDATION of 22 May 2017 (2017/C 189/03)]

3.3

qualification

Formal outcome of an assessment and validation process which is obtained when a competent authority determines that an individual has achieved learning outcomes to given standards

3.4

competence

proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development which can be applied with a certain degree of independence and responsibility.

[EQF – Council Recommendation - 2017/C 189/03]

3.5

knowledge

the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study.

[EQF – Council Recommendation - 2017/C 189/03]

3.6

skill

the ability to apply knowledge and use know-how to complete tasks and solve problems.

[EQF – Council Recommendation - 2017/C 189/03]

3.7

learning outcomes

statements regarding what a learner knows, understands and is able to do on completion of a learning process

[EQF – Council Recommendation - 2017/C 189/03]

3.8

formal learning

intentional learning that occurs in a structured environment and is provided by an educational or training body/institution accredited by an official authority; it leads to official qualifications

3.9

informal learning

learning from daily activities related to work; it is not intentionally organised or structures and occasionally it is unintentional

3.10

non formal learning

learning embedded in educational, intentional and structured activities in any area other than a formal learning environment; it does not lead to official qualifications

3.11

validation of learning outcomes

process leading to confirmation and certification that certain learning outcomes have been acquired by an individual

3.12

blue collar

a person who performs manual labour, needing strength or physical skills.

3.13

white collar

professional with a higher education degree in the build environment. Referring to the European Qualification Scheme (EQF), the Qualifications Framework of the European Higher Education Area

(EHEA) and the European Credit Transfer and Accumulation System (ECTS), white collars have one of the following qualification/education levels:

Degree	EQF	EHEA	ECTS
(Different names used in countries)	5	Short cycle	120 credits
Bachelor	6	1st cycle	180-240 credits
Master	7	2nd cycle	90-120 credits
Doctor (PhD)	8	3rd cycle	No ECTS range given

3.14

qualification scheme

organised plan defining the necessary knowledge and skills to obtain a certain qualification

4 Structure of the Competence Quality Standard

4.1 General

The TRAIN4SUSTAIN Competence Quality Standard (CQS) is a framework of Areas of Expertise organised in a hierarchic and modular structure. Each Area of Expertise correspond to a sustainability subject. The sustainability subjects addressed in the CQS have been defined in relation to relevant European standards and frameworks of sustainability indicators, namely:

- Level(s), the common EU framework of core sustainability indicators for office and residential buildings. The Level(s) common framework is based on 6 macro-objectives, which describe what the strategic priorities should be for the contribution of buildings to EU and Member State policy objectives in areas such as energy, material use and waste, water and indoor air quality
- EN 16309 – Sustainability of Construction Works – Assessment of social performance of buildings
- EN 15978 – Sustainability of Construction Works – Assessment of environmental performance of buildings
- EN 16627 – Sustainability of Construction Works – Assessment of economic performance of buildings

The structure of the CQS framework is organised in 4 modules. Each module is articulated in 4 hierarchic levels. The 4 modules are named “Dimensions”. Three of them are “vertical” and correspond to the dimensions of sustainable development as identified in the Agenda 2030 of United Nations: Environment, Society and Economy. The fourth dimension, Process, is “horizontal” and deals with the competences necessary to design, construct and operate a sustainable building. The following table describes the scope of the 4 Dimensions.

Table 1 – Scope of the CQS Dimensions

Dimension	Scope
ENVIRONMENT	to protect the planet from degradation, including through sustainable consumption and production, sustainable managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations.
SOCIETY	to provide a healthy environment to all human beings.
ECONOMY	to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social, and technological progress occurs in harmony with nature.
PROCESS	to raise the capacity of professionals in deploying and manage effective processes during the design, construction and operation of buildings targeted to maximise the performance towards the 3 sustainable development dimensions.

Each Dimension is articulated in 4 hierarchic levels. From the higher to the lower level:

- Level 1 – Thematic Fields
- Level 2 – Macro Areas of Expertise
- Level 3 – Areas of Expertise
- Level 4 – Learning Outcomes

4.2 Level 1 – Thematic Fields

Thematic Fields represent macro sustainability subjects in relation to the 4 Dimensions of the framework. They are 18, coded with 2 letters and listed in the table below.

