WP2.3 and 2.4 Definition of NZEB-competencies for target groups

In WP2.3 and 2.4 of the NET-UBIEP project competencies on energy performance are mapped to the defined target groups, public administration, professionals, technicians and owners.
To do so, NET-UBIEP build upon the earlier work of the PROF/TRAC-project.
In PROF/TRAC for each NZEB technology a qualification scheme is developed, which describes needed competencies that are needed in NZEB projects. The technologies and interdisciplinary competencies are based on the outcomes of the competencies mapping, performed in WP2 of PROF/ TRAC. Also the needed competencies levels for each work field are based on the outcomes of the competencies mappings by experts. To clarify the distinction between the two projects, the Net-UBIEP modified texts are displayed in red.
The PROF/TRAC Qualification Scheme on nZEB skills constitutes a solid basis to compare the nZEB skills requested to different professions across Europe and to the same profession from one country to the other. It defines of i) harmonized work fields, ii) nZEB skills, iii) nZEB skills levels, iv) description of qualifications across Europe.
More information about the construction of this Qualifcation can be found in a public PROF/TRAC report D3.2

PROF-TRAC_D3.2 explaining the nZEB Qualification structure

Based on the minimum required competence level for a work field, the corresponding competencies can be found in the table of each technology.
In NET-UBIEP the minimum advised competencies level for each target group is given under the Tab "EU minimum competencie levels for TG" (This is D2.3).
In NET-UBIEP the minimum advised competencies level for the BIM roles are given under the Tab "EU minimum competencie levels for BP" (This is D2.4).

OVERVIEW OF PROF/TRAC QUALIFICATION SCHEME

DEFINITION OF THE COMPETENCE LEVELS	
0	Not applicable / no knowledge and competencies required
1	Has little knowledge and competencies with respect to the relevant field / technology (mostly outside the own field of expertise). Understands basic principles and is able to take part in project team discussions
2	Understands basic knowledge and has practical competencies within the field / technology, is able to solve simple problems by selecting and applying basic methods, tools, materials and information (mostly outside the own field of expertise)
3	Has comprehensive, factual and theoretical knowledge and competencies within the field / technology, is capable of solving standard problems within the field
4	Has advanced knowledge involving a critical understanding of theories and principles and competencies, required to solve complex and unpredictable problems in the field and is aware of the boundaries
5	Has specialized knowledge and problem-solving competencies, partly at the forefront of knowledge in the field, in order to develop new knowledge and procedures and to integrate knowledge from different fields

OVERVIEW OF TECHNOLOGIES AND INTERDISCIPLINARY COMPETENCIES

EM	**ENERGY MANAGEMENT**	
EM1	**Smart grid systems**	Electronic digital control of production, distribution and use of electricity; information management of the components
EM2	**Domotic systems (homes)**	Residential intelligent building installations for lighting, heating, security etc. Improving quality of life for elderly and disabled people
EM3	**Building management systems BMS (utility buildings)**	Computer-based control system of most building installations, HVAC, lighting, security, etc. Use of an open standard protocol to exchange information
EP	**ENERGY PRODUCTION (on-site and nearby renewable energy production and off-site renewable energy)**	
EP0	**Heating and Cooling GENERAL**	Overview of different types of heating and cooling generation systems
EP1	**Geothermal energy systems**	Low temperature heating and high temperature cooling, generated by use of geothermal energy
EP2	**Biomass energy production**	Energy production for heating and potable hot water making use of biomass, e.g. wood pallets
EP3	**Biogas energy production**	Energy production for heating and potable hot water making use of biogas (the biogas is generated off-site)
EP4	**District heating and cooling**	Energy for heating and potable hot water delivered by a warm water system, generated in off-site energy production
EP5	**Planning and design of heat pump installations**	Energy production for heating, cooling and potable hot water, making use of an energy source with low temperature and bringing it to a higher temperature
EP6	**Solar power systems for electricity generation**	Photovoltaic panels eventually combined with storage systems (batteries)
EP7	**Solar absorption cooling**	Vapor absorption cooling with use of solar heat by tube collectors for regeneration
EP8	**Solar thermal energy systems for domestic hot water and/or heating generation**	Solar tube collectors generating warm water, storage systems for heating or potable hot water. In addition a second heating generating system to add warmth when lack of sunshine
EP9	**Mini wind power generation**	Mini wind turbines for use on-site (on roofs etc.)
EP10	**Combined Heat and Power (CHP) generation**	Energy production by turbines that generate heat and electricity. By the low heating efficiency mostly used when there is high need of electricity.
ER	**ENERGY REDUCTION**	
ER1	**Insulation**	Thermal insulations of ground floors, walls, roofs, thermal bridges
ER2	**Air tightness building**	Air tightness of openings such as doors and windows
ER3	**Micro climates**	Green roof, cool roof, exterior landscaping/trees, earth sheltering
ER4	**Envelope systems**	Trombe wall, double envelope, facade systems, Barra system
ER5	**Hot water systems**	Heat recovery, smart distribution
ER6	**Window and/or glazing systems**	Insulation glass, Smart glass, Blinds (sun reflection), Brise soleil, daylighting systems, solartubes
ER7	**Heating and cooling emission systems**	Low temperature heating systems and high temperature cooling systems, surface heating/cooling
ER8	**Electric heating systems**	Electric heating systems such as InfraRed and electric floor/wall heating can contribute to indoor comfort and energy saving under the right conditions (low frequency use, or very high insulated buildings)
ER9	**Artificial lighting systems**	Artificial lighting systems have a high power consumption. By using HF fluorescent lighting, LED lighting, natural daylight and programmed control systems energy can be used efficiently
ER10	**Ventilation systems**	Ventilation system to guarantee good indoor air quality. The energy use of this system is very much dependent on the type of system, and the quality of engineering and construction
IS	**SUSTAINABLE INTEGRATED DESIGN**	
IS5	**Sustainable architectural design**	Being able to design (with all project partners involved) a nZEB building with comfort and sustainability as an aim; Having a good understanding on the energetic consequences of every decision made during the design process
IS6	**Integrated design**	Being able to design integrally with the other involved NZEB building disciplines
IS7	**Sustainable building materials**	Being able to asses building materials regarding their sustainability and make the right selections during the design phase
IS8	**Sustainable installation materials**	Being able to asses materials on sustainability and make the right selections in the design
IS9	**Environmental (indoor) quality**	Having a clear view on indoor environmental consequences of every choice made in the design process
IS	**INTERDISCIPLINARY competencies**	
IS1	**Communication**	Being able to listen and summarize conversations (in common language); Realizing common understanding and involving other people in the project objectives
IS2	**Information management**	Understanding technical drawings (2D/3D) and texts; Being able to interpret information (also in BIM-models); Understanding of the complete NZEB building process
IS3	**Collaboration**	Working together in cross-trade settings, with all involved NZEB building disciplines; Being able to connect the individual performance to a team performance; Raising enthusiasm for sustainable NZEB buildings
IS4	**Quality assurance**	Taking responsibility in assuring quality of its own work; Being aware of the consequences of actions on the energy performance of the NZEB building and the building process; Being able to implement and assess self-inspection methodologies; competencies on commissioning and
IS10	**Economics**	Having a clear view of issues on cost-benefit analysis, cost optimal calculation and pricing; Having financial engineering knowledge and competencies; Taking into account LCC analysis during the nZEB building process
IS11	**Procurement**	Being able to facilitate the process of nZEB tenders and (sub)contracts; Being able to set proper tender specifications to meet nZEB requirements; Being familiar with green procurement, energy performance conracting, national and international public procurement law