Table 2 – Thematic Fields

Environment	
EN	Energy
WA	Water
MA	Materials
HA	Habitat
Society	
CO	Comfort and well being
SA	Safety
AC	Accessibility
MO	Mobility
SE	Services
AD	Adaptation and resilience to climate change

Economy	
EQ	Economical Quality
Process	
BD	Sustainable Building Design
ID	Innovative digital solutions
SC	Sustainable construction
MN	Maintenance and operating
BE	Built Environment Certification systems
IS	Interdisciplinary Skills
LD	Listed Buildings

4.3 Level 2 – Macro Areas of Expertise

Macro Areas of Expertise represent a particular aspect pertaining to the Thematic Fields. They are 44, coded with 2 letters and 1 number and listed in the tables below.

Table 3 – Macro Areas of Expertise in Environment

Environment	
EN	Energy
EN1	Energy Performance Assessment
EN2	Energy Management
EN3	Energy Production and HVAC systems
EN4	Energy Reduction
WA	Water
WA1	Water efficiency
WA2	Effluents management

MA	Materials
MA1	Design for Deconstruction, reuse and recycling
MA2	Sustainable materials
MA3	Solid waste
HA	Habitat
HA1	Land Use
HA2	Biodiversity

Table 4 – Macro Areas of Expertise in Society

Society	
CO	Comfort and well being
CO1	Indoor air quality
CO2	Thermal comfort
CO3	Visual comfort
CO4	Acoustic comfort
CO5	Electromagnetic pollution
CO6	Ergonomics
SA	Safety
SA1	Fire protection
SA2	Earthquake
AC	Accessibility
AC1	Barrier free accessibility
MO	Mobility
MO1	Alternative mobility
SE	Services
SE1	Communication
SE2	Services for inhabitants
AD	Adaptation and resilience to climate change
AD1	Climate change resilient buildings

Table 5 – Macro Areas of Expertise in Economy

Economy	
EQ	Economical Quality
EQ1	Cost planning and management
EQ2	Green value
EQ3	Financing schemes and business models
EQ4	Operative costs

Table 6 – Macro Areas of Expertise in Process

Process	
BD	Sustainable Building Design
BD1	Integrative design
ID	Innovative digital solutions
ID1	Building Information Modelling
ID2	Small urban Information Modelling
ID3	GIS Systems
ID4	Lean Management
ID5	Measuring
ID6	Digital Twins Solutions
SC	Sustainable construction
SC1	Sustainable construction management
MN	Maintenance and operating
MN1	Maintenance
BE	Built Environment Certification systems
BE1	Energy Performance Certification
BE2	Building sustainability certification systems
IS	Interdisciplinary Skills
IS1	Procurement
IS2	Quality assurance
IS3	Collaboration and Communication
IS4	Information management
IS5	Safety Assurance

LD	Listed Buildings
LD1	Improving energy performance of listed buildings

4.4 Level 3 – Areas of Expertise

Areas of Expertise represent the specific subjects belonging to each Macro Area of Expertise. They are 108, coded with 2 letters and 2 numbers and listed in the tables below.

Table 7 – Macro Areas of Expertise in Environment

Environment		
EN	Energy	
EN1	Energy Performance Assessment	EN1.1 Energy Simulation
EN2	Energy Management	EN2.1 Smart grid systems EN2.2 Domotic systems EN2.3 Building Management Systems EN2.4 Renewable Energy communities
EN3	Energy Production	EN3.1 Heating and cooling systems EN3.2 Ventilation systems EN3.3 Hot water systems (DHW) EN3.4 Electric heating systems EN3.5 Heat pump system and geothermal energy systems EN3.6 Solar thermal energy systems for heating, cooling and DHW EN3.7 Solar power systems for electricity generation EN3.8 Combined Heat and Power (CHP) generation EN3.9 Mini wind power generation EN3.10 Energy storage systems
EN4	Energy Reduction	EN4.1 Thermal insulation EN4.2 Building air tightness EN4.3 Window and/or glazing systems EN4.4 Solar shading systems EN4.5 Passive systems for cooling and heating EN4.6 Energy saving strategies for lighting EN4.7 Mitigation strategies for urban thermal effects EN4.8 Building occupancy behavior
WA	Water	
WA1	Water efficiency	WA1.1 Outdoor water use